

Excel 2019 PivotTable Features

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Lesson Notes

Excel 2019 PivotTable Features

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Preface Using this Manual

Welcome to the *Excel 2019 Pivot Tables* course. This manual and the data files are designed to be used for learning, review and reference after the class. The data files can be downloaded any time from *The Computer Workshop* website:

http://www.tcworkshop.com

There is no login or password required to access these files. You will also find handouts and supplementary materials on the website in the Download section.

To Download Data Files

Once on *The Computer Workshop* website, locate and click the *Student Resources* link in the top navigation bar. When on the *Student Resources* page, click the **Data Files** button.

- 1. *Data Files* page displays a list of general application types.
- 2. Click once on the *Microsoft Office Courses* link.
- 3. Click once on the software related to the course.
- 4. Click once on the version related to the course.
- 5. If there are multiple folders, click on the *TCW* folder.
- 6. Click on the course name to download the data files.

You can choose to open or save the zipped folders content to your computer.

While on the *Student Resources* page, you can also access handouts by clicking the **Handouts** button. Handouts are in PDF format and also available to you without login or password. Simply open the PDF and either print or save to your computer.



O Conventions

Conventions Used in this Manual

The hands-on exercises (Actions) are written in a two-column format. The left column ("Instructions") gives numbered instructions, such as what to type, keys to press, commands to choose from menus, etc. The right column ("Results/ Comments"), contains comments describing results of, reasons for, quick keys, etc. for the instructions listed on the left.

Key names and Functions are bold and enclosed in square brackets:

[Enter], [Tab], [F5], [F10]

 Keys you press simultaneously are separated by a plus (+) sign, typed in bold and enclosed in square brackets. You do not press the plus.

[Shift + F5]

Keys you press in sequence are separated by a space, bold and enclosed in square brackets.

[Home] [Down Arrow]

- Ribbon tab names are in bold and italic: Example: *Home*
- Group names are in bold: Example: **Font**
- Dialog box names are in italic: Example: Save As
- Button names are bold and enclosed in square brackets: Example: [Sort]
- Solution Information you are to type will be in bold. Example:

This is the first day of the rest of your life.

Information that you need to supply will be indicated with pointed brackets. Example: Type: <your name>.





Lesson Notes



Lesson 1: Creating and Modifying PivotTables

Lesson Overview

You will cover the following concepts in this chapter:

- PivotTables
- Creating PivotTables
- PivotTable Elements
- ♦ Adjusting PivotTable Layouts
- Formatting PivotTables and Fields
- Sepanding & Collapsing Fields
- Refreshing PivotTables



Lesson Notes

PivotTables

A **PivotTable** is a powerful tool for exploring and analyzing information. They can help organize and manipulate the raw data in a spreadsheet, revealing patterns or relationships which may not be obvious at first glance. **PivotTables** also give you the power to view your data in a different context without changing the original content or structure of the source data.

A **PivotTable** can be based on data in your current workbook or drawn from an external data source.

With a **PivotTable**, it is easy to drag and drop fields (columns) of data into different areas of the table, exposing relationships or trends not readily obvious in traditional *Excel* tables or databases.

In short, **PivotTables** allow you to organize data in meaningful ways without doing a lot of tedious work. You could say that a **PivotTable** is like several data tables rolled into one.

Below is a sample of a typical **PivotTable**.

4	А	В	с	D	E	F	*
1							PivotTable Fields 🔹 🗙
2							
3	Company Name	(All) 👻					Choose fields to add to report:
4							Search
5	Sum of Extended Price						poster 2
6	Salesperson 🗸	Country 🗷	Product Name	 Total 			Company Name
7	andrew Fuller	Belgium		2866.5			Country T
8				10339.2			✓ Salesperson
9		Benmark		2395.2			Order ID
10		Sweden		8489.2			Order Date
11	Andrew Fuller Total			24090.1			Required Date
12	BAnne Dodsworth	Belgium		3271.5			Shipped Date
13				1928			✓ Product Name
14		Sweden		5464.5			Unit Price
15	Anne Dodsworth Total			10664			Quantity
16	Janet Leverling	Belgium		295.38			Extended Price
17				10087.25			More Tables
18		Benmark		1704			
19		Sweden		11822.65			
20	Janet Leverling Total			23909.28			
21	Laura Callahan			12123.85			Drag fields between areas below:
22				1830.6			T Chan III Column
23		Sweden		10126.55			T Filters III Columns
24	Laura Callahan Total			24081			Company Na *
25	Margaret Peacock	■Belgium		14425.8			
26				18818.38			
27		Benmark		18696.95			

Guidelines for Data in a PivotTable

- The data should be in a tabular format.
- The source data should have a row of unique column headings.
- There should be no gaps in the data, no blank columns or rows. *Excel* treats groups of data as a database. Gaps indicate a break in the data and are considered the end of the data.

Oreating PivotTables

Note

Creating a PivotTable

- Click into the range of data the **PivotTable** will be based on.
- Select the *Insert Tab*, in the **Tables Group** click the [PivotTable] button.



The *Create PivotTable* dialog opens.

Create PivotTable	? 💌									
Choose the data that you want to analyze										
<u>S</u> elect a table or range										
Table/Range: Invoices!SAS1:SKS2156										
Use an external da	ta source									
Choose Conr	ection									
Connection na	me:									
O Use this workbook	's Data Model									
Choose where you wan	t the PivotTable report to be placed									
New Worksheet										
Existing Workshee	t									
Location:	<u>1</u>									
Choose whether you wa	ant to analyze multiple tables									
🔲 Add this data to th	e Data <u>M</u> odel									
	OK Cancel									

- Within the Choose the data that you want to analyze group are three choices:
 - Select a table or range: allowing data from the current workbook to be used as the data source. By setting the cell range in the Select range: field.
 This field should automatically select all connected cells based on the active cell.

-If the range that appears is incorrect, you may type it in or select it with your mouse. Make sure that the column headings are included in the selection.



Lesson 1: Creating and Modifying PivotTables

Creating PivotTables, continued





Use an external data source: allows the PivotTable to be based on data outside of the current workbook (such as in another workbook or an external database).

-Clicking the **[Choose Connection]** button opens the *Existing Connections* dialog, which displays a list of existing connections.



-Typical existing connections may included *Microsoft Queries* or previously connections to Access databases.

- Clicking the **[Browse for More]** button allows new connections to be made.

Use this workbook's Data Model: can be used when tables of data are related to each other. These tables can be data converted into a table or imported tables.

Once the source of data has been selected and defined, you can set where the **PivotTable** will be placed in the workbook.

- Select whether to locate your **PivotTable** in an *Existing Worksheet* or a *New Worksheet*.
 - If you choose the *New Worksheet* option, a new worksheet is added to the workbook with the **PivotTable** located in cell **A1**.
 - If you choose *Existing Worksheet*, you can specify the cell location and on which worksheet the **PivotTable** will be added. Enter the cell address directly into the **Location**: field, as a cell reference, or by clicking the target cell with your mouse.
- Click the **[OK]** button to create your **PivotTable**.

Creating PivotTables, continued



Using Recommended PivotTables

- Select any cell within the data range the **PivotTable** is to be based on.
- Select the *Insert Tab*, in the **Tables Group** and click the [Recommended PivotTable] button.



♦ The *Recommended PivotTables* dialog opens.

ecommended i	rivotrables				- E 🖻
Sum of Unit I	Price by Co	<u> </u>	Sum of Unit Price	e by Country	
Row Labels × S	um of Unit Price		Row Labels	Sum of Unit Price	
Germany	8544.84		Row Labers	Sum of office fice	
Mexico	1818.98		Germany	8544.84	
Sweden	2405.49			1010.00	
USA	10462.91	=	Mexico	1616.96	
Brazil	5324.64		LIK.	3116.87	
France	4839.46		U.V.	5110.01	
Span	1297.27		Sweden	2486.49	
Sum of Exten	ded Price b	2	USA	10462.91	
Row Labels V Sun	of Extended Price	_	Brazil	5324.64	
Germany	244047.03		-	1000.10	
Mexico	24073.45		France	4839.46	
UK	60616.51		Spain	1297 27	
LISA	253555.98		Opani	1231.21	
Brazil	114968.48		Canada	1907.5	
France	86333.76			1000 0	
Spain	19431.89		Argentina	1080.8	
Consta	4 10133		Switzorland	1331.69	
Sum of Exter	ided Price,		Owitzenanu	1331.03	
Row Labels Y Sum o	Extended Price Sum of		Austria	3469.95	
Nancy Davolio	202143.71		Italy	1112.05	
Janet Leverling	212457.7		icuty	1112.05	
Michael Suyama	78198.1		Portugal	740.89	
Margaret Peacock	250187.45			0404.04	
Anne Dodsworth	82964		Venezuela	2434.91	
Laura Callehan	133301.03		Ireland	1719.86	
Steven Buchanan	75567.75		ireland	1115.00	
Andrew Euller	477745 16		Belgium	1341.98	
Sum of Order	ID by Coun		Denmark	1212.24	
Row Labels *	Sum of Order ID			633.69	
* Germany	3487000	Ŧ	ivorway	633.69	
Plank DivetTals	La Change So	urce	Data	OK	Cancel

- *Excel* offers a series of possibilities based on the data.
 - Scroll through the list of options on the left, when you select one on the left, a large copy is previewed on the right.
- When one fitting your needs is actively selected, click the [OK] button.
 - A new worksheet is added with the **PivotTable** in place.
- If none of the recommendations are suitable, click the [Blank PivotTable] button to start from scratch.
 - A new worksheet is added with a blank **PivotTable** in place.

Creating PivotTables, continued



Using the Quick Analysis Tag

When the data is selected, a smart tag is displayed in the lower right corner of the selection. This smart tag offers quick access to Formatting, Charting, Sparkline, Totaling, and Table options.

- Select all the data needed in the **PivotTable**.
- Look to the lower right corner of the selection to find the Quick Analysis tag.



- Click the tag to view the available options.
- Click the *Tables* option, hover over the *PivotTable* ? options to see recommendations.

David a bala 🗖 (Sum of Units Dates	10	\$60.00
Kow Labels 💌 S	Sum of Unit Price	7	\$64.40
Germany	8544.84	10	\$348.00
Mexico	1818.98	3	\$69.75
UK	3116.87	5	\$70.00
Sweden	2486.49	10	\$340.00
USA	10462.91	1	\$28.80
Brazil	5324.64	5	\$60.00
	1020.40	10	\$320.00
France	4639.46	20	\$380.00
Spain	1297.27	20	\$280.00
Canada	1907.5	15	\$690.00
Argentina	1080.8	10	\$191.25
Switzerland	1331.69	10	\$184.00
Austria	3469.95	5	\$97.50
talv	1112.05	15	\$825.00
	710.00	18	\$702.00
	\$14.00	40	\$560.00
ormatting <u>C</u> hi IIII Table PivotTa	arts T <u>o</u> tals Tab	bles	Table More
ables help you sort,	filter, and summarize d \$18.00 \$14.00	lata. 4 15	\$72.06

- Clicking the one which best fits your needs will insert a **PivotTable** into a new worksheet.
- If none seem appropriate then choose the More ? option to open the Recommended PivotTable dialog.

PivotTable Elements

Adding Fields

After creating a blank **PivotTable** the **PivotTable** is located in the worksheet on the left (or where defined) and the *PivotTable Fields* pane on the right.

In the *PivotTables Fields* pane is the list of all available fields from the data (column headers). If the data source is a Data Model, then the list will display all related tables which are expandable to show all the fields in the tables.



PivotTable Fields Pane

In the top half of the pane, all the available fields from the data source or sources are displayed. In the lower half of the pane are four areas. Fields are added to these areas by dragging from above and dropping into the appropriate area.



Note When using a Recommended PivotTable, the fields are already in place upon creation. It is still possible to edit and rearrange the fields are needed.

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PivotTable Elements, continued

PivotTable Tools Tabs

When working in a **PivotTable**, *Excel* automatically displays the *PivotTable Tools Tabs- Analyze* and *Design*.

Analyze Tab

🖬 🕤 -				test.xls										- 6	
File Ho	ome Insert	Page Layout	Formula	is Data	Review		Help	Power Pivot	Analyz	e Design	Qт	ell me what you want to do			🖒 Share
PivotTable Nam	ne: Active Field:	J	A =	→ Group Se	lection	🐺 Insert Slic	:er		real l	🔯 Clear 🗉		📆 Fields, Items, & Sets -		📱 Field List	
PivotTable4		D.38		현田 Ungroup		🖳 Insert Tin	neline		⊔∎ ≇	E Select -		The OLAP Tools -		+/- Buttor	ns
Options -	Field Set	tings Down	Up *	7 Group Fie	ld	Filter Cor	nections	* So	urce -	🗔 Move Pivo	tTable	□ C Relationships	PivotChart Recommended PivotTables	Field Head	ders
PivotTable		Active Field		Group	,	Filte	r	Data		Actions		Calculations	Tools	Show	~

The *Analyze Tab* offers controls for active fields, filtering, grouping, refreshing or changing data, performing calculations, showing or hiding elements, and PivotTable options.

Design Tab



The *Design Tab* offers controls for basic layout and formatting of the PivotTable.



I	nstructions:	Results/ Comments:
1.	Open the workbook named Shipping. xlsx from the lessons folder.	Notice the first row are the column headings, with one heading for each column. (The data set does not contain any empty cells.)
2.	Save the file as MyShipping.xlsx .	Use the <i>File Tab</i> then <i>Save As</i> or the [F12] key.
3.	Click anywhere in the data on the Invoices sheet.	
4.	Select the <i>Insert Tab</i> and click the [PivotTable] button.	The <i>Create PivotTable</i> dialog is displayed. Notice when viewing the <i>Insert Tab</i> you are able to access the [Recommended PivotTables] button from within this group.
5.	Verify that the <i>Select a table or range</i> option is chosen and the correct range is entered in the Table/Range field.	The Table/Range: field should read Invoices!\$A\$1:\$K\$2156.
6.	Make sure that the New Worksheet option button is selected.	
7.	Click the [OK] button to create the PivotTable .	A new sheet is added to the workbook with a blank PivotTable. You will see a PivotTable Area and a Field List appear in a new worksheet. Notice the column headings (fields) available in the <i>PivotTable</i> <i>Field List</i> which can now be added to the table.
8.	Save the file and leave it open.	[Ctrl S].

Instructions:



Results/ Comments:

1. **MyShipping.xlsx** should still be open. If not, re-open it. 2. Switch back the *Invoices* sheet. Click the *Invoice* sheet tab or use the **[Ctrl** Page-Down] keys. 3. Select any cell with a value and use the All the data is highlighted and the *Quick* [Ctrl A] keyboard shortcut to select all Analysis Tag is displayed in the lower right corner of the selection. connected data. 4. Click the *Quick Analysis Tag.* The list of Quick Analysis options are displayed. 5. Click the *Tables* heading and hover over The Table and PivotTable options are the Recommended PivotTables icons. displayed. As you hover over the icons an example is shown of that option. A new sheet is added to the workbook 6. Choose the fourth option. with a populated PivotTable. [Ctrl S]. 7. Save the file and leave it open.



Instructions:

- 1. **MyShipping.xlsx** should still be open.
- 2. Switch back the *Sheet1* sheet.
- 3. Click into any cell in the PivotTable placeholder on the spreadsheet.
- 4. Drag the **Country** field from the field list to the **Filters** area of the *PivotTable Fields* pane.
- 5. Drag the **Company Name** field from the field list to the **Rows** area of the *PivotTable Fields* pane.
- 6. Drag the **Product Name** field from the field list to the **Columns** area of the *PivotTable Fields* pane.
- 7. Drag the **Sale** field from the field list to the **Values** area of the *PivotTable Fields* panes:
- 8. Drag the **Company Name** field out of the **Rows** area of the *PivotTable Field* pane.
- 9. Drag the **Salesperson** field from the field list to the **Rows** area of the *PivotTable Fields* pane.
- 10. Save the file and leave it open.

Results/ Comments:

If not, re-open it.

Click the *Sheet1* sheet tab or use the **[Ctrl Page-Down]** keys.

All PivotTable tools are displayed: *PivotTable Tabs* and *PivotTable Filed* pane.

A Country drop-down is added in cell **A1**.

The list of Clients are added beginning in cell **A4**. A Row Labels header with a drop-down is added in the cell **A3**.

The list of Products is added, one product name per column beginning in cell **B4**. The Column Labels header with a drop-down is added in cell **B3**. The Row Label header is moved down to cell **A4**.

The value of each product purchased by each client is displayed on the Pivot Table.

The list of clients are removed from the PivotTable, all the other data remains in place. You now know how much was earned in sales of each product.

The value of each product sold by each salesperson is now displayed on the Pivot Table.

[Ctrl S].

Adjusting PivotTable Layouts





Using the PivotTable Options Dialog

In this dialog you are able to set general options in one place. Users can still modify these choices one by one from the **PivotTable** tabs.

- Click on any cell in the **PivotTable** to display the *Analyze Tab* in the **Ribbon**.
- On the left side of the *Analyze Tab*, in the **PivotTable** group, click the **[Options]** button to display the *PivotTable Options* dialog.

ayout & Format Totals	& Filters Display	Printing	Data /	Alt Text
ayout				
Merge and center ce	lls with labels			
When in <u>c</u> ompact form i	ndent row labels:	🚖 chara	cter(s)	
Display fields in report f	ilter area: Down. The	n Over 💌		
Report filter fields per c	olumn: 0 🚔			
ormat				
For error values show	V:			
For empty cells show	:			
Autofit column widtl	is on update			
Preserve cell formatti	ng on update			

- On the *Layout and Format* tab, make sure the Preserve cell formatting on update box is checked. This will ensure that any formatting you apply will be retained if the table is modified or refreshed.
- On the *Totals and Filters* tab, specify if grand totals for rows or columns will be shown.
- On the *Display* tab, select whether filter drop-downs, field captions, expand/collapse buttons, and contextual tool tips will be shown.
- On the *Printing* tab: determine what optional elements should print.
- On the *Data* tab, specify **PivotTable Data** options, such as having the table refreshed when the workbook opens.
- Click [OK] when you are finished with the *PivotTable* Options dialog.

Adiustina	Using the Desig	n Tab	
PivotTable	 On the lef Layout G 	t side of the <i>PivotT</i> roup.	Table Design Tab is the
continued	S	ubtotals Grand Totals + Layout	t Blank Rows *
	The [Subt off the sub can be shown	totals] drop-down a ptotal information. own at either the to	allows you to turn on or When they are on, they p or bottom of each grou
	The [Gra r	nd Totals] drop-dov	wn allows you to turn o
	or off grai	nd totals, for both re	ows and /or columns.
	or off gran The [Repo between t views. W to repeat a	nd totals, for both re ort Layout] drop-do hree layouts: Comp hen in Outline or T all item labels or no	ows and /or columns. own allows you to chang pact, Outline, or Tabular abular views, you are al t.
3 Salesperson 4 ⊡ Nancy Davolio	or off gran The [Repo between t views. W to repeat a Product Name	nd totals, for both re ort Layout] drop-do hree layouts: Comp hen in Outline or T all item labels or no [•] 3 Salesperson ⁴ Nancy Davolio	ows and /or columns. own allows you to chang oact, Outline, or Tabular abular views, you are al t.
3 Salesperson 4 ■ Nancy Davolio 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	or off gran S The [Repo between t views. W to repeat a Product Name Alice Mutton Aniseed Syrup Boston Crab Meat Camembert Pierrot Carnarvon Tigers Chai Chang Chartreuse verte Chef Anton's Cajun Seasoning Chef Anton's Gumbo Mix Chocolade Côte de Blaye Escargots de Bourgogne Filo Mix Filotemysost Geitost Genen Shouyu Concechi di proma Alice Carnove Mean Charcolade Côte de Blaye Escargots de Bourgogne Filo Mix Filotemysost Geitost Genen Shouyu Chocolade Charcolade Charcolade Côte de Blaye Escargots de Bourgogne Filo Mix Filotemysost Genen Shouyu Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade Charcolade	nd totals, for both re ort Layout] drop-do hree layouts: Comp hen in Outline or Tr all item labels or no [•] 3 Salesperson [•] [•] [•] [•] Nancy Davolio ⁵ Nancy Davolio ⁶ Nancy Davolio ⁶ Nancy Davolio ⁷ Nancy Davolio ⁸ Nancy Davolio ⁹ Nancy Davolio ¹⁰ Nancy Davolio ¹¹ Nancy Davolio ¹² Nancy Davolio ¹³ Nancy Davolio ¹⁴ Nancy Davolio ¹⁵ Nancy Davolio ¹⁶ Nancy Davolio ¹⁶ Nancy Davolio ¹⁷ Nancy Davolio ¹⁶ Nancy Davolio ¹⁷ Nancy Davolio ¹⁸ Nancy Davolio ¹⁸ Nancy Davolio ¹⁹ Nancy Davolio ¹⁹ Nancy Davolio ¹⁹ Nancy Davolio ¹⁹ Nancy Davolio ²⁰ Nancy Davolio ²⁰ Nancy Davolio	ows and /or columns. own allows you to chang pact, Outline, or Tabular abular views, you are ab t.

The **[Blank Rows]** drop-down allows you to add or remove blank rows after grouped items. V

Adjusting PivotTable Layouts,

continued

Setting the Default Layout.

Excel now offers the ability of modify the default layout of **PivotTables**. As new **PivotTables** are created, they will already have basic layout choices in place.

- Click the *File Tab* to access the *Backstage*.
- Select *Options* from the list of categories on the left of the *Backstage*.

- OR -

- Solution Use the sequential keyboard shortcut, Alt F T.
- ♦ In the *Options*, select the *Data* category.
- Click the [Edit Default Layout] button.



The dialog offers controls for Subtotals, Grand Totals, Report Layouts, and Blank Rows. (Similar to using the *Design Tab* tools)

Edit Default Layout		? 🗙
<u>L</u> ayout Import		
A4	Ţ	Import
Subtotals		
Show all Subtotals at Top of Group	-	Include <u>Filtered Items in Totals</u>
<u>G</u> rand Totals		
On for Rows and Columns	-	
<u>R</u> eport Layout		
Show in Compact Form	-	Repeat All Item Labels
Blank Rows		
Insert Blank Line after Each Item		PivotTable Options
Reset to Excel Default		OK Cancel

Use the [Import] button to save changes made in a current or an existing PivotTable as the new default.



Ir	structions:	Results/ Comments:
1.	MyShipping.xlsx should still be open.	If not, re-open it.
2.	Activate <i>Sheet1</i> and select any cell in the PivotTable , scroll all the way over to the right side and select cell BZ5 .	
3.	Activate the <i>Analyze Tab</i> .	
4.	In the PivotTable Group , click the [Options] button.	The <i>PivotTable Options</i> dialog open.
5.	On the <i>Layout & Format</i> tab, check the <i>Preserve cell formatting on update</i> checkbox is checked.	Examine the available options.
6.	On the <i>Totals & Filters</i> tab, uncheck the <i>Show grand totals for rows</i> checkbox.	The Grand Totals will be removed.
7.	Examine the options on each of the other tabs.	
8.	On the <i>Alt Text</i> tab click into the Title: field and type: Sales Data PivotTable click into the Description: field and enter a description of the table.	<i>Alt Text</i> is text read aloud by screen reading software for the visually impaired community, this helps in making documents accessible.
9.	Click the [OK] button.	The <i>PivotTable Options</i> dialog closes and the data in column CA , the Grand Totals is removed.
10	. Activate the <i>Design Tab</i> .	
11.	In the Layout Group , click the [Grand Totals] button drop-down and choose <i>On for Rows and Columns</i> .	The Grand Total in column CA is added back to the PivotTable.
12	. Drag the Company Name field into the <i>Rows</i> area below the Salesperson .	The companies each salesperson works with are displayed below the salesperson's name.



Instructions:

13. Select cell A5.

- 14. In the **Layout Group**, click the **[Report Layout]** button drop-down and try each of the layouts.
- 15. Choose *Show in Tabular Form* from the **[Report Layout]** button drop-down.
- 16. Then choose *Do Not The Repeat Item Labels* from the **[Report Layout]** button drop-down.
- 17. Save the file and leave it open.
- 18. Click the *File Tab* and select *Options* from the list of categories.
- 19. Select the *Data* category and click the **[Edit Layout]** button.
- 20. Examine the options available in this dialog.
- 21. Click the **[PivotTable Options...]** button.
- 22. Examine and close the dialog.
- 23. Click into the **Layout Import** field and select a cell in the PivotTable then click the **[Import]** button.
- 24. Click the **[OK]** button.
- 25. Click the **[OK]** button.
- 26. Save the file and leave it open.

Results/ Comments:

To see the row and columns labels.

The data structure changes for each. When *Repeat All Item Labels* is active in the outline or tabular views, the salesperson's name fills all empty cells.

The **PivotTable** changes to the Tabular layout.

[Ctrl S].

The Excel Options dialog opens.

The Edit Default Layout dialog opens.

The dialog offers the same controls found in the **Layout Group** on the *Design Tab*.

The *PivotTable Options* dialog opens.

It is the same dialog accessed earlier.

By entering any cell address from the current **PivotTable**, you are defining the layout to by imported. Clicking the **[Import]** button sets the layout *Excel* uses when creating PivotTables in the future.

The dialog closes.

The *Excel Options* dialog closes.

[Ctrl S].

Formatting PivotTables and Fields

Using the Design Tab

On the *Design Tab*, you can select one of the preset styles from the **PivotTable Styles Gallery**, quickly applying a preset format to the table.

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-	-	 -	-	-		-	-	-	-	 _			 —	-	_		 	-	-	_	-	-	-	-	_	-	-	-	-	-		-	-	-	-	-	
-	1-	 -	—	-		-	-	-	-	 -			 -	-	-	1 -	 	_	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	14
-	1-	 -	-	-		_	_	_	-	 _	. –	-	 _	_	-	. –	 _	_	_	_	_	_	_	_	_	_	_	_	_	_		_	_	_	_	_	
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Pivot ¹	[abl	e S	tvl	es
111000	abi	~ ~		

There are also checkboxes in the PivotTable Style Options group of the ribbon that will let you turn on or off banded columns or rows, row headers, or column headers.

✓ Row Headers	Banded Rows
✓ Column Headers	Banded Columns
PivotTable S	ityle Options

On the left side of the ribbon, there are controls used to view or hide subtotals and grand totals as well as to specify a **PivotTable Report Layout**.

General Formatting Options

To format text or cells in a given cell or cell range use the formatting tools found on the *Home Tab* or right-click in the selected cell or range and use the Mini Toolbar or choose *Format Cells...* from the menu



In the *Format Cells* dialog you can access and set number formats, alignment choices, font styles, borders, fills and protection options.



Formatting **PivotTables and** Fields. continued

Value Filed Settings

As values are added to the **PivotTable**, you may want to change how those values are summarized or formatted. This is done from within the Value Field Setting dialog. This dialog is accessed in one of three ways: from the ribbon, from within the **PivotTable** Field pane, or right-clicking.

Opening the Value Field Settings Dialog

٢ Select a cell containing a value. On the *Analyze Tab* in the Active Field Group, click the [Field Settings] button.

- OR -

Click drop-down arrow on of the field in the Values field in the **PivotTables Fields** Pane and choose Value *Field Settings...* from the menu.

- OR -

- Right-click any cell with a value and choose Value Field *Settings...* from the menu.
- Value Field Settings Source Name: Sale Custom Name: Sum of Sal Summarize Values By Show Values As Summarize value field by Choose the type of calculation that you want to use to summarize data from the selected field . Sum Count Average Max Min Product OK Cancel Number Format

Value Field Settings

Source Name: Sale Custom Name: Sum of Sale

Show values as

No Calculation

der ID der Date

Number Format

ase field:

Summarize Values By Show Values As

۲ Summarize Values By tab: allows you to change how the data is summarized.

Show Values As tab: allows the ٢ data to be displayed as percentages of totals, running totals, or differences. When using the percentage options, formatting is automatically applied.

Use the [Number Format] button to open the Format Cells dialog. Applying formatting in this manner will apply it to the entire field and not just an individual cell.

The Value Field Settings dialog opens.

? ×

•

OK Cancel



Page 19

Formatting Formatting PivotTables and Fields, continued

Showing More Than One Value Calculation

If you want to show both the sum and the average of the values in the **PivotTable** at the same time, do the following:

- Add a second instance of the field containing your values to the *Values* area of the **PivotTable**.
- Open the *Value Field Settings* using any of the methods mentioned earlier.
- From the Value Field Settings dialog, choose the Average function.
- Click [OK].

Now you have the values both being summed and averaged simultaneously. This can be revised in the *Value Field Settings* dialog to any function or combination of functions needed.



Instructions:			Results/ Comments:			
1.	MyPivotTable.xlsx should still be open.		If not, re-open it.			
2.	Activate <i>Sheet1</i> , if necessary.					
3.	Right-click any cell with a value and choose <i>Value Field Settings</i> from the menu.		The Value Field Settings dialog opens.			
4.	In the Custom Name: field enter Sales .		This will now be name for this instance of the data.			
5.	Click on the [Number Format] button, in the bottom left corner of the dialog.		The Format Cells dialog opens.			
6.	Choose the <i>Accounting</i> format option from the list on the left and click the [OK] button in each dialog.		The column label in cell A3 is renamed and the values are formatted.			
7.	Drag another two instances of the Sale field into the <i>Values</i> area of the <i>PivotTable Fields</i> pane.		The column label in A3 is moved to C5 and two new columns titled <i>Sum Of Sales#</i> are added to the PivotTable .			
8.	Right-click any cell in the second column of values and choose <i>Value Field Settings</i> from the menu.		The Value Field Settings dialog opens.			
9.	Choose <i>Average</i> from the Summarize value field by: formula list.		Choose the function before changing the name.			
10	. In the Custom Name: field enter Average Sale .		This will now be name for this instance of the data.			
11	. Click on the [Number Format] button, in the bottom left corner of the dialog.		The Format Cells dialog opens.			
12	. Choose the <i>Accounting</i> format option from the list on the left and click the [OK] button in each dialog.		The column label in cell D5 is renamed and the values are formatted.			
13	. Right-click any cell in the third value column and choose <i>Value Field Settings</i> from the menu.		The Value Field Settings dialog opens.			



Instructions:	Results/ Comments:			
14. Activate the <i>Show Values As</i> tab in the <i>Value Field Setting</i> dialog.				
15. Choose % <i>of Grand Total</i> from the drop- down list for Show values as: field.				
16. In the Custom Name: field enter Percent of Sales .	To name the field header.			
17. Click [OK] .	The third column of value now shows how much each sale represents from the overall total.			
18. In the <i>PivotTable Fields</i> pane, drag the Products field from the Columns area below the Salesperson field in the Rows area.	The structure of the PivotTables is rearranged, revealing a much more detailed view and greater understanding of the existing data.			
19. Save your file.	[Ctrl+S].			

Expanding & Collapsing Fields

As more data is added into a **PivotTable** it may become necessary to collapse fields to make the big picture is easier to see and understand. When a more granular view of all or a small subset of data is needed, it is possible to expand the entire field or any given collapsed set. As fields are added into the same **PivotTable** area, data is nested in the field above. Expand and Collapse buttons are displayed next to each field entry;





A Minus when expanded.

It is also possible to access the **Collapse** and **Expand** commands in the **Active Field Group** on the *Analyze Tab*. These buttons will expand or collapse the entire field at once.



Right-clicking on the field in the **PivotTable**, you are able to access the Expand/Collapse submenu. From this menu you can expand or collapse a subset of data or the entire field. Choosing Expand, Collapse, Expand "Field name", or Collapse "Field name" will expand or collapse the selected subset of data only.

Nancy Davolio					\$	8.732.44		
Ali 🖻	<u>C</u> opy				\$	78.00		
An 📰	<u>F</u> ormat Cells				\$	28.00		
Bc 🕞	Refresh				\$	80.90		
Ca 🔽					\$	353.60		
Ca	<u>2</u> ort				\$	225.00		
Cł	Fil <u>t</u> er	×.			\$	32.40		
Cł 🗸	Su <u>b</u> total "Salesperson"				\$	140.60		
Cł	Expand/Collapse	►	+3	E <u>x</u> pa	nd			
	<u>G</u> roup		-3	Collapse Expand Entire Field				
Cł 🗐	<u>U</u> ngroup		+3					
Cć	Move	F		<u>C</u> ollapse Entire Field				
EsX	Remo <u>v</u> e "Salesperson"			Colla	apse to "Salesperson"			
	Field Setti <u>ng</u> s			Expand to "Product Name"				
Ge	PivotTable <u>O</u> ptions				\$	9.50		
Ge 📃	Hide Fiel <u>d</u> List				\$	15.50		



Instructions:			Results/ Comments:			
1.	MyPivotTable.xlsx should still be open.		If not, re-open it.			
2.	Activate <i>Sheet1,</i> if necessary.					
3.	Select cell A4.					
4.	Click the [Minus] button in the cell.		The details of that salesperson are collapsed out of view.			
5.	Activate the <i>Analyze Tab</i> .					
6.	Click the [Collapse Field] button in the Active Field Group .		All the details are collapsed at once.			
7.	Click the [Expand Field] button in the Active Field Group .		All the details are expanded at once.			
8.	Right-click cell A4 , scroll down to the <i>Expand/Collapse</i> .		A fly-out menu is displayed showing options for expanding/collapsing this record or field.			
9.	Choose <i>Collapse Entire Field</i> from the fly- out menu.		All the details are collapsed at once.			
10	. Click the [Plus] button in cell A6 .		The salesperson's record is expanded to show it's details.			
11	. Right-click cell A4 , scroll down to the <i>Expand/Collapse</i> .					
12	Choose <i>Expand Entire Field</i> from the fly- out menu.		All the details are re-displayed.			
13	. Save the File.		[Ctrl+S].			

Refreshing PivotTables



The data in a **PivotTable** is not linked directly to the source table or range. Instead, **PivotTables** are based on a hidden copy of the source data that is kept in memory by *Excel*. This is called the **PivotTable Cache**. Meaning, changes to the original source or database will not be automatically updated in the **PivotTable**. If you make changes in the source data, you must **Refresh** the **PivotTable** to update it.

Refreshing a PivotTable

- Select any cell within the PivotTable.
- Activate the *Data Tab*, then click the [Refresh All] button in the Queries & Connections Group.



-OR -

Activate the *PivotTable Analyze Tab*, then click the [Refresh] button in the Data Group.



Right-click a cell in the **PivotTable**, then choose *Refresh* from the menu.

Redefining the PivotTable Data Range

As new records are added to the data set the **PivotTable**, simply refreshing the data will only pull data from the same range of cells to update the **PivotTable**. As the data set increases in size, it will become necessary to redefine the cell range being used by the **PivotTable**.

Refreshing PivotTables, continued

Activate the *Analyze Tab*, in the **Data Group**, then click the [Change Data Source] button.



The Change PivotTable Data Source dialog opens and you are taken back to the sheet containing the source data.

Change PivotTable Dat	?	×						
Choose the data that you want to analyze <u>S</u>elect a table or range 								
<u>T</u> able/Range:		Ť						
O Use an external data source								
Choose Conn	ection							
Connection na	me:							
			OK	Ca	incel			

- If you are adding to the data set on the sheet then click into the Table/Range field and edit the range accordingly.
- If changing and external source of data, click the Use an external data source radio button. Then, click the [Choose Connection] button and follow the dialogs to connect to a new source or make other modifications to an existing source.


Instructions:		Results/ Comments:
1.	MyPivotTable.xlsx should still be open.	If not, re-open it.
2.	Activate <i>Invoices</i> .	Click the <i>Invoices</i> sheet tab.
3.	Select cell J2 and change the value to < 50 >.	To correct or modify the data. Changes to the original data will not automatically affect the PivotTable data.
4.	Activate the <i>Sheet1</i> sheet.	Click the <i>Sheet1</i> sheet tab.
5.	Select cell A4 and collapse the entire field to display the sales people's names and their values.	Use any method from the previous exercise.
6.	Note the values for Nancy Davolio.	The current value for the Sales should be \$202,143.71.
7.	Activate the <i>Analyze Tab</i> , if necessary.	
8.	In the Data Group , click the [Refresh] button.	The updated value should be \$204,068.71.
9.	Save the file.	[Ctrl+S].



Lesson Notes



Lesson 2: Filtering PivotTables

Lesson Overview

You will cover the following concepts in this chapter:

- Filtering Data
- ♦ Sorting a PivotTable
- ♦ Basic PivotTable Filtering
- ♦ Advanced Filtering
- Report Filters
- ♦ Filtering With Search Box
- ♦ Adding to Filters
- Conditional Formatting in a PivotTable
- ♦ Grouping Data
- ♦ Using the Slicer



Lesson Notes

Filtering Data

One of the main features of a **PivotTable** is that you have the ability to present the data in a dynamic format that allows you to show exactly what you need and change it when you need to. For example, if you have a **PivotTable** that shows **Sales by Region** for each **Salesperson**, you may want to show only specific **Salespersons** or specific **Regions**. **PivotTables** allow the flexibility to show each **Region** and/or **Salesperson** and to change which **Salesperson** or which **Region** shows at any time.

Data in a **PivotTable** can be filtered based on the Rows, Columns, and the Filters. As fields are added to the **PivotTable** areas in the *PivotTable Fields* pane, their labels are shown with drop-down arrows. If the those Field Headers are not being displayed, check that the **[Field Header]** button is active in the **Show Group** on the *Analysis Tab*.

Row and column filtering dropdowns offer a wide variety of options based on the data type. Sorting tools, filtering based on Labels or Values, and the ability to search the field items.



The Filter filtering drop-down simply offers the ability to search, a checkbox list, and the ability to "select multiple items".



allows you to apply a filter to numerical data. A **Label** filter allows you to apply a filter to textual data

column labels.

A Value filter

referred to in row or

Note

Sorting a PivotTable

Basic Sorting

It is possible that the data in a field may not be sorted in the order you need, but this is an easily resolved issue. Clicking the *Filter* drop-down, you will be able to sort the field ascending, descending, manually, or based on a custom list or conditional format. There are also the standard methods of sorting data from the ribbon on both the *Home* and *Data Tabs*, as well as right-clicking a cell to access the sort commands found in the contextual menu.

Applying A Sort

- Select the *Field Filter* drop-down.
 - A to Z
 A to Z
 - ♦ The sort options are found at the top of the list.
- To sort Ascending or Descending, use the top two options in the menu.
- Choosing the [More Sort Options...] button will open the Sort Options (Field Name) dialog.

Sor	t (Salesperson)	?	\times
Sort	options		
0) <u>M</u> anual (you can drag item) <u>A</u> scending (A to Z) by:	is to rearrang	je them)
	Salesperson		\sim
C	Descending (Z to A) by:		
	Salesperson		\sim
Sum	imary		
Sort Salesperson in ascending order			
M	ore Options OK	Ca	ncel

- Choosing either the Ascending or Descending radio buttons allows you to chose any other available fields from the drop-down.
- Choosing the *Manual* radio button allows you to select cells within the field and move them into any desired order.
- Click the **[OK]** button to apply the sort.



Applying An Advanced Sort

- Select the field filter drop-down.
- Choose the [More Sort Options...] button will open the Sort Options (Field Name) dialog.

Sort (Salesp	erson)		?	×
Sort option	s			
○ <u>M</u> anua	il (you can dra ling (A to Z) b	g items to r y:	earrang	e then
Salesp	person			~
O <u>D</u> escer	nding (Z to A)	by:		
Salesp	person			~
Summary				
Sort Sales	person in asce	ending orde	er	
Mo <u>r</u> e Opti	ions	OK	Car	ncel

Clicking the [More Options...] button opens the More Sort Options (Field Name) dialog.



Unchecking the Sort automatically every time the report is updated checkbox allows you access to the First key sort order field. Clicking the drop-down allows you to use custom lists to set the sort order.

More Sort Options (Salesperson)	?	×
AutoSort		
Sort automatically every time the	report is u	updated
Eirst key sort order		
No Calculation		~
Sunday Monday Tuesday Wednes	day Thursd	and an an a
Jan, Feb, Mar, Apr, May, Jun, Jul, At January, February, March, April, Ma	ug, Sep, O y, June, Ju	ct, Nc ly, Au
Jan, Feb, Mar, Apr, May, Jun, Jul, Au January, February, March, April, Ma Summary	uay, murs ig, Sep, Oo y, June, Ju	t, Nc ly, Au
Jan, Feb, Mar, Apr, May, Jun, Jul, At January, February, March, April, Ma January, February, March, April, Ma Summary Sort Salesperson in ascending orde	r	iday, ct, Nc ly, Au

Click the **[OK]** button to apply the sort.

Note The Sort By set of options are active if the field uses the Show Values As instead of the Summarize Values By field setting



Action 2.1 - Sorting



Ir	nstructions:	Results/ Comments:
1.	MyShipping.xlsx should still be open.	If not, reopen it.
2.	Click the drop-down arrow in cell A3.	The <i>Sorting and Filtering</i> menu is displayed.
3.	Choose <i>Sort Z to A</i> from the menu.	The list of salespeople is now sort in a descending order.
4.	Right-click any cell in the first column of values, hover over the <i>Sort</i> option to expand, choose <i>Sort Smallest to Largest</i> .	The data is now sorted based on the values instead of the names.
5.	Activate the <i>Design Tab</i> , in the Layout Group click the [Report Layout] drop- down button and choose <i>Tabular Layout</i> from the menu.	If necessary. The PivotTable is now displayed in a Tabular mode.
6.	Right-click on a <i>Salesperson's</i> name, hover over the <i>Expand/Collapse</i> option and choose <i>Expand Entire Field</i> from the menu.	All the data is displayed.
7.	Click the <i>Product Name</i> filter drop-down in cell C3 and choose <i>Sort Z to A</i> .	The Product column is sorted. Notice that the overall PivotTable is still sorted primarily by the Salespeople.
8.	Right-click the first name in the <i>Salesperson</i> column, hover over the <i>Expand/Collapse</i> option and choose <i>Collapse Entire Field</i> .	The data is collapsed back to show the salespeople and three value columns.
9.	Save the file.	[Ctrl S].

0

Basic PivotTable Filtering

Basic Filtering

Once fields are added to a **PivotTable**, it is possible to filter that data set down to view only specific individuals or groups from within the field. *Excel* displays a drop-down on the field labels by default, but if the labels are not visible, then it will be necessary to show the labels by clicking the **[Field Headers]** button in the **Show Group** on the *Analyze Tab*.



Using the drop-downs on the field labels offers access to the filtering tools.

When a field is placed into either the row or column area, it is very quick and easy to see how an individual or subset group is doing by using the filtering drop-downs. When there is only a small data set in the field it can be a simple as unchecking the *Select All* checkbox checking the desired checkboxes and clicking the **[OK]** button. Only data pertaining to the selection is displayed.



Basic PivotTable	Filtering a PivotTable	
Filtering,	Click the drop-down arrow next to any row field name in the PivotTable .	or columr
	The menu offering Sorting and Filtering opt displayed.	ions are
	Uncheck the <i>Select All</i> checkbox	
	Check only the checkboxes for the desired d	ata.
	Click the [OK] button.	
	The data in the PivotTable reflects the choice the <i>Filtering</i> options.	es made in
Note When using the	- OR - In the <i>PivotTable Fields</i> pane, click on the dro arrow next to a field name.	p-down
filtering tools from	Use the <i>Filtering</i> tools as described above.	
within the Pivot lable Field list, use only the fields that are in the PivotTable. If the field is not in use, filtering will	The PivotTable reflects the filtering choices made. A fewill appear with the drop-down of the filtered column header as well as in the <i>PivotTable Field</i> pane.	unnel icor or row
have no affect.	Salesperson IT Salesperson	۲ ک
	Filtered header drop-down Filtered Field in the PivotTable Fie	eld Pane

Filtering in the Report Filter

The fields in the *Filter* area of the *PivotTable Field* pane do not offer as many filtering options as rows and columns do, you are basically able to filter individual items. In the report filter drop-down is a **Select Multiple Items** checkbox that when checked places a *Select All* option and check boxes next to each item. You will also find a search field within the drop-down.

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Basic PivotTable Filtering,

Clearing a Filter

Clearing applied filters from a PivotTable will return all data which was hidden by the filter. This can be done all at once if multiple filters have been applied or individually as needed.

Clearing Single Filters

- Click the Sort & Filter drop-down arrows with the funnel icon.
- ♦ Check the *Select All* checkbox.

- OR -

- Choose *Clear filter for (Field Name)* from the menu.
- Click the **[OK]** button.

Clearing All Filters

On the *Analyze Tab*, in the Actions Group click the [Clear] button drop-down and choose *Clear Filters*.



On the Data Tab in the Sort & Filter Group, click the [Clear] button





Instructions:

- 1. **MyShipping.xlsx** should still be open.
- 2. On the *Analyze Tab* in the **Show Group**, click the **[Field Headers]** button.
- 3. In the *PivotTable Field* pane field list, hover over the *Salesperson* field.
- 4. Click the drop-down arrow of the highlighted field.
- 5. Uncheck the *Select All* checkbox. Check the checkboxes for *Anne Dodsworth* and *Margaret Peacock*. Click the **[OK]** button.
- 6. On the *Analyze Tab* in the **Show Group**, click the **[Field Headers]** button.
- 7. Right-click on *Anne Dodsworth's* name and *Expand Entire Field*.
- 8. Click the drop-down arrow in the *Country* filter header.
- 9. Click on *Denmark* and then click the **[OK]** button.
- 10. Save the file and leave it open.

Results/ Comments:

If not, reopen it.

The Row and Column headers are removed from the PivotTable along with the filtering drop-downs.

The Salesperson field is highlighted and a drop-down arrow is displayed.

The *Sorting & Filtering* menu is displayed.

Only data pertaining to the two selected salespeople is displayed in the **PivotTable**.

The Row and Column header are redisplayed.

The list companies each salesperson works with is displayed.

The list of Countries is displayed.

Since Anne Dodsworth had no dealings in Denmark, her information has been removed from the PivotTable.

[Ctrl S].

Advanced Filtering

Label and Value Filters

Rows and columns may contain any of the three data types: Dates, Numbers, or Text. *Excel* determines the data type offers the appropriate filtering tools. When basic filtering capabilities in the field drop-down are not sufficient to filter data to a more narrow view consider using the Label and Value filtering tools.



Using the Label filters allow you to easily search through a long list of items in the field with a wide variety of options related to the data type. You can choose an option from the menu to open the *Label Filter* dialog.

Label Filte	er (Product Name) ?	×
Show items for which the label		
begins with 🗸		
Use ? to represent any single char Use * to represent any series of ch	acter aracters	
	OK Ca	ncel

From within the dialog, you are able to choose any of the available options in the menu from the **Show items for which the label field** drop-down. Then enter the desired parameter for the filter in the open field of the dialog.

Applying a Label Filter

Click on the drop-down arrow next to any column or row field name in the **PivotTable**.

Excel has determined the data type and displays the appropriate filtering tool set.

- Select the Filter type you would like to use from the Label Filter drop-down.
- Complete the information in the *Filter* dialog.



Applying a Value Filter

No matter the data type, when choosing the *Value Filter* option, the same set of options are available. Once the choice of Value Filter has been made the *Value Filter* dialog opens. This dialog allows you to specify parameters as needed. The available fields in the *Value Filter* dialog will change in relation to the type of filter being applied.

Value Filter (Salesperson)	?	\times
Show items for which Sum of Extended Price equals		
ОК	Ca	ncel

Accessing the *Value Filter* dialog is done by clicking the row or column filter drop-down and choosing a value filter.

Using the Top or Bottom 10

Sometimes you would like to see the top 10 purchasers of your product or the top 10 salespeople in your organization. You can use the *Top 10* filter in the *Values Filters* to see these results.

To Filter the Top 10

- Click on the drop-down arrow next to any field name in the **PivotTable**.
- Click on Value Filters to display the drop-down list.
- Select *Top 10...* from the submenu. The *Top 10 Filter* dialog opens.



- In the *Top 10 Filter* dialog, select whether or not you wish to show the *Top* or *Bottom 10* by clicking on the drop-down arrow.
- If needed, change the number of items being shown by using the arrows of the value field to change the number or by selecting the number and typing it in.
- Finally, select whether you wish to see the Top/ Bottom 10 items, Top/Bottom 10 percent, or Top/ Bottom 10 Sum.





Iı	nstructions:	Results/ Comments:
1.	MyShipping.xlsx should still be open.	If not, reopen it.
2.	Click the <i>Country</i> filter drop-down and choose (<i>All</i>) from the menu and click [OK] .	Data from all the countries is re-displayed.
3.	Click the <i>Salesperson</i> drop-down and check the <i>Select All</i> checkbox and click the [OK] button.	All the salepeople are re-displayed.
4.	Click the <i>Salesperson</i> drop-down, click the <i>Label Filter</i> option and choose <i>Begins</i> <i>With</i> from the list.	The Label Filter dialog opens.
5.	Click into the blank tex t field and type in: a click the [OK] button.	The search is for any names which begin with the letter a; the results will show the data from Andrew Fuller and Anne Dodsworth.
6.	Expand the entire <i>Salesperson</i> field	If necessary.
7.	Click the <i>Product Name field</i> drop-down, click the <i>Value Filter</i> option and choose <i>Greater Than</i> from the list	The Value Filter dialog opens.
8.	Choose <i>Sales</i> from the first field drop- down, choose <i>is greater than</i> from the operator field, and in the blank text field and type: 1000 click the [OK] button.	Only sales of more than \$1000 are displayed.
9.	Save the file, and leave it open.	[Ctrl S].

Report Filters

Using Multiple Report Filters

The **Report Filter** will give you a high level summary of the data and can include multiple fields. To filter by more than one field, you add other fields to the *Filter* area in the *PivotTable Field* pane.

Adding Multiple Fields to the Filter

- In the *PivotTable Filed* pane, drag the desired fields to the *Filter* area.
- Place them in the order you wish them to appear in the **PivotTable**.

▼ Filters	
Country	-
Company Name	*
Salesperson	-

You can now filter by each field independently and combine filters.

Using Multiple Filter

By default, *Excel* removes a filter on a field when another filter is applied. To maintain your filters while you create additional filters you need to turn on *Allow multiple filters per field*:

- Right-click any cell in your **PivotTable**.
- Select *PivotTable Options*.
- The *PivotTable Options* dialog opens.
- Click the *Totals and Filters* tab in the dialog.

	PivotTable Name: P	ivotTable1					
	Layout & Format	Totals & Filters	Display	Printing	Data	Alt Text	
	Grand Totals Show grand Show grand Filters Subtotal filte Allow multip	totals for rows totals for columns red page items le filters per field					
	Sorting Use Custom	ists when sorting					

- Click the checkbox for *Allow multiple filters per field*.
- Click the **[OK]** button.

Filtering With Search Box

Using the Search Box to Apply a Filter

- First, from any of the Filter drop-down buttons; (Report Filter, Row, or Column).
 - If using a *Report Filter* select the *Multiple Items* check box, which will activate the checkbox for each selection.
- Click into the Search field located above the field item list.



- ♦ Type in the search term.
- Check the checkboxes that contain or are part of the desired results.
- Click the **[OK]** button.

Note Wildcards can be used in any *Filter* dialog or the **Search** field in the field filter dropdown.

Using Wildcards

When you can only specify a portion of what you are filtering for, wildcards can be used to replace missing text. For example, if you wish to search for all names that begin with an M and end with a T, you can enter M*T. The asterisk represents any number of characters in that position. The following wildcards may be used in your filter

Character	Definition	Example
*	Used to represent any number of characters in that position, including zero characters.	M*T will return Matt, mint, malt, mutt, most.
?	Represents one character in that position.	M?T will return mat or met.
~	Searches for wildcard characters.	Computer~Workshop will return Computer*Workshop.

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Adding to Filters Adding Criteria to an Existing Filter

- Click on a filtered field button in the **PivotTable**.
 (Filtered fields have a Funnel icon with the drop-down arrow)
- In the Search Box, type a second search criteria. All matching items list.
- Click on the [Add current selection to filter] checkbox to append the existing filtering.



- If this checkbox is unchecked when clicking the [OK] button, all previous filtering is replaced not amended.
- If working in a report filter field make sure the Select Multiple Items checkbox is checked.
- ♦ Click **[OK]**.
- The additional search results are added to the existing results.

Using Multiple Column and Row Filters

Sometimes, you will want to filter by multiple fields within your rows. By adding multiple fields to the *Rows* section of your *PivotTable Field* pane, you will be able to apply multiple filters at the same time.





Instructions:			Results/ Comments:
ſ	1.	MyShipping.xlsx should still be open.	If not, reopen it.
	2.	On the <i>Analyze Tab</i> in the Actions Group , click the [Clear] button drop down and choose <i>Clear Filters</i> .	All filter have been removed and the PivotTable has been reset.
	3.	Drag Company Name and Required Date to the <i>Filters</i> area of the <i>PivotTable</i> <i>Field</i> pane.	This will add Company Name and Required Date to the top of the PivotTable .
	4.	Click the [Filter] button next to Country field and select <i>Ireland</i> , then click [OK] .	Only sales made in Ireland are displayed.
	5.	Click the [Filter] button next to Company Name field and in the Search field type in: n	Any Company Names with an N anywhere in the name are listed.
		do not click the [OK] button yet.	
	6.	Add an * to after the N.	N are shown.
	7.	Place the * before the N.	Only Company Names ending with the letter N are shown.
	8.	Check the Select Multiple Items checkbox and click the [OK] button to apply the filter.	No results match these filtering criteria, so there is no information in the PivotTable.
	9.	Click the [Filter] button next to Country field and select <i>All</i> , then click [OK] .	Now data matches the filter criteria of the Company Name filter and is displayed in the PivotTable.
	10.	Click the [Filter] button next to Company Name field and in the Search field type in: b *	Notice the results shown in the Filter box.
		do not click the [OK] button yet	



Instructions:

- 11. Click the checkbox for *Add to current selection* and click **[OK]**.
- 12. On the *Analyze Tab* in the **Actions Group**, click the **[Clear]** button drop down and choose *Clear Filters*.
- 13. Save the file but leave it open.

Results/ Comments:

Now data which matches both aspects of the searches are displayed.

All filters are removed and all data is redisplayed.

[Ctrl S].

Conditional Formatting in a PivotTable

Automatically applying cell formatting, which is based on the cell contents or vales, is referred to as *Conditional Formatting*. This is a great way to emphasize or draw attention to data of particular interest. For example you can highlight in red any budget items that are greater than 20% over budget. The technique to apply *Conditional Formatting* is similar to the technique used in a spreadsheet.

Using Conditional Formatting

- Select a value within the field to be formatted.
- Click on the [Conditional Formatting] button located on the *Home Tab*. A menu of conditional formatting options will be displayed.
- Choose one of the following:
 - Highlight Cells Rules will highlight cells that are greater than, less than, between or equal to values that you specify.
 - Top/Bottom Rules will allow you to highlight the highest or lowest numbers or percent in the selected cells.
 - Data Bars will display colored bars that compare the value in the cell to the other cells in the range.
 - Color Scales will use different shades of color to represent different values from low to high.



Icon Sets — will use sets of similar icons that will visually indicate a cell's value relative to a set threshold.

There are also options for creating a new rule, for clearing rules, and for managing rules.

Conditional Formatting in a PivotTable,

continued

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Smart Tag list will let you switch **Row** labels if needed because the formatting is applied to the values, not the field.

- When selecting any of the top five menu options, a submenu appears with additional selections.
 - For the Highlight Cells Rules and Top/Bottom Rules you will get an additional dialog to enter a value and color choice.
- As you point to the DataBars, Color Scales, and Icon Sets options the submenus are live preview galleries.
 - For the Highlight Cells and Top/Bottom Rules options, you will not see the preview until you have selected the specific rule or submenu.
- To implement the conditional formatting, just click the submenu option of your choice.
- Once the Conditional Formatting is applied, it will be applied to the selected cell only. A Smart Tag appears next to the cell; clicking it will allow the formatting to be extended to the entire field.

20	.	
20 2		Apply formatting rule to
10	۲	Selected cells
1	0	All cells showing "Sum of Quantity" values
6	0	All cells showing "Sum of Quantity" values for "Product Name"

If the New Rule choice is selected, you are able to apply the formatting to field as the rule is created.



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Conditional Formatting, continued



Clearing Conditional Formats

- ♦ To clear the formatting, select a cell within the field.
- Click on the **[Conditional Formatting]** button.
- Select *Clear Rules* from the menu.
- Then, select Clear Rules from This PivotTable from the submenu.

	Normal	Bad		*	+ =
Conditional Format as	Good	Neutra	l i	•	Insert
Formatting Table T					Ŧ
Highlight Cells	Rules >				
Top/Bottom Ru	iles 🕨	R	S	Т	
Data Bars	•				
Color <u>S</u> cales	•				
Icon Sets	•				
New Rule					
🔯 <u>C</u> lear Rules	+ (Clear Rules fro	om <u>S</u> electe	d Cell	ls
Manage <u>R</u> ules		Clear Rules fro	om <u>E</u> ntire S	Sheet	
		Clear Rules fro	om <u>T</u> his Ta	able	
		Clear Rules fro	om This <u>P</u> i	votTa	ble



Instructions:



1. MyShipping.xlsx should still be open. 2. Select cell C6. 3. On the *Home Tab* in the **Styles Group**, click the [Conditional Formatting] button drop-down and choose New Rule. 4. In the **Select a Rule Type** area of the dialog, choose Format all cells based on their values. 5. In the Edit the Rule Description area, choose Icon Set from the Format Style drop-down. 6. Choose the top icon set from the **Icon** Style drop-down. 7. For the Green icon set the fields as: Operator: >= Value: 4000 Type: Number 8. For the Yellow icon set the fields as: Operator: >= rule. Value: 1000 Type: Number 9. Click the **[OK]** button. rule. 10. On the *Home Tab* in the **Styles Group**, click the [Conditional Formatting] button drop-down and choose Manage Rules. 11. Select the *Icon Set* rule and click the **Edit** Rule...] button.

Results/ Comments:

If not, reopen it.

The first cell with a value.

The New Formatting Rule dialog opens.

The top choice from the list.

The Icon Sets controls are displayed in the Edit the Rule Description area.

The Traffic Light set.

This sets the upper parameters of the rule.

This sets the mid range parameters of the

Only the selected cell is affected by the

The Conditional Formatting Rules Manager dialog opens.

This is the only rule listed and clicking the [Edit Rule] button opens the Edit Formatting Rule dialog



Instructions:	Results/ Comments:
12. In the Apply Rule To: area select the <i>All cells showing "Sales" values for "Product Name"</i> radio button.	This will expand the selection where the rule will be applied.
13. Click the [OK] button.	The edit is made.
14. Click the [Apply] button then the [OK] button.	The edit is applied then the dialog closes.
15. Select an empty cell.	The PivotTable and it's options are no longer active.
16. On the <i>Home Tab</i> in the Styles Group , click the [Conditional Formatting] button drop-down and examine <i>Clear</i> <i>Rules</i> options.	The <i>Clear Conditional Formatting</i> options apply only to the cell or sheet, the PivotTable options are greyed out since the PivotTable isn't active.
17. Select any cell in the PivotTable .	The PivotTable options are reactivated.
18. On the <i>Home Tab</i> in the Styles Group , click the [Conditional Formatting] button drop-down and choose <i>Clear</i> <i>Rules</i> options and select <i>Clear Rules From</i> <i>This PivotTable</i> .	Since the PivotTable is active the <i>Clear</i> <i>Rules From This PivotTable</i> option is available. Choosing this option removes the conditional formatting from the entire table.
19. Save the file but leave it open.	[Ctrl S].
20. Right-click cell A6 and choose <i>Collapse Entire Field</i> from the menu.	Only the Salesperson's names and data is displayed.
21. Select cell C6 , on the <i>Home Tab</i> in the Styles Group , click the [Conditional Formatting] button drop-down <i>Greater Than</i> from the <i>Highlight Cell Rules</i> group.	The <i>Greater Than</i> dialog opens.
22. Click into the first field of the <i>Greater Than</i> dialog and enter 150000.	To set the desired target value.



Instructions:	Results/ Comments:
23. Click the [OK] button.	The conditional formatting is applied to that cell only. A Smart Tag is shown beside the cell.
24. Click on the <i>Formatting Options Smart Tag.</i>	A list of options on how to extend the conditional formatting is displayed.
25. Choose the last radio button.	The conditional formatting is applied for the rest of the column.
26. On the <i>Home Tab</i> in the Styles Group , click the [Conditional Formatting] button drop-down and choose <i>Clear Rules</i> options and select <i>Clear Rules From This PivotTable</i> .	All conditional formatting is removed.
27. Save the file but leave it open.	[Ctrl S].



When the **PivotTable** data is presented in its smallest value, you frequently end up with detailed information that would be better represented by being grouped. *Excel* will automatically apply grouping when date data is added to the rows or columns area of the **PivotTable**. As data is added, you will see a Month field added along side the days. If data being added to the rows area contains numeric information, it is not automatically grouped, but grouping can be applied. Grouping allows you to see data in larger sets that can be expanded to reveal more granular and detailed views of specific data.

Grouping Data in a PivotTable

- Drag a date field from the list of **PivotTable** fields into the *Rows* area in the *PivotTable Field* pane.
- The data should be displayed in both Month and Date fields.
 - If the automatic grouping did not occur or you want to modify the grouping:



On the Analyze Tab in the Group Group, click the [Group Selection] button.



- OR -

Right-click a date in the PivotTable and choose *Group* from the menu.



Date Grouping

OK

Cancel

Apply the desired grouping structure and click the [OK] button.

Sorting by Fiscal Year

- In the *PivotTable Field* pane, add date field in the *Rows* area.
- If Automatic grouping is turned on, the dates should appear in two columns- Months and Date.
- Right-click either of these columns and choose *Group* from the menu

- OR –

- On the Analyze Tab in the Group Group, click the [Group Selection] button
- Check the *Quarters* checkbox and click the **[OK]** button.
- Open the *Find & Replace* dialog by using the [Ctrl H] shortcut

- OR –

On the *Home Tab* in the Editing Group, click the [Find & Select] drop-down and choose *Replace* from the menu.

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Grouping Data, continued

- In the Find field, type in- Qtr3 (to start the fiscal year in July)
- In the **Replace** field, type in **Quarter1** (or however you want the name displayed)

Find and Replac	e			?	×
Fin <u>d</u> Rep	lace				
Find what:					\sim
Replace with:					\sim
				Op <u>t</u> ions	>>
Replace <u>A</u> ll	<u>R</u> eplace	Find All	<u>F</u> ind Next	Clo	se

- Tap the **[Replace All]** button.
 - Repeat for each of the remaining quarters accordingly.
- ♦ Once all the quarters have been renamed:
 - Use the Sort options from the field drop-down to sort the quarter automatically.
 - Select each quarter cell: hover over the border until the cursor changes to the move cursor and drag into correct position to sort them manually. Repeat to arrange the quarters correctly.



Instructions:			Results/ Comments:
1.	MyShipping.xlsx should still be open.		If not, reopen it.
2.	In the <i>PivotTable Field</i> pane, drag both the Salesperson and Product Name out of the <i>Rows</i> area.		These fields are removed from the PivotTable .
3.	Drag the Quantity field into the Rows area.		The quantities are added to the PivotTable .
4.	On the <i>Analyze Tab</i> in the Group Group , click the [Group Selection] button.		The <i>Grouping</i> dialog opens.
5.	In the <i>Grouping</i> dialog; -Uncheck the Ending at: checkbox and set the value to 250 , -In the by : field set the value to 50 , -Click the [OK] button.		The Quantities field is grouped by 50's.
6.	In the <i>PivotTable Field</i> pane, drag the Quantity field out of the <i>Rows</i> area		The field is removed from the PivotTable .
7.	Drag Order Date from the field list into the <i>Rows</i> area.		The <i>Rows</i> are grouped by month. If the fields are collapsed then you will also see the Order Date column.
8.	Click the [Plus] button to expand any month.		Any days that month where an order was made are displayed.
9.	Click the [Minus] button to collapse the month.		
10	. On the <i>Analyze Tab</i> in the Group Group , click the [Group Selection] button.		The <i>Grouping</i> dialog opens. You could also right-click any cell in either the Month or Order Date field and choose <i>Group</i> from the menu.
11	. Check the <i>Quarters</i> checkbox and click the [OK] button.		A Quarters column is added to the PivotTable .

Action 2.6 - Grouping Data, continued



Instructions:	Results/ Comments:
12. Expand and collapse the fields in the PivotTable so that the Quarters are expanded but the Months are collapsed.	
13. Save the file but leave it open.	[Ctrl S].
14. On the <i>Home Tab</i> in the Editing Group ,click the [Find & Select] drop-down and choose <i>Replace</i> from the menu.	The <i>Find & Replace</i> dialog opens. [Ctrl H] is the replace key command.
 15. In the Find field type in: Qtr3 , -In the <i>Replace</i> field type in: Quarter 1 -click the [Replace All] button. 	The first quarter of the fiscal year is named.
16. Repeat to change each of the remaining quarters accordingly.	Each of the fiscal year quarters are named.
17. Click the Quarter field drop-down and choose <i>Sort Oldest to Newest</i>	The month are sort in accordance to fiscal year.
18. Save the file but leave it open.	[Ctrl S].

Using the Slicer	Slicers are used to easily filter of data in the PivotTable or PivotChart . To add slicers to either PivotTable or PivotCharts look in the Filter Group on the <i>Analyze Tab</i> . <i>Excel</i> now also offers Timeline slicers for date data.			
	A slicer can be used to filter data by fields which are not currently used in the PivotTable . This allows a new level of flexibility. They can also be connected to multiple PivotTables and/or PivotCharts by using the [Filter Connections] button. All connected objects are filtered at once. To display information that pertains only to a specific item or combination of items, click on that option in one of the available slicers.			
Note If you use the [Insert Timeline]	 Generating Slicers On the <i>Analyze Tab</i> in the Filter Group, click the [Insert Slicer] button. 			
button, then the field list will only include date fields in the list of options.	토 Insert Slicer 토 Insert Timeline 또 Filter Connections			
	Filter			

♦ The *Insert Slicers* dialog is displayed.



- ♦ All data fields are lists in the dialog.
- Solution Check the fields which will be used to filter the data.
- Click [OK].

Using the Slicer

When the dialog closes, a slicer for each of the checked fields is added to the worksheet. When one is selected, the bounding box controls and *Slicer Tools Options Tab* are displayed.

Slicer Sution: Country E Slicer Styles Slicer Styles Sli	File Home Insert Page	e Layout Formulas Data	Review View H	Help Acrob	bat Power Pivot	Options 🔎	Tell me what yo	u want to do		
Slicer Slicer Styles Arrange Buttons Size 17	Slicer Caption: Country Slicer Settings Connections				Bring Send Se Forward * Backward *	election Align Group Pane	Rotate	eight: 0.25" ‡ idth: 1.58" ‡	Height: 2.6" Width: 2"	4 ¥ 4 ¥
	Slicer	Slicer S	tyles		,	Arrange		Buttons	Size	E.

This tab will allow you to change the title, format, connections, size and position of the **Slicers**.

Using Slicers

- Clicking a button in the Slicer will apply a filter to display only that item. To add to the filter you can hold the
 - ♦ [Shift] key to select consecutively

- OR -

- ♦ [Ctrl] key for non-consecutive selections
- Or click the [Multi-Select] button at the top of the Slicer.



The **PivotTable** automatically shows only the information related to the selected item(s). If you have a **PivotChart** created based on the same **PivotTable**, the **PivotChart** will also display the selection(s).

Using a Filter Versus Using a Slicer

Is it better to use a **Filter** or a **Slicer**? Prior to 2010, **Slicers** were not available for use in a **PivotTable**. Slicers make it easier to *see* the current filtering state when you filter on multiple items. Making it easier to understand what exactly is being shown in a filtered **PivotTable**. Additionally, **Slicers** offer the ability to use one **Slicer** for multiple tables.

OUsing the Slicer

Clearing a Slicer Filter

Click on the [Clear Filter] button in the top right corner of the Slicer.

Closing or Deleting a Slicer

- Select the **Slicer**.
- Press the **[Delete]** key.

- OR -

Right-click on the Slicer and select Remove <Slicer Name> from the shortcut list.

Formating a Slicer

- Select the **Slicer** you would like to format.
- When the *Slicer Tools Options Tab* appears.
- Solution In the **Slicer Group** you are able to:
 - Change the Slicer Caption to a more descriptive name.

Slicer Caption:		
Order Date	Persont	
E Slicer Settings	Connections	
Slicer		

- Access the *Slicer Setting* dialog by clicking the [Slicer Settings] button.
- Modify the connections of the slicer by clicking the [Report Connections] button.
- Choose a Slicer style from the Slicer Styles Gallery by selecting an option from the gallery.
- The **Buttons** group allows you to set number of button columns in the slicer as well as their size.
- The **Size** group allows set the size of the **Slicer**.

Note Be careful when changing the height and width of the slicer buttons. Use the **Height** and **Width** settings in the **Button** group. Using the Slicer

Using the Slicer Settings Dialog

The following options are available in the *Slicer Settings* dialog which are accessed by clicking the **[Slicer Settings]** button on the *Slicer Tools Options Tab* or right-clicking on the Slicer Title Bar and choosing *Slicer Settings* from the menu.

Source Name: Country	
Name to use in formulas: Slicer_Country Name: Country Header Display header Caption: Country	
Item Sorting and Filtering	 Hide items with no data ✓ Visually indicate items with no data ✓ Show items with no data last ✓ Show items deleted from the data source

- *Name:* This is to identify the object on the spreadsheet. The default name is usually displayed, but can be changed to a more appropriate title.
- The Display Header checkbox will turn the Header on the Slicer off and on. Consider turning the header off when it is unnecessary or you are trying to fit the slicer into a small area.
- The *Item Sorting and Filtering* section is to determine how the values appear in the slicers.
- Visually indicate items with no data, means that even if there is no data, the button for that category/item will still appear in the slicer. You may see this when you connect your slicer to multiple PivotTables. The button will simply be grayed out if there is no data associated with it.
- Show items with no data last, will put that button at the bottom of the slicer. The buttons will be rearranged to show those with data first, going from leftto-right, top-to-bottom.
- Similarly, Show items deleted from the data source will still show a button in the Slicer for items that have been deleted, as long as items deleted from the data source are being retained in the *PivotTable Options*.



Using the Slicer
 continued

Slicer Connections

When a slicer is created in relation to a **PivotTable**, it is used to filter that **PivotTable**. It is possible to connect multiple **PivotTables** to a single slicer, as long as the data source is the same and on the same worksheet. When multiple **PivotTables** are connected to a single slicer, that slicer is able to filter all connected tables at once. The data source must be exact, if rows or columns are added or removed from the data source, then the source is no longer the same and the connections will not be possible. The Slicers would have to be recreated and reconnected.

Adding Connections

- Once the **PivotTables** have been created.
- On the *Analyze Tab* in the Filter Group, click the [Insert Slicer] button.
- On the *Slicer Options Tab* in the *Slicer Group*, click the [Report Connections] button.



The Report Connections (Field Name) dialog opens.



- Any PivotTables based on the exact same data source will be listed in the dialog.
- Check all the PivotTable checkboxes to be controlled by this slicer and click [OK].
Action 2.7 - Adding Slicers



Iı	nstructions:	Results/ Comments:
1.	MyShipping.xlsx should still be open.	If not, reopen it.
2.	Duplicate <i>Sheet1</i> .	On the <i>Sheet1</i> tab, hold the [Ctrl] key as you right-click and drag over so that the small black triangle is to the right of the <i>Sheet1</i> tab, let go of the mouse to duplicate the entire worksheet.
3.	Drag all the fields out of the <i>Rows</i> area in the <i>Pivottable Field</i> pane.	
4.	Drag Country and Company name fields into the Rows area.	
5.	On the <i>Analyze Tab</i> in the PivotTable Group , type SecondTable in the PivotTable Name field.	To name the PivotTable.
6.	Switch back to <i>Sheet1</i> and click into the PivotTable .	
7.	On the <i>Analyze Tab</i> in the Filter Group , click the [Insert Slicer] button.	The <i>Insert Slicer</i> dialog opens, showing a list of all data fields in the data set the PivotTable is based on.
8.	From the list of available fields, check the <i>Salesperson</i> checkbox and click the [OK] button.	While you are able to choose more than one field from the list, we will use only one at this time. The Salesperson Slicer is added.
9.	Examine the <i>Slicer Options Tab</i> .	This is a contextual tab, only available when the slicer is actively selected.
10	. Hover over the border of the slicer, the cursor will change to a four sided move cursor. Drag the slicer into column H of the worksheet.	While the slicer is selected the bounding box controls are visible, allowing for easy resizing of the slicer.



Instructions:

- 11. Using the bounding box controls, resize the Slicer to show only three buttons vertically. Then make the slicer twice as wide.
- 12. On the *Slicer Options Tab* in the **Buttons Group**, change the number of columns in the *Columns* field from 1 to 2.
- 13. On the *Slicer Options Tab* in the *Slicer Styles Group*, click the more button and choose any style from the gallery.
- 14. On the *Slicer Options Tab* in the *Slicer* **Group**, click the **[Report Connections]** button.
- 15. Check the *SecondTable* checkbox and click **[OK]**.
- 16. Click the **[Andrew Fuller]** button in the Slicer.
- 17. Hold the **[Shift]** key and click the **[Laura Callahan]** button.
- 18. Click the **[Clear Filter]** button.
- 19. Click the **[Multi-Select]** button.
- 20. Click the **[Andrew Fuller**] button in the Slicer.

Results/ Comments:

As you hover over the controls (small white circles) the cursor changes to a double headed arrow, allowing you to resize the width, height, or both.

The Slicer now has two columns of buttons.

The Slicer Style gallery is displayed and when you choose one, that style is applied to the Slicer.

The *Report Connections* (*Salesperson*) dialog opens, showing a list of all **PivotTables** that can be connected using this slicer.

The Slicer will now apply filtering to both PivotTables at the same time.

Only data pertaining to Andrew Fuller is displayed.

Using the **[Shift]** key allows for continuous selection, now all data pertaining the Andrew, Anne, Janet, and Laura is displayed in the **PivotTable**. Using the **[Ctrl]** key allows for noncontinuous selection.

The filtering is removed and all data is displayed.

Now when a button is clicked, that choice is removed from the PivotTable.

Andrew Fuller's data is removed from the **PivotTable**.



Instructions:	Results/ Comments:
21. Switch to <i>Sheet1(2)</i> .	Consider creating a new Window and tiling the two sheets vertical to better see the changes as they are made.
22. Notice that the data here is also not showing information about <i>Andrew Fuller</i> .	
23. Switch back to <i>Sheet1</i> and change the choices in the slicer.	
24. Switch to <i>Sheet1(2)</i> .	
25. Notice that the data here reflects the choice made on the slicer.	
26. Save and close the file.	[Ctrl S] & [Ctrl W].



Tips and Notes



Lesson 3: Advanced Features of PivotTables

Lesson Overview

You will cover the following concepts in this chapter:

- PivotTable and PivotChart Wizard
- Installing PivotTable and PivotChart Wizard
- ♦ Using the Wizard
- Consolidating Multiple Workbooks Or Worksheets
- Editing A Consolidated PivotTable
- Calculated Fields and Calculated Items
- ♦ Adding A Calculated Item
- ♦ Adding A Calculated Field
- Solution Calculated Items Or Fields
- Solve Order and Displaying Formulas



Lesson Notes

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PivotTable and PivotChart Wizard

Frequently, data may be stored in multiple workbooks or worksheets within a single workbook needs to be consolidated into a PivotTable. *Excel* offers the **PivotTable and PivotChart Wizard** is the tool to accomplish this type of task although you must add the button to the interface in either the *QAT* (Quick Access Toolbar) or a customized ribbon tab.

Considerations for Setting Up Your Source Data

- Your data ranges should be set up in a cross-tabular format with matching column names for items that you want to summarize together.
- The data being consolidated should be numeric data.
- Total rows or columns should not be included from within the source data when you are specifying the data range for the report.
- Consolidations can use Page Fields that contain items representing one or more of the data source ranges.

For example, if combining data from departments to create a company budget the Page Field can define each source as the department.

- Consolidations can use Named Ranges which perform better when the Named Ranged are managed in the source files. As rows are added or removed from the named range the consolidated PivotTable will reflect those changes when refreshed.
- Consolidations can also use formulas such as a 3D Reference, or the [Consolidate] command located on the Data Tab in the Data Tools group.

Installing PivotTable and PivotChart Wizard

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Installing the PivotTable & PivotCharts Wizard

- On your Quick Access Toolbar (QAT), located at the upper-left corner of your Excel screen, select the [Customize] button and select the More Commands option.
- OR Access the *Excel* Options window from the *File Tab* and select the *Quick Access Toolbar* category.
- From the Choose commands from: field drop-down, select All Commands.
- Scroll down and select the [PivotTable and PivotChart Wizard] icon, then click the [Add] button to add it to the right-hand column.





- Click the [OK] button to apply the change and close the Options.
- The PivotTable and PivotChart Wizard icon appears on your QAT and return you back to your Excel worksheet.







Instructions:

- 1. On your *Quick Access Toolbar* at the top left of your *Excel* workbook, click on the **[Customize]** button and select *More Commands* from the list.
- 2. In the *Excel Options* dialog, under **Choose commands from:**, field drop-down select *All Commands*.
- Scroll down and select the PivotTable and PivotChart Wizard then click the [Add] to add it to the right-hand column.
- 4. Click the **[OK]** button and the **[PivotTable and PivotChart Wizard]** button will appear on your *QAT* and return you *Excel*.

Results/ Comments:

The *Excel* Options window opens. The **[Alt] [F] [T]** key sequence will also open the Options window. If using the keys you will need to choose the *Quick Access Toolbar* from the list of categories on the left.

This field is above the left column of available commands. Choosing *All Commands* now lists every command in *Excel*, including otherwise unavailable commands.

The list is alphabetical. Once the command you want is selected, doubling clicking the command will add it to the *QAT*.

The Options window closes.

Output State St

Now that the **[PivotTable and PivotChart Wizard]** button has been added to the *QAT* and the data sources have been opened and prepared, it is ready for use. Clicking the button opens the wizard. This wizard has three steps but the number of sub-steps varies depending on which data source is selected in step one.

Step 1: What Type of Consolidation do I want?

In **Step 1** of the **PivotTable and PivotChart Wizard**, there are several selections to determine the type of consolidation you wish to produce. Depending on the choice made here *Step 2* will differ.





Step 2: Choosing the Data Source

1: Microsoft Excel List or Database

Choose this option when the source data is on a spreadsheet in an open workbook. *Excel* recognizes the contiguous data and extends the selection to include all connected data as the source. Choosing this source and clicking the **[Next]** button opens the *Step 2* dialog.

PivotTable and PivotChart Wizard - Step 2 of 3 ? X									
Where is the data that you want to use?									
Range: Browse									
	Cancel	< <u>B</u> ack	<u>N</u> ext >	<u>F</u> ini	sh				

Click into the **Range** field and then select a cell in the data set on the spreadsheet. You can only add one data range when using this option. Once the data range has been defined, click the **[Next]** button to advance to *Step3* dialog.

Using the Wizard, continued

2: External Data Source

This option is used when the data source is in another workbook or in a database. These would be data sources which are completely external to the currently active workbook. *Excel* will generate a **PivotTable** from the database tables or other workbooks. Clicking the **[Next]** button with this option selected opens the *Step 2* dialog.

PivotTable and PivotChart Wizard - Step 2 of 3 $\hfill ?$								
Where is your external data stored?								
Get Data No data fields have been retrieved.								
To use an Office Data Connection (.odc) file, click Cancel, and then click Existing Connections in the Get External Data group on the Data tab.								
Cancel	< <u>B</u> ack	Next >	Fin	ish				

Here you would click the **[Get Data...]** button to open the *Choose Data Source* dialog where you could choose from existing connections or create new ones from scratch.

Choose Data Source	×
Databases Queries OLAP Cubes	OK
<new data="" source=""> dBASE Files" Excel Files" MS Access Database" Test Visio Database Samples"</new>	Cancel Browse Options
Use the Query Wizard to create/edit queries	Delete

Once the data source connection has been made, the *Step 2* dialog is re-displayed with the **[Next]** button active. Click the **[Next]** button to advance to *Step3* dialog.

3: Multiple Consolidation Ranges

Select this option when source data is stored in other workbooks or other worksheets within the current *Excel* workbook. Source data from multiple locations will be consolidated into a single PivotTable which can be refreshed as data is updated in each source location. Allowing for broader views of large multi-source data sets. Clicking the **[Next]** button opens the *Step 2a* dialog. This dialog allows you to choose whether *Excel* will generate a Page Field or you will.



Note If using other workbooks, open and tile them before beginning this process. If using data from other worksheets, you can open new windows for each worksheet and tile them before beginning.

OUsing the Wizard, continued

Once this choice is made, the next dialog allows you to choose the data sources and/or create page fields.





4: Another PivotTable Report or PivotChart Report

This option is used when you want to create a new **PivotTable** based on an existing **PivotTable** in the current workbook. As any source **PivotTables** or **PivotCharts** data is refreshed, this generated is also refreshed. Clicking the **[Next]** button with this option is selected opens this *Step 2* dialog.

This dialog lists all **PivotTable** or **PivotCharts** in the workbook. (only one can be selected.) Once this step is completed the next dialog allows you to set the location of the **PivotTable**.

PivotTable and PivotChart Wizard - Step 2 of 3	?	×
Which PivotTable report contains the data you want to use?		
[Shipping.xlsx]Sheet2!PivotTable2 PivotTable4		^
		~

Step 3: Where to add PivotTable or PivotChart

After the data sources have been defined, the *Step 3* dialog allows you to set where the new **PivotTable** or **PivotChart** is placed into the document.

	Where do y <u>New</u> <u>Exist</u>	ou want to put the Piv worksheet ing worksheet	otTable report?	
Ī	Click Finish 1	o create your PivotTa	ble report.	



Consolidating Multiple Workbooks Or Worksheets



Note If combining data from across worksheets, you can create new windows for each worksheet and tile them before beginning.

Consolidating Data From Multiple Excel Sources

Excel offers several methods to combine or compile data from across multiple worksheets or workbooks. Linking the files through formulas or using the Consolidation tool allows you to aggregate data, creating data sets which provide clearer insights and understanding of information being gathered or tracked in *Excel*. When you want to generate a PivotTable from this data but do not need to have all the individual data sets in the file or a single worksheet, using the *PivotTable and PivotChart Wizard* provides the best solution



Sheets to be consolidated being viewed in Tiled format.

Before combining data from different workbooks, consider opening and tiling the source files before using the *PivotTable Wizard* to make this process run as smoothly as possible. In the example above, the **PivotTable** will be placed into the blank workbook. This could also be a blank worksheet in a file with data being drawn from other worksheets.

Choosing *Multiple Consolidation Ranges* in *Step 1* of the *PivotTable and PivotChart Wizard* will bring together data from across workbooks or worksheets. *Step 2a* is where you need to consider an over all report filtering, the filter can be generated automatically by the program or you can set the number of and name the page fields manually.



Consolidating Multiple Workbooks Or Worksheets, continued

Note The page field is like setting a field into the Filter area of the *PivotTable Field* pane.



- Create a single page field for me: this option generates a single page field based on the source data being combined. As the sources are defined, *Excel* organizes them alphabetically by name, not in the order added. Each source will be given the name of Item and assigned a number.
 - I will create the page fields: this options allows you to set the number of and name the page fields. The number of page fields can range from 0 to 4. When naming the page field consider the data being named, does the data refer to a region, year or month, or some other commonality that can uniquely be assigned to the specific data being referred to.

Using The Create A Single Page Field

On *Step 2b* of the *PivotTable and PivotChart Wizard*, you will select and add the data ranges to be consolidated.

- Click into the **Range:** field, then select the worksheet and highlight the cell range containing the data.
- Click the **[Add]** button.
- With the selected range still highlighted in the Range: field, continue to select each workbook or worksheet and highlight the data set clicking the [Add] button after each.

PivotTable and PivotChart Wizard - Step 2b of 3 \qquad ? \qquad \qquad \qquad \qquad									
Where are the worksheet ranges that you want to consolidate?									
Range:									
1									
	<u>A</u> dd	<u>D</u> elete	Bro <u>w</u> se						
A <u>l</u> l ranges:									
Columbus-Feb	'!\$A\$3:\$E\$7		^						
Columbus-Jan	15A53:5E58								
'Davton-Feb'!\$	A\$3:\$F\$7								
'Davton-Jan'!\$/	A\$3:\$E\$8								
'Dayton-Mar'!S	A\$3:SE\$8								
'Detroit-Feb'!\$	A\$3:\$E\$7								
'Detroit-Jan'!\$/	\$3:\$E\$8		~						
Detroit-Jan (\$A\$5(\$E\$8									
	Concel - Pack Novt - Finish								

Notice the ranges in the All ranges: field are listed in alphabetical order, no matter the order they were added.

Consolidating Multiple Workbooks Or Worksheets, continued

Creating Your Own Page Fields

On *Step 2b* of the *PivotTable and PivotChart Wizard*, you will select and add the data ranges to be consolidated, as well as name and determine the number of page field required.

- Click into the **Range:** field, then select the worksheet and highlight the cell range containing the data.
- Click the [Add] button.
- With the selected range still highlighted in the Range: field, continue to select each worksheet and highlight the data set and click the [Add] button after each.
- Once all the ranges have been added:



- Select number of page fields in the How many page fields do you want section of the dialog.
- Select the first range in the **All ranges:** field.
- Click into the Field one: field and type in a name that helps define the data set.
- Continued adding names to each Field name field and giving unique and descriptive names.
- Select the next range in the All ranges: field and repeat naming each field. As you do this the existing names are available in the field name drop downs. There will be names that apply to more than one data set, this will act as a mechanism that groups the data in logical ways. (years, regions, etc..)



Iı	nstructions:	Results/ Comments:
1.	Open the ConsolidatedSales.xlsx workbook.	
2.	Click the [PivotTable and PivotChart Wizard] on the QAT .	The <i>PivotTable and PivotChart Wizard</i> opens.
3.	In <i>Step 1</i> of the <i>Wizard</i> , select the [<i>Multiple consolidation ranges</i>] and <i>PivotTable</i> radio buttons, then click [Next].	Choosing this option will allow you to pull data from across all the worksheets in this workbook into a new PivotTable .
4.	For <i>Step 2a</i> of the <i>Wizard</i> , select the <i>Create a single page field for me</i> radio button, then click [Next].	You will be letting <i>Excel</i> determine a page field for the PivotTable .
5.	In <i>Step 2b</i> of the wizard, click into the Range: field.	You will be selecting the ranges you want to consolidate.
6.	Click the <i>Hellmen-Jan</i> worksheet and select the range A3:E8.	This represent the first range of data to be consolidated.
7.	Click the [Add] button.	The range is added into the All ranges: field.
8.	Repeat the steps 5 to 7 to add the data ranges from the other worksheets in the workbook. The February months cell ranges will be A3:E7 .	To continue adding all the other data ranges.
9.	Click [Next] to continue.	<i>Step 3</i> of the wizard is opened.
10	In <i>Step 3</i> of the wizard, select the <i>New worksheet</i> radio button, leave the default cell address, and click the [Finish] button.	The new PivotTable will be placed into it's own worksheet.
11	. In the PivotTable , click the Page 1 filter drop-down.	The list displays each option as Item#, which may not be very useful.
12	. Save the file.	[Ctrl S].

Editing A Consolidated PivotTable

Once you have created a PivotTable and need to modify the Source data or add page fields of your own design, you will use the *PivotTable and PivotChart Wizard* again. If the active cell is outside of the consolidated PivotTable and you click the **[PivotTable and PivotChart Wizard]** button, you will be starting a new consolidation. With a cell actively selected within the consolidated **PivotTable**, you will open the wizard at Step 3 of the dialog, and it is possible to use the **[Back]** button to step back through the process.

Reasons it may become necessary to modify the consolidated **PivotTable** include the addition of or deletion of rows or columns within data sets, or deciding that it is necessary to create page fields.



- Select any cell within the consolidated Pivottable and click the [PivotTable and PivotChart Wizard] button.
- The PivotTable and PivotChart Wizard dialog opens to Step 3 of the process.

PivotTable and PivotChart	?	×	
	Where do you want to put the PivotTable report?		
	Click Finish to create your PivotTable report.		Î
Layout Option	ns Cancel < <u>B</u> ack Next	> <u>E</u> inis	h

- Click the **[Back]** button to step back to *Step 2b*.
- ♦ If you need to change the ranges:
 - Select the range to be modified in the All ranges: field and click the [Delete] button.
 - Click into the **Range:** field, re-define the range and click the **[Add]** button.
 - Once all changes have been made, click the [Next] button to proceed to Step 3.



Editing A Consolidated PivotTable, continued

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- If you want to switch from having the single page field created for you to *I will create the page fields*:
 - While still in the *Step 2b* of the dialog, click the [Back] button at go back to *Step 2a*.
 - In the Step 2a dialog choose the I will create the page fields radio button, click the [Next] button.



- The Step 2b dialog is redisplayed, notice that all your previous selections are still in place, and you can now define the number of fields and assign them names.
- Select the radio button for the number of fields to add.



Select the first range in the **All ranges:** field.



Click into the Field one: field, and type in a name that helps define the data set.



Continued adding names to each Field name field, giving unique and descriptive names to each data range in the All ranges: field.

Lesson 3: Advanced Features of PivotTables

Editing A Consolidated PivotTable, continued



Remember the	
Items represent the	
data source names	
alphabetically.	

- Once all the ranges have had their fields named, click the [Next] button to advance to *Step 3* of the dialog.
- In the Step 3 dialog, don't change anything, and click the [Finish] button to update the PivotTable.

Using Find&Replace to Rename Page Field Items

For the times when you simply wish to change the number items in the list to descriptive names without having to go back a create page fields, use the Find and Replace tools.

- Drag the Page1 field out of the *Filter* area in the *PivotTable Fields* pane to the *Rows* area.
 - The Find&Replace tool will not work if the Page1 field is the in the Filter area.
- On the *Home Tab* in the Editing Group, click the [Find & Select] button drop-down and choose *Replace*.
- ♦ In the *Find and Replace* dialog:

Find and Replac	e			?	×
Fin <u>d</u> Repl	ace				
Fi <u>n</u> d what: Replace with:					~
				Op <u>t</u> ion:	; >>
Replace <u>A</u> ll	<u>R</u> eplace	F <u>i</u> nd All	<u>F</u> ind Next	Cl	ose

- In the **Find what:** field, type in the Item# to replace.
- In the **Replace with:** field, type in what it should be replaced with.
- Click the [Replace All] button.
- Excel notifies you that one replacement has been made.

Microsof	Microsoft Excel	
1	All done. We made 1 replacem	ents.
	ОК	

- Repeat the find and replace until all items have been renamed.
- Close the *Find and Replace* dialog.
- Drag the Page1 field back into the *Filter* area of the *PivotTable Field* pane.





- 1. The **ConsolidatedSales.xlsx** file should still be open.
- 2. Select cell A14 on *Sheet1*.
- 3. Click the **[PivotTable and PivotChart Wizard**] button in the *QAT*.
- 4. Click the **[Cancel]** button to exit the dialog.
- 5. Select cell A4 on *Sheet1*.
- 6. Click the **[PivotTable and PivotChart Wizard]** button in the *QAT*.
- 7. Click the **[Back]** button twice to return to *Step 2a* of the dialog.
- 8. Choose the *I will create the page fields* radio button and click the **[Next]** button
- Click the 2 radio button in the How many page fields do you want? section of the dialog.
- 10. In the **All ranges:** field select the first item in the list.
- 11. Click into the **Field One** field and type <**Hellmen** >.
- 12. Click into the **Field Two** field and type < **Feb** >.

Results/ Comments:

If not, re-open it.

An empty cell on the sheet where the PivotTable is located.

The *PivotTable and PivotChart Wizard* dialog opens to *Step 1*. Since you were not in the PivotTable, *Excel* assumes you want to create a new one.

This cell is within the PivotTable.

The *PivotTable and PivotChart Wizard* dialog opens to *Step 3*. *Excel* now assumes you wish to modify the existing PivotTable created with this tool.

Here you can change how the page fields are added to the PivotTable.

You will now create the number of pages fields.

The **Field One** and **Field Two** fields are now active.

The Hellmen-Feb data range is highlighted.

This is the name applied in the first field associated with the data range.

This is the name applied in the second field associated with the data range.



Instructions:	Results/ Comments:
13. In the All ranges: field select the second item in the list.	The Hellmen-Jan data range is highlighted.
14. Click into the Field One field and type Hellmen > .	This is the name applied in the first field associated with the data range.
15. Click into the Field Two field and type Jan > .	This is the name applied in the second field associated with the data range.
16. Continued selecting the data ranges from the All ranges: field and applying appropriate named to the fields.	Each data range should get names applied in both field to better help identify them.
17. Once all data ranges have been assigned fields and names, click the [Next] button to advance to <i>Step 3</i> of the dialog.	
18. Click the [Finish] button to complete making the modifications.	Do not change the location since you are currently only updating the active PivotTable .
19. Click the Page 1 field drop-down to examine the available fields to filter by.	This drop-down offers the list of Sales Reps the PivotTable can be filtered by.
20. Select cell A1 and type in; < Sales Rep >.	Rename the label according to the grouping offer in the drop-down list.
21. Drag the Page2 field into the <i>Filter</i> area of the <i>PivotTable Field</i> pane. (If Necessary)	
22. Select cell A2 and type in; < Months >.	The field and label are added in cells A1 and A2 .
23. Select cell A5 and type in; < Week >.	Rename the label according to the names offered in the drop-down list.
24. Rename the Column Label cell with a descriptive name of your own choosing.	Since this field contains financial data consider naming it Financial.
25. Save the file.	[Ctrl S].

<u></u>					
Calculated Fields and Calculated Items	You can use summary functions in value fields from an underlying data source in PivotTable Reports . If they do not provide the results that you want or need, you can create your own formulas using Calculated Fields and Calculated Items.				
	The difference between a Calculated Field and a Calculated Item is that a Calculated Field will add an additional row or column to your PivotTable , which then becomes a row or column from which other calculations can be created. A Calculated Item, on the other hand, creates a calculation within a field.				
	For example, you might use a summary function to add up January, February, and March to return a First Quarter Total. You could then use First Quarter Total as a Calculated Field in a formula.				
	An example of a Calculated Item would be if you want to sum only those occurrences on certain days of the week.				
	When you are working with Calculated Fields, it is important to remember the summary functions that are available for source data (with the exception of On Line Analytical Processing or OLAP data).				
	Function	Summarizes			
	SUM	Sum of the values. Default function for numeric data.			
	COUNT	Counts the number of data values.			
	AVERAGE	The average of the values.			
	MAX	The largest value.			
	MIN	The smallest value.			
	PRODUCT	The product of the values.			
	COUNT NUMBERS	Counts the number of data values that are numerical.			
	StDEV	Estimate of the standard deviation of a population, where the sample is a subset of the entire population.			
	StDEVP	Standard deviation of a population, where the population is all of the data to be summarized.			
		Estimate of the variance of a nonulation where the cample			
	VAR	is a subset of the entire population.			

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Calculated Fields and Calculated Items.

continued

In addition to these summary functions, there are other functions available for **Custom Calculations** in **Value Fields**. The list below shows some of the available options from the **Show Values As** calculations list.

Function	Result
Difference From	Displays values as the difference from the value of the Base Item in the Base Field.
% Of	Displays values as a percentage of the value of the Base Item in the Base Field.
% Difference From	Displays values as the percentage difference from the value of the Base Item in the Base Field
Running Total In	Displays the value for successive items in the Base Field as a running total.
% of Row	Displays the value in each row or category as a percentage of the total for the row or category.
% of Column	Displays all of the values in each column or series as a percentage of the total for the column or series
% of Total	Displays values as a percentage of the Grand Total of all of the values or data points in the report.
Index	Calculates values as follows: ((Value in Cell) x (Grand Total of Grant Totals)) / ((Grand Row Total) x (Grand Column Total))

If **Summary Functions** and **Custom Calculations** do not provide the desired results, you can create your own **Formulas** in **Calculated Fields** and **Calculated Items**.

For data that comes from an *external data source* or from *worksheet data*, Excel uses the **Sum** function to calculate **Value Fields** that contain numeric data, and the **Count** function to calculate **Value Fields** that contain text.

You can choose a different summary function like **Average**, **Max** or **Min** to further analyze or customize the data.

<u></u>		
Calculated Fields	When yo aware of	u use Formulas in a PivotTable Report , you must be syntax rules and formula behaviors.
Items, continued	\$	You can use operators and expressions as you do in other worksheet formulas.
	\$	You can use constants and refer to data from the report, however you cannot use cell references or defined names.
	\$	Formulas for Calculated Fields operate on the sum of the underlying data for any fields in the formula. Therefore, you cannot sort a Calculated Field .
	\$	Formulas cannot refer to totals.
	\$	You can include the Field Name in a reference to an Item but the Item Name must be in square [] brackets.
	\$	If you refer to an Item by its position in your PivotTable Report as it is currently sorted and displayed, the Item referred to can change whenever the position of the Item changes or is displayed or hidden. Hidden Items will not be counted in an index.
	\$	You cannot add Calculated Items to PivotTable data that contains Averages .
	\$	You cannot add Calculated Items to data that has been Grouped .
	Creatin	g a Formula in a PivotTable Report
	\$	Decide whether you are creating a Calculated Field or a Calculated Item within a field.
		Use a Calculated Field when you want to use the data from another field in your formula.
		Use a Calculated Item when you want something calculated <i>within</i> a field.

Adding A Calculated Item



Adding a Calculated Item to a Field

- If the Items in the Field are grouped, select the *Analyze Tab*, in the Group Group select [Ungroup].
- Select the field where you want to place the *Calculated Item*.
- On the *Analysis Tab*, in the Calculations Group click the [Fields, Items, & Sets] button drop-down and choose *Calculated Item* from the menu.

Insert Cal	culated Item in "Financials"		_	?	×
<u>N</u> ame:	Formula1		\sim	<u>A</u> dd	
For <u>m</u> ula:	= 0			<u>D</u> elete	
<u>F</u> ields:		Items:			
Row Financial Value Cities Month	5	Sales Income Rents Operational			^
	~				
	Insert Fi <u>e</u> ld			Insert	l <u>t</u> em

- The Insert Calculated Item in "Field Name" dialog opens.
 - In the Name: field, type a name for the Calculated Item.
 - In the **Formula:** field, enter the formula for the item.
 - The Fields: field list shows all the PivotTable fields. The highlighted field in this list is the one having a *Calculated Item* added.
 - The Items: field lists all the items from the selected field.
 - To use data from an item in the formula, click the *Item* in the **Items:** field list, then click **[Insert Item]** button. The items can only be used in the field that is having the *Calculated Item* added.
 - Click [Add] if you are creating more than one *Calculated Item*.
- Click the [OK] button to complete the process and see the results.
- Select any of the new cells and examine the Formula Bar.
- Regroup the items if necessary.

In Calculated Items.

different formulas can be entered cell

Note

by cell.





Instructions:		Results/ Comments:
1.	The ConsolidatedSales.xlsx file should still be open.	If not, re-open it.
2.	In the <i>PivotTable Field</i> pane, drag the Sales Reps and Months fields from the Filter area to the top of the Rows area.	You are rearranging the structure of the PivotTable .
3.	On the <i>Design Tab</i> in the Layout Group, click the [Report Layout] button drop- down and choose <i>Show in Tabular Form</i> from the menu.	The layout changes accordingly.
4.	On the <i>Design Tab</i> in the Layout Group, click the [Grand Totals] button drop- down and choose <i>On for Columns Only</i> from the menu.	The totals column is removed from the PivotTable .
5.	On the <i>Design Tab</i> in the Layout Group, click the [Subtotals] button drop-down and choose <i>Do Not Show Subtotals</i> from the menu.	All subtotals are removed.
6.	Select the cell with the label Sales , F5 .	A heavy board line is displayed around the cell.
7.	Move the cell over to column D .	Set the cursor over the border line of the selected cell, the <i>Move Arrow</i> is shown. As you click and drag the cell a thick green I-beam is displayed that show where the content is being moved to.
8.	Select cell F5.	This cell is in the field you will be adding a <i>Calculated Item</i> to.
9.	On the <i>Analyze Tab</i> in the Calculations Group , click the [Fields, Item, & Sets] button drop-down and choose <i>Calculated Item</i> from the menu.	The Insert Calculated Item in "Financial" dialog opens.
10	. Click into the Name: field and type in- Total Expenses .	This will be the name of the new item in the Financial field.



Instructions:	Results/ Comments:
11. Click into the Formula: field and type =sum(then in the Items: field select <i>Operational Expenses</i> and click the IInsert	This formula will add the two expense columns of data.
Item] button then type a , and in the Items: field select <i>Product Cost</i> and click the [Insert Item] button Type a).	When completed the formula should read =sum(Operational Expenses,Product Cost)
12. Click the [OK] button.	The new item is added into the Financial field. If you select any cell containing a value in the new range, you can see the formula in the Formula Bar .
13. Select cell H5 .	You will be adding another item to this field.
14. On the <i>Analyze Tab</i> in the Calculations Group , click the [Fields, Item, & Sets] button drop-down and choose <i>Calculated</i> <i>Item</i> from the menu.	The Insert Calculated Item in "Financial" dialog opens.
15. Click into the Name: field and type in- Bonus Earned .	This will be the name of the new item in the Financial field.
16. Click into the Formula: field and type =if(then in the Items: field select <i>Income</i>	This formula will determine if a bonus was earned and the value of that bonus.
and click the [Insert Item] button then type a >2000) , and in the Items: field select <i>Income</i> and click the [Insert Item] button then type a *.05,0) .	When completed the formula should read =if(Income>2000,Income*.05,0)
17. Click the [OK] button.	The new item is added in the Financial field.
18. Rename the <i>Income</i> and <i>Sales</i> column headers as Net Profit and Gross Sales .	Click into each of the headers cells and type new names.
19. Save the file.	[Ctrl S].

(0)

Adding A

Calculated Field

Adding a Calculated Field

- Select any cell in the **PivotTable Report**.
- On the Analyze Tab in the Calculations Group, click on [Fields, Items, & Sets] button drop-down and choose Calculated Field from the menu.
- ♦ The *Insert Calculated Field* dialog opens.

	culated Field		_	
<u>N</u> ame:	Field1		~	<u>A</u> dd
For <u>m</u> ula:	= 0			<u>D</u> elete
Row Financial Value Cities Month	5	^		
		V		

- Solution In the Name: field, type a name for the field.
- In the **Formula:** field, enter the formula for the field.
- To use data from another field in the formula, select the field in the Fields: field list, then click [Insert Field].
- If you are creating more than one field click the [Add] button.
- Click the [OK] button to complete the process and see the results.
- To temporarily remove a *Calculated Field* from the **PivotTable**, uncheck the checkbox in the *PivotTable Field* pane.





Iı	nstructions:	Results/ Comments:
1.	The ConsolidatedSales.xlsx file should still be open.	If not, re-open it.
2.	Select any cell in the PivotTable .	To add a Calculated Field you just need to be in the PivotTable.
3.	On the <i>Analyze Tab</i> in the Calculations Group , click the [Fields, Item, & Sets] button drop-down and choose <i>Calculated</i> <i>Field</i> from the menu.	The Insert Calculated Field dialog opens.
4.	Click into the Name: field and type in- Expense Reduction .	This will be the name of the new field.
5.	Click into the Formula: field and type = then in the Fields: field select <i>Value</i> and click the Uncert Field button then	This formula will calculate what the desire expense value will be.
	type a -(, and in the Fields : field, select <i>Value</i> and click the [Insert Field] button and type *.03).	When completed the formula should read =Value-(Value*.03)
6.	Click the [OK] button.	The new field is added to the PivotTable .
7.	Notice there is now a Sum of Expense Reduction for each item in the Financial field.	This filed runs the calculation on each item in the field.
8.	Click the Financial field filter drop-down and uncheck every item in the list except <i>Operational Expenses</i> .	Limiting the data being displayed in the PivotTable .
9.	Right-click any cell with a value in the Sum of Value column and choose <i>Value Field Settings</i> from the menu.	The Value Field Settings dialog opens.
10	. Click into the Custom Name: field and type Current Expenses .	This will be the name given to this column of data.
11	. Click the [Number Formats] button.	The Format Cells dialog opens.



Instructions:	Results/ Comments:
12. Choose the <i>Currency</i> category and click the [OK] button twice.	The currency format and name are applied to the column.
13. Right-click any cell with a value in the Sum of Expense Reduction column and choose <i>Vale Field Settings</i> from the menu.	The Value Field Settings dialog opens.
14. Click into the Custom Name: field and type Target Expenses .	This will be the name given to this column of data.
15. Click the [Number Formats] button.	The Format Cells dialog opens.
16. Choose the <i>Currency</i> category and click the [OK] button twice.	The currency format and name are applied to the column.
17. Examine the PivotTable data.	You are seeing a very specific subset of information based on a mix of original and calculated data.
18. In the <i>PivotTable Field</i> pane, uncheck the Expense Reduction field.	The Target Expenses field is removed from the PivotTable .
19. Click the Financial field filter drop-down and check the (<i>Select All</i>) checkbox.	All the items in the Financial field are re- displayed.
20. Save the file.	[Ctrl S].

Editing Calculated Items Or Fields

Calculated Items and Fields may need to be modified or corrected. This is done by opening the *Calculated Items or Fields* dialog and choosing the calculation to be edited.

Editing Calculated Items

- Select the a field , any field will work since you can choose the field in the dialog.
- On the *Analyze Tab* in the Calculations Group, click the [Fields, Items, & Sets] button drop-down and choose *Calculated Item...* from the menu.
- The Insert Calculated Items in "Field Name" dialog opens.

Insert Cal	culated Item in "	Financials"		?	×	
Name:	Formula1			Add		
For <u>m</u> ula:	Total Expenses Bonus Earned		^	Delete		
<u>F</u> ields: Weeks Financials Value Sales Rep Months test	5	~	Net Profit Operational Expense Product Cost Total Expenses Bonus Earned	•5	< v	
		Insert Fi <u>e</u> ld		Inser	t l <u>t</u> em	
			ОК	Clo	ose	

- Click the Name: field drop-down and choose the item to be edited.
- Click into the Formula: field and edit the formula as needed.
- Click the **[OK]** button to apply the edit.

Deleting Calculated Items

- Select a field. Any field will work since you can choose the field in the dialog.
- On the *Analyze Tab* in the Calculations Group, click the [Fields, Items, & Sets] button drop-down and choose *Calculated Item...* from the menu.
- The Insert Calculated Items in "Field Name" dialog opens.
- Click the Name: field drop-down and choose the item to be deleted, then click the [Delete] button.
- Click the **[OK]** button to apply.

0 Editing **Calculated Items** Or Fields. continued

Editing Calculated Fields

- With any cell in the **PivotTable** actively selected.
- On the Analyze Tab in the Calculations Group, click the [Fields, Items, & Sets] button drop-down and choose *Calculated Field*... from the menu.
- The Insert Calculated Field dialog opens.

Insert Cal	culated Field		?	×	
<u>N</u> ame:	Field1	~	Add		
For <u>m</u> ula:	test	^	Delete		
<u>F</u> ields: Weeks		~			
Financials Value Sales Rep Months test	5				
	~]			
	Insert Fi <u>e</u> ld				
		ОК	Clo	se	

- Click the Name: field drop-down and choose the item to be edited.
- Click into the Formula: field and edit the formula as needed.
- Click the **[OK]** button to apply the edit.

Deleting Calculated Items

- Set the a field. Any field will work since you can choose the field in the dialog.
- On the *Analyze Tab* in the **Calculations Group**, click the [Fields, Items, & Sets] button drop-down and choose Calculated Item... from the menu.
- The Insert Calculated Items in "Field Name" dialog opens.
- Click the **Name:** field drop-down and choose the item to be deleted, then click the [Delete] button.
- Click the [OK] button to apply.



Instructions:			Results/ Comments:
1.	The ConsolidatedSales.xlsx file should still be open.		If not, re-open it.
2.	Select any column field header cell in the PivotTable .		To edit a <i>Calculated Item</i> you must first have a field actively selected; <i>Gross Sales</i> , <i>Net Profit</i> , <i>Operational Expenses</i> , or <i>Product Cost</i> .
3.	On the <i>Analyze Tab</i> in the Calculations Group , click the [Fields, Item, & Sets] button drop-down and choose <i>Calculated</i> <i>Item</i> from the menu.		The Insert Calculated Item in "Field Name" dialog opens.
4.	Click the drop-down of the Name: field and select <i>Bonus Earned</i> from the list.		The list of all existing field calculations are shown in the list. Choosing one of these will show the name and formula in the appropriate fields of the dialog.
5.	Click into the Formula: field and change the value of 2000 to 1500.		To lower the threshold to earn a bonus.
6.	Click the [OK] button.		The edit is applied to the item.
7.	Select any cell in the PivotTable .		When editing Calculated Fields , any cell in the PivotTable can be selected.
8.	On the <i>Analyze Tab</i> in the Calculations Group , click the [Fields, Item, & Sets] button drop-down and choose <i>Calculated</i> <i>Field</i> from the menu.		The Insert Calculated Field dialog opens.
9.	Click the drop-down of the Name: field and select <i>Expense Reduction</i> from the list.		The field details area displayed in the dialog. At this point the field can be edited or deleted.
10	. Click the [Delete] button.		The field is removed.
11	. Click the [OK] button.		The field is no longer listed in the <i>PivotTable Field</i> pane.
12	. Save the file.		[Ctrl S].

Solve Order and Displaying Formulas

Changing the Order

If you are not getting the results that you expected, you can change the *order* in which the calculations are performed for your Multiple *Calculated Items*.

- Click on a cell inside your **PivotTable**.
- On the Analyze Tab in the Calculations Group, click the [Fields, Items, & Sets] button drop-down and choose Solve Order.

Calculated Item Solve Order	?	×
Solve order:		
"Total Expenses" = SUM('Operational Expenses', Pro 'Bonus Earned' = IF('Net Profit' >2000, 'Net Profit' *0	duct Co .05,0)	ost) 🔿
If the value in a PivotTable cell is affected by two or i items, the value is determined by the last formula in	more ca the sol	ve order.
Move Up Move Down Delete		Close

Select a formula from the list, click on the [Move Up] or [Move Down] button to change the calculation order.

Displaying Formulas

To display or view all the formulas that you are using in your **PivotTable** do the following:

- On the *Analyze Tab* in the Calculations Group, click the [Fields, Items, & Sets] button drop-down and choose *List Formulas*.
- A new worksheet listing the *Solve Order* and *Calculations* used in the current **PivotTable** is created.

1	А	В	C	D	E	F	G
1	Calculated Field						
2	Solve Order	Field	Formula				
3	1	test	=Value -(Value *0.03)				
4							
5	Calculated Item						
6	Solve Order	Item	Formula				
7	1	'Total Expenses'	=SUM('Operational Expenses','Product Cost')				
8	2	'Bonus Earned'	=IF('Net Profit' >2000,'Net Profit' *0.05,0)				
9							
10							
11	Note:	When a cell is up	dated by more than one formula,				
12		the value is set b	y the formula with the last solve order.				
13							
14 To change the solve order for multiple calculated items or fields,							
15		on the Options to	ab, in the Calculations group, click Fields, Items,	& Sets, an	d then clic	k Solve Or	der.
16							
17							
8							





Instructions:		Results/ Comments:
1.	The ConsolidatedSales.xlsx file should still be open.	If not, re-open it.
2.	Select any field cell in the PivotTable .	
3.	On the <i>Analyze Tab</i> in the Calculations Group , click the [Fields, Item, & Sets] button drop-down and choose <i>Solve</i> <i>Order</i> from the menu.	The <i>Calculated Item Solve Order</i> dialog opens. This dialog shows all calculated items used in the PivotTable.
4.	Select the second formula in the Solve Order: field list.	Choosing one of the formulas in the list will activate the [Move Up] or [Move Down] buttons. Rearranging the order of the formulas can change results if the items are used in other formulas.
5.	Notice that the [Move Up] button is now active.	
6.	Click the [Close] button without making any changes to the current order.	The dialog closes, there was no need to change anything in this instance.
7.	On the <i>Analyze Tab</i> in the Calculations Group , click the [Fields, Item, & Sets] button drop-down and choose <i>List</i> <i>Formulas</i> from the menu.	A new worksheet is added to the workbook with detailed information about the solve order and formulas in use.
8.	Examine the new worksheet.	
9.	Save the file.	[Ctrl S].



Tips and Notes


Lesson 4: Creating and Modifying PivotCharts

Lesson Overview

You will cover the following concepts in this chapter:

- PivotCharts
- Inserting PivotCharts
- Filtering PivotCharts
- Formatting PivotCharts



Lesson Notes

PivotCharts

PivotTable is

When you create

automatically created.

a **PivotChart** from scratch, a corresponding

Note

Once you have created the **PivotTable**, you can create a **PivotChart** to help better visualize the data. **PivotCharts** are always based on **PivotTables**, in other words it is possible to have a **PivotTable** without a **PivotChart** but not a **PivotChart** without a **PivotTable**.

Creating a **PivotChart** can be done straight from the source data using the charting tools, *PivotTable and PivotChart Wizard*, or it can be created once the **PivotTable** has been setup. If you filter either of these related objects the changes are reflected in the other.

A **PivotChart** is not unlike a regular chart, in that you have access to the *Chart Design* and *Formatting Tabs*, chart control buttons in the chart (minus the **[Filtering]** button), as well as the chart elements formatting pane. Although, since it is a **PivotChart** you will also have an *Analyze Tab* and similar filter tools as the **PivotTable**.



Inserting PivotCharts

Creating a PivotChart from the Source data

- Select any cell in a structured data set. (Just like the data set used to create a **PivotTable**)
- On the *Insert Tab* in the *Charts Group* click the [PivotChart] button.



The Insert PivotChart dialog opens.



- This dialog is the same as the dialog when inserting PivotTables using the [Insert PivotTable] button.
- You will define the data range the PivotTable and PivotChart will be based on.
- You will also decide where the PivotTable and PivotChart will be placed within the workbook.
- When the [OK] button is clicked a blank PivotTable and PivotChart are placed.



Now you will use the *PivotTable Field* pane to move the fields into the **PivotTable** and subsequently the **PivotChart** also.



Inserting PivotCharts, continued



Creating a Chart Based on an Existing PivotTable

- Select a cell in the **PivotTable**.
- On the Analyze Tab in the Tools Group click the [PivotChart] button.



The *Insert Chart* dialog opens.



- Choose the type of chart most suited to your data and click [OK].
- The new PivotChart is placed onto the same worksheet as the PivotTable that it is based on.



Chart Types Not Support as PivotChart

X Y Scatter
Treemap
Histogram
Funnel

Sı
W



	Instructions:	Results/ Comments:	
-	1. Open the ShippingPivotChart.xslx file.	From the data files folder.	
	2. Select any cell within the data set.		
	3. On the <i>Insert Tab</i> in the Charts Group , click the [PivotChart] button.	The Create PivotChart dialog opens.	
	 In the Rang/Table: field, the range should read Invoices!\$A\$1:\$K\$2156. 	<i>Excel</i> has expanded the range to include a connected data.	11
	5. The <i>New Worksheet</i> radio button should also be selected.	This ensures the new PivotTable and PivotChart will be on a separate worksheet. (Remember it is not possible have a PivotChart without a PivotTable.	to
	6. Click the [OK] button.	The new worksheet is added and the are both, a blank PivotTable and PivotChart with all the pivoting tools active.	
	7. Activate the PivotChart by clicking into the chart area.	Notice the tabs and tools available to manipulate it, a mix of the charting and pivoting tools	
	 In the <i>PivotTable Field</i> pane, drag- Country into Filter Salesperson into Axis (Categories) Quantity and Sales into Values 	As the fields are placed into pivot areas both the table and chart reflect the changes.	
	9. In the PivotChart , click the Country filter drop-down and select any country from the list. Click the [OK] button to apply the filter.	Whatever changes are made to the chart are reflected in the table.	
	 In the PivotTable, click the Country filter drop-down and choose All. Click the [OK] button to apply the filter. 	Whatever changes are made to the table are reflected in the chart.	
	11. Save and Close the file.	[Ctrl S] and [Ctrl W].	



Iı	nstructions:	Results/ Comments:
1.	The ConsolidatedSales.xlsx file should still be open.	If not, re-open it. Use the ConsolidatedSalesCompleted.xlsx workbook if the other has been closed without saving.
2.	Select any cell in the PivotTable on <i>Sheet1</i> .	
3.	On the <i>Analyze Tab</i> in the Tools Group , click the [PivotChart] button.	The Insert PivotChart dialog opens.
4.	In the <i>Insert Chart</i> dialog choose the <i>Column</i> category and click the [OK] button.	Take a moment to look at the charts types that can be used. When done the chart is placed on the same worksheet as the source.
5.	Select the PivotChart and notice the tabs and tools available to manipulate it.	The tools are a mix of the charting and pivoting tools. The same relation between the table and chart exists as in the pervious exercise.
6.	On the <i>Analyze Tab</i> in the Actions Group, click the [Move Chart] button.	The <i>Move Chart</i> dialog opens. Notice there are many of the same tools as the <i>Analyze Tab</i> in a PivotTable .
7.	Choose the <i>New sheet:</i> radio button and click the [OK] button.	A new worksheet named Chart1 is added with a full size chart. It is also removed from the original location.
8.	Save the file.	[Ctrl S].

Filtering PivotCharts

Once the **PivotChart** has been created, it is time to take advantage of its filtering capabilities to better understand trends in the data. Filtering in a **PivotChart** offers the same functionality as in a **PivotTable**: value and label filters, sorting, and slicers are available.

Using Field Filter Drop-downs

- Select the **PivotChart**.
- In the *PivotChart Field* pane drag the field into the **PivotChart** areas.

▼ Filters		III Legend (Series)	
		Financials	
Axis (Categories)		Σ Values	
Sales Reps	Ψ.	current Expenses	,
Months	-		
	_		

- Notice the names of the areas have changed-Rows are now referred to as Axis
 Columns are now referred to as Legend
- The field filter buttons are added to the **PivotChart**.
 - If you do not see the buttons added to the chart, they are currently hidden.
 - To unhide them, go to the *Analyze Tab* and click the [Field Buttons] drop-down and uncheck *Hide*



all.

From this drop-down, you are able to turn on and off specific field filter buttons. This allows you more control over how the data is filtered.



Filtering PivotCharts, continued



Adding Slicers and Timelines

Both the slicer and timeline slicer work as they do in a **PivotTable**, so this will be very familiar. These elements offer another way to control what level of access users will have in modifying the **PivotChart**. It is important to note that slicers can only be added when the **PivotChart** is on the same worksheet as the **PivotTable**.

- Select the **PivotChart** on the same sheet as the PivotTable.
- On the Analyze Tab in the Filter Group, click the [Insert Slicer] button.
- ♦ The *Insert Slicer* dialog opens.

Insert Slicers	?	\times
Weeks		
Financials		
Value		
Sales Reps		
Months		

- Chose the field you want to add and click the [OK] button.
- The slicers are added and the *Slicer Tools Options Tab* is accessible on the ribbon. Allowing you to apply formatting to the slicer.

When you have added a slicer object to a **PivotChart** you will be able to see what the they are connected to with the **Filter Connections.**

- On the *Analyze Tab* in the Filters Group click the [Filter Connections] button.
- The *Filter Connections* dialog opens.



Unchecking a connection disables the slicer object but does not remove it from the worksheet. Action 4.3 - Adding a Slicer



Instructions:			Results/ Comments:
1.	The ConsolidatedSales.xlsx file should still be open.		If not, re-open it.
2.	Click into the PivotChart on the <i>Chart1</i> worksheet.		
3.	Examine the <i>Analyze Tab</i> .		All of the Filter Group tools are greyed out. The tools are not available since the PivotChart is not on the same worksheet as the PivotTable.
4.	Right click the tab and choose <i>Delete</i> from menu.		The Delete Worksheet dialog opens.
5.	In the <i>Delete Worksheet</i> dialog, click the [Yes] button.		The <i>Chart1</i> worksheet is deleted.
6.	Select any cell in the PivotTable on <i>Sheet1</i> .		The <i>PivotTable Tabs</i> are now active.
7.	On the <i>Analyze Tab</i> in the Tools Group , click the [PivotChart] button.		The Insert Chart dialog opens.
8.	In the <i>Insert Chart</i> dialog choose the <i>Column</i> category and click the [OK] button.		A chart is added to the existing worksheet with the PivotTable .
9.	Examine the Filter Group in the <i>Analyze Tab</i> .		Since this chart is on the same worksheet as the PivotTable , the Filter Group tools are available.
10	. On the <i>Analyze Tab</i> in the Filter Group , click the [Insert Slicer] button.		The <i>Insert Slicer</i> dialog opens, showing the list of all available fields.
11	. Choose <i>Sales Reps</i> and click [OK] .		The Sales Rep slicer is added to the worksheet.
12	. Choose one to the salespeople buttons in the slicer.		Both the chart and table reflect the filtering choice.
13	. Click into the chart.		The <i>Chart Tabs</i> are now available.



Instructions:	Results/ Comments:
14. On the <i>Analyze Tab</i> in the Actions Group , click the [Move Chart] button.	The Move Chart dialog opens.
 15. In the Move Chart dialog select the New Worksheet radio button and name the worksheet; Chart2 and click the [OK] button. 	The chart is moved to it's own worksheet.
16. On the <i>View Tab</i> in the Windows Group , click the [New Window] button.	A new window of the workbook is created.
17. On the <i>View Tab</i> in the Windows Group , click the [Arrange Windows] button.	The Arrange Windows dialog opens.
18. Choose <i>Tiled</i> and click the [OK] button.	There are two windows of the workbook displayed side by side.
19. Activate <i>Sheet 1</i> and zoom out to make the slicer and table visible.	Now both worksheets are visible.
20. Click a different salesperson button in the slicer.	As the slicer is modified, both the PivotTable and PivotChart are still modified. This is because the chart was first created on the same worksheet as the PivotTable.
21. Save the file.	[Ctr1 S].

Formatting PivotCharts

As with regular charts, when the chart is active the *PivotChart Design* and *Format Tabs* are available along with the *Analyze Tab*.

	Analyze	Design	Format					
File Home Inset Page Layout For Chart Name Active Field: Drill Drill The second	cpand Field ollapse Field Slicer Timeline (Filter	View Developer Filter Connections Refresh Cha Dat	Analyze Design Form nge Data purce * Chart Actions	nat Q Tell me what you want to f_X f_X $rac{1}{rac$	Field Field List Buttons • Show/Hide			
	A	nalyze Tab	•					
File Home Insert Page Layout Form	ulas Data Review View	v Developer Analyz	e Design Format	${\cal Q}$ Tell me what you want to do				
Add Chart Quick Element * Layout *				Switch Row/ Select Column Data	Change Move Chart Type			
Chart Layouts Chart Styles Data Type Location								
File Home Insert Page Layout Formul Chart Area • • • • • • •	as Data Review View c Abc Abc & Sha Shane Shules	Developer Analyze pe Fill * pe Outline * pe Effects *	Design Format Q Te A A A A A A A A A A A A A A A A A A A	Il me what you want to do Bring Forward Part Reference Send Backward Part Reference Arange	ia +			
Content Selection Inself Shapes	Simple Styles	Design Tab	rineit agna 19	Anny	716.5 78			

Both the *Design* and *Format Tabs* are consistent with regular chart tools. The *Analyze Tab* offers the same tools as in the PivotTable.

When the **PivotChart** is actively selected, you will have access to the **[Chart Elements]** and **[Chart Styles]** button at the upper left corner of the chart. Since this is a **PivotChart** the **[Chart Filter]** button is not available.





Formatting PivotCharts, continued

Using the Format Shape Dialog Box

An alternative to using the tools on the *Format Tab*, is to use the *Format Selection* pane. Right-clicking a chart element and choosing *Format (Element Name)* from the menu will open the *Format Selection* pane on the right side of the interface. The *Format* pane can also be accessed by clicking on the **[Format Selection]** button on the *Format Tab*. The options in the *Format Selection* pane will change based on the selected element in the **PivotChart**. You can use the words at the top, or the icons below those, or the index below the icons to select the different elements you wish to affect.



While this *Format Selection* pane is open, other elements in the **PivotChart** can be formatted as they are selected. You may keep the *Format Selection* pane open and simply click on an element to format, make changes, then select the next element to format. When all the elements have been formatted, you can close the pane since all formatting has been completed.



Ir	istructions:	Results/ Comments:
1.	The ConsolidatedSales.xlsx file should still be open.	If not, re-open it.
2.	Activate the <i>Chart2</i> window and click the [Maximize] button in the upper right corner of the window.	This window is now full screen.
3.	Right-click anywhere in the chart on the <i>Chart2</i> worksheet.	
4.	Choose <i>Format</i> form the menu.	You may see a wide variety of elements to format, choose any that are available. The <i>Format</i> pane opens.
5.	Locate the Element Selector drop-down below the Format title and click on it.	This lists any chart editable elements, this list will vary depending to the chart type.
6.	From the list of options, choose <i>Plot Area</i> .	The <i>Plot Area</i> formatting options are displayed in the <i>Format</i> pane.
7.	Click the Fill & Lines icon.	It looks like a paint bucket. The <i>Fill & Line</i> formatting options are displayed.
8.	Expand the <i>Fill</i> options.	The <i>Fill</i> options are displayed.
9.	Click the <i>Picture or texture fill</i> radio button.	Those controls are now displayed. You can now add logos or other types of imagery
10	Below the [Insert] button is the Texture drop-down. Click it and choose the White Marble image.	These basic textures are part of the program. You can choose any of these.
11.	Once an image or texture is placed, use the Transparency slider to make it semi- opaque.	Creating a very nice washed out background image.
12	From the Element Selector drop-down, choose <i>Vertical (Value) Axis</i> .	The <i>Format</i> pane now offers all controls to related to the selected element.



13. Click the Axis Options icon.

- 14. Expand the *Axis* options.
- 15. Change the Minor units to **1000**.
- 16. Change the Major Units to **4000**.
- 17. Click anywhere in the chart and then click the **[Chart Elements]** button.
- 18. In the *Gridlines* fly-out menu, check the *Primary Minor Horizontal* checkbox.
- 19. Click the **[Chart Elements]** button again to collapse the options.
- 20. In the *Format* pane, choose *Vertical* (*Value*) *Axis Minor Gridlines*.
- 21. Click the **Fill & Lines** icon and expand the *Lines* options.
- 22. Choose *Black* from the **Color Picker** and in the **Width** field, set the value to **1.25**.
- 23. Try changing the *Vertical (Value) Axis Major Gridlines* to *Black* with a width of **1.5**.
- 24. Save the file and close all open windows.

Results/ Comments:

It looks like a small three column chart.

Here, you are now able to set the axis scale as well as the major & minor lines as needed.

Nothing changes yet because the Minor Gridlines are not currently displayed.

The major gridlines are now 4000 intervals.

This is the small + located in the upper right corner of the chart.

The minor gridlines are now added to the chart, but are not very easily seen.

This button must be clicked to display the options and then clicked to hide the options.

The formatting controls of the minor gridlines are displayed.

Line formatting controls are displayed.

The minor lines are now more clearly displayed.

Repeat steps 20 to 22 in relation to the Major Gridlines.

You can continue to explore formatting other chart elements to practice further. **[Ctrl S]** and **[Ctrl W]**.



Tips and Notes



Lesson 5: Creating PivotTables from External Data

You will cover the following concepts in this chapter:

- Set Data from a CSV File
- Power Query
- ♦ Editing a Query

Excel 2019: PivotTable Features Rel. 1.0, 02/21/2020



Lesson Notes

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There are many instances where the required data is stored outside of *Excel*. Beginning with *Excel 2016* you can use the **Get & Transform** tools to connect to and query data sources. These new tools allow you to use *Power Query* to bring data into *Excel*. These tools are accessed from the *Data Tab* in *Excel*.

File	Home	In	sert P	age Layou	t Formula:	5 Dat	ta	Review	View	I
Get Data ▼	From Text/CSV	From Web Get 8	From Table Range Transform	Recent Sources Data	Existing Connections	Refresh All *	Cuerie	Queries & Co Properties Edit Links es & Connec	onnections	

Data source types include:

- CSV or Text file
- Solution Excel tables or cell ranges
- Other Excel files
- Web pages where the data is stored in tables
- ♦ SQL servers
- ODBC (Open Database Connectivity)
- ♦ Access Databases
- ♦ XML files
- Sharepoint
- ♦ Azure
- Oracle
- OLE DB (Object Linking and Embedding Database)
- ♦ JSON files
- Analysis Services
- Exchange
- ♦ Active Directories
- Facebook
- ♦ Teradata

O Get Data from a CSV File

One common way data is extracted from a database and given to users is with CSV (Comma Separated Value) files. These CSV files are simple plain text documents, as such they can contain vast amounts of data with relatively small file sizes. Power Query automatically detects delimiters and established columns based on those delimiters, first rows are also as headers of the columns.

Connecting to CSV files

- ♦ Activate the *Data Tab* in the ribbon.
- In the Get & Transform Group, click the [From Text/ CSV] button.



The *Import Data* dialog opens, allowing you to search for the necessary files.



Once the file has been selected and opened, the Navigator window opens.

File Origin		Delimiter			Data 1	Type Detection		
1252: Western European (Window	/s) *	Comma		v	Base	d on first 200 rows	*	
Company Name	Country	Salesperson	Order ID	Order D	ate	Required Date	Shipped Date	Product Name
Alfreds Futterkiste	German	y Nancy Davolio	10835	1/1	5/2007	2/12/2007	1/21/2007	Raclette Courdavault
Alfreds Futterkiste	German	y Nancy Davolio	10835	1/1	5/2007	2/12/2007	1/21/2007	Original Frankfurter g
Alfreds Futterkiste	German	y Nancy Davolio	10952	3/10	5/2007	4/27/2007	3/24/2007	Grandma's Boysenbe
Alfreds Futterkiste	German	y Nancy Davolio	10952	3/10	5/2007	4/27/2007	3/24/2007	Rössle Sauerkraut
Alfreds Futterkiste	German	y Janet Leverling	11011	4/3	7/2007	5/7/2007	4/13/2007	Escargots de Bourgog
Alfreds Futterkiste	German	y Janet Leverling	11011	4/1	2007	5/7/2007	4/13/2007	Fløtemysost
Alfreds Futterkiste	German	y Michael Suyama	10643	8/2	5/2007	9/22/2007	9/2/2007	Rössle Sauerkraut
Alfreds Futterkiste	German	y Michael Suyama	10543	8/2	5/2007	9/22/2007	9/2/2007	Chartreuse verte
Alfreds Futterkiste	German	y Michael Suyama	10643	8/2	5/2007	9/22/2007	9/2/2007	Spegesild
Alfreds Futterkiste	German	Margaret Peacock	10692	10/3	8/2007	10/31/2007	10/13/2007	Vegie-spread
Alfreds Futterkiste	German	Margaret Peacock	10702	10/1	3/2007	11/24/2007	10/21/2007	Aniseed Syrup
Alfreds Futterkiste	German	y Margaret Peacock	10702	10/1	3/2007	11/24/2007	10/21/2007	Lakkalikööri
Ana Trujilo Emparedados y helados	Mexico	Margaret Peacock	10926	3/4	\$/2007	4/1/2007	3/11/2007	Queso Cabrales
Ana Trujillo Emparedados y helados	Mexico	Margaret Peacock	10926	3/4	\$/2007	4/1/2007	3/11/2007	Konbu
Ana Trujilo Emparedados y helados	Mexico	Margaret Peacock	10926	3/4	1/2007	4/1/2007	3/11/2007	Teatime Chocolate Bi
Ana Trujilo Emparedados y helados	Mexico	Margaret Peacock	10926	3/4	\$/2007	4/1/2007	3/11/2007	Mozzarella di Giovani
Ana Trujilo Emparedados y helados	Mexico	Janet Leverling	10625	8/1	3/2007	9/5/2007	8/14/2007	Tofu
Ana Trujilo Emparedados y helados	Mexico	Janet Leverling	10625	8/3	3/2007	9/5/2007	8/14/2007	Singaporean Hokkien
Ana Trujilo Emparedados y helados	Mexico	Janet Leverling	10625	8/1	8/2007	9/5/2007	8/14/2007	Camembert Pierrot
Ana Trujilo Emparedados y helados	Mexico	Robert King	10308	9/11	8/2007	10/16/2007	9/24/2007	Gudbrandsdalsost
2								>



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Get Data from a CSV File,

- The *Navigator* window shows a preview of the data to be imported. If there are multiple sheet, pages, or tables in the source, it also allows you to choose what table or sheet of data to connect to.
 - If the data is clean and ready to use, then you can click the [Load] button drop-down.
 - Choosing *Load* will import the data as a table directly into the active cell on the active worksheet.
 - Choosing Load To from the drop-down allows you to decide how the data will be imported. You can choose as a Table , PivotTable Report, PivotChart, or simply to Create the Connection.

Import Data	?	×
Select how you want to view this data in ① Iable ⑦ _ DivotTable Report ⑦ _ DivotChart ② _ Only Create Connection Where do you want to put the data? ③ _ Existing worksheet:	n your wo	rkbook.
=SAS1 <u>N</u> ew worksheet	Ť	
Add this data to the Data Model		
P <u>r</u> operties ▼ OK	Ca	ncel



Should the data need further editing in order to pull in only what is required, clicking the [Transform Data] button in the Navigator window will open the *Power Query* window. This workspace allows users to remove unnecessary columns, split columns into more meaningful data, change data types, and basically further refine the dataset to you specifications.

Using Power Query

While in the Navigator window, click the **[Transform**] **Data**] button to open the data in *Power Query Editor*.

XIII	• •	╤ │ ShippingBase - Power Query E	ditor					— 🗆 X	
File	ł	Home Transform Add Col	umn	View				~ (
Close 8 Load •	. F	Effersh eview ▼ ■ Manage ▼ Col	umns	Reduce Rows C	Split Group 1, 2 Repl	e: Text ▼ First Row as Headers ▼ ace Values	Combine Parameter	pe Data source settings □ Recent Source •	
Close		Query		Sort	Transfo	rm	Paramet	ers Data Sources New Query	
>	> f_x = Table.TransformColumnTypes(#"Promoted Headers", {{"Company Name", type text}, \checkmark Ouerv Settings								
ie,		A ^B Company Name	-	A ^B _C Country	A ^B _C Salesperson	1 ² 3 Order ID	Order Date	(
Juer	1	Alfreds Futterkiste		Germany	Nancy Davolio	10835	1/	PROPERTIES	
Ŭ	2	Alfreds Futterkiste		Germany	Nancy Davolio	10835	1/	Name	
	3	Alfreds Futterkiste		Germany	Nancy Davolio	10952	3/	ShippingBase	
	4	Alfreds Futterkiste		Germany	Nancy Davolio	10952	3/	All Properties	
	5	Alfreds Futterkiste		Germany	Janet Leverling	11011	4		
	6	Alfreds Futterkiste		Germany	Janet Leverling	11011	4	APPLIED STEPS	
	7	Alfreds Futterkiste		Germany	Michael Suyama	10643	8/	Source 🕀	
	8	Alfreds Futterkiste		Germany	Michael Suyama	10643	8/	Promoted Headers	
	9	Alfreds Futterkiste		Germany	Michael Suyama	10643	8/	× Changed Type	
	10	Alfreds Futterkiste		Germany	Margaret Peacock	10692	10		
	11	Alfreds Futterkiste		Germany	Margaret Peacock	10702	10/		
	12	Alfreds Futterkiste		Germany	Margaret Peacock	10702	10/		
	13	Ana Trujillo Emparedados y helados		Mexico	Margaret Peacock	10926	3		
	14	Ana Trujillo Emparedados y helados		Mexico	Margaret Peacock	10926	3		
	15	Ana Trujillo Emparedados y helados		Mexico	Margaret Peacock	10926	3		
	16	Ana Trujillo Emparedados y helados		Mexico	Margaret Peacock	10926	3 🗸		
	17	Ana Truiillo Emparadados y halados		Mevico	Isnat Leverling	10625			
12 6011		000 - 0014/5					/		

12 COLUMNS, 999+ ROWS

- This window can be expanded to full screen. It uses ۰ the same ribbon navigation system as in Excel and the other Office programs.
- The *Query Setting* pane on the right side shows each ۲ step you take, you are able to modify any of those steps as needed. You can undo, redo, modify a step, and even rearrange the steps order.
- Once the data has been modifies to suit your needs, ٢ on the *Home Tab* use the [Close & Load] button dropdown to Load or Load To, just as in the Navigator window.

Power Query, continued

Managing Columns

The *Power Query Editor* allows you to bring in only the necessary columns from a data source. To select columns continuously, select the first column and hold the **Shift** key as you select the last desired column. For non-continuous selections, select the first columns then hold the **Ctrl** key as you select each subsequent column. Once the wanted or unwanted columns are selected, use the **[Remove Columns]** button drop-down in the **Manage Columns Group** on the *Home Tab*. You will also find tools that allow you to control rows in a similar fashion as columns.



Split a Column

It is not uncommon to find a single column of data needs to be broken into several. The **[Split Column]** button offers an easy solution to the problem. You are able to define how or where the data is to be divided: use a set number of characters, a delimiter, case, or digit.

- Select the column to be split.
- Click the **[Split Column]** button drop-down.



Choosing By Delimiter opens the Split Column by Delimiter dialog.

Power Query, continued

In the Split Column by Delimiter dialog, you can choose from standard delimiters or use a custom one found in the data.

		\times
Split Column by Delimiter		
Specify the delimiter used to split the tex	ext column.	
Select or enter delimiter		
Custom		
/]	
Split at		
○ Left-most delimiter		
Right-most delimiter		
Each occurrence of the delimiter		
◊ Advanced options		
	OK Cancel	

- Once the columns have been generated, it is a good idea to rename them accordingly.
 - Select the column header cell.
 - Right-click the cell; choose *Rename* from the menu.
 - **♦** Type the appropriate name and tap the **Enter** key.

Sorting & Filtering Data

- Select the column containing data to be sorted by or filtered.
- Click the drop-down in the header cell.
- Use the tools in the drop-down as you would in any table filter drop-down.



5.1 - Getting Data from A CSV File



Instructions:		Results/ Comments:
1.	Open a blank new workbook.	Ctrl N.
2.	Activate the <i>Data Tab</i> .	
3.	In the Get & Transfrom Group , click the [From Text/CSV] button.	The Import Data dialog opens.
4.	Navigate to the lessons folder and choose the ShippingBase.csv file, click the [Import] button.	The Navigator window opens.
5.	Examine the options in the <i>Navigator</i> window.	
6.	Click the [Load] button drop-down and choose <i>Load to</i> .	The second Import Data dialog opens.
7.	Select the <i>PivotTable Report</i> and <i>Existing worksheet</i> radio buttons, then click the [OK] button.	A blank PivotTable is added in cell A1 of <i>Sheet1</i> .
8.	In the <i>Pivottable Fields</i> pane set: Salesperson field in <i>Rows</i> , Country in <i>Filter</i> , Sales in <i>Values</i> .	The PivotTable now displays data.
9.	Add a new worksheet.	Click the [New Worksheet] button beside the sheet tab.
10	. Save the file as MyQuery.xlsx .	Ctrl S.

5.1 - Getting Data from A CSV File, continued



Instructions:		Results/ Comments:
1.	Activate the <i>Data Tab</i> .	
2.	In the Get & Transfrom Group , click the [From Text/CSV] button.	The Import Data dialog opens.
3.	Navigate to the lessons folder and choose the ShippingBase.csv file, click the [Import] button.	The Navigator window opens.
4.	Click the [Transform Data] button.	The Power Query Editor window opens.
5.	Examine the interface of the <i>Power Query Editor</i> .	There is a tabbed navigation system in the ribbon.
6.	On the left side of the interface, click the [Expand] button below the ribbon.	A list of existing queries is displayed. Clicking the [Expand] button will now collapse the <i>Queries</i> pane.
7.	The data is shown in a tabular format.	There is a formula bar above the spreadsheet, as in <i>Excel</i> . Each cell in the header row has a Sorting and Filtering drop-down.
8.	On the right side of the interface is the <i>Query Settings</i> pane.	This pane shows which query is active and any steps that have been applied to it.

5.2 - Editing the Query



Ir	istructions:	Results/ Comments:
1.	Select the <i>Required Date</i> and <i>Shipped Date</i> columns.	Use the Ctrl or Shift keys to select multiple columns.
2.	On the <i>Home Tab</i> , click the [Remove Columns] button drop-down and choose <i>Remove Columns</i> .	The columns are removed from the table and a new step has been added in the APPLIED STEPS area of the <i>Query Settings</i> pane.
3.	Select the <i>Quantity</i> column.	You will change the data type of the column to decimal number.
4.	On the <i>Home Tab</i> , click the [Data Type] button drop-down and choose <i>Decimal Number</i> from the list.	The data type is now formatted as a decimal number; the formatting will be applied and visible when imported into <i>Excel</i> .
5.	Select the Unit Price column.	
6.	On the <i>Home Tab</i> , click the [Remove Columns] button drop-down and choose <i>Remove Columns</i> .	This is a mistake and needs to be corrected.
7.	In the <i>Query Setting</i> pane, set your cursor over the last of the applied steps and click the X .	The last step is removed from the list, and the column is put back in place.
8.	Select the Order Date column.	This column needs to split into three.
9.	On the <i>Home Tab</i> , click the [Split Column] button drop-down and choose <i>By Delimiter</i> from the menu.	The Split by delimiter dialog opens.
10.	Click the <i>Select or enter delimiter</i> drop- down and choose <i>Custom</i> .	A new blank filed is added; you can type in any character to use as the delimiter.
11.	In the new blank field type in a / set the Split at radio button to <i>Each occurrence of delimiter</i> and click [OK] .	This character separates the day, month, and year in the date. Since we want a column for each, choosing <i>Each occurrence</i> <i>of delimiter</i> option allow the column to be broken into three in one pass.

5.2 - Editing the Query



Instructions:	Results/ Comments:
12. Right-click the first of the new column	The header name is highlighted and ready
headers, choose <i>Rename</i> from the menu.	to be changed.
13. Type in:	The column is renamed.
Month and tap the E nter key.	
14. Rename the other new columns as Day and Year .	Repeat steps 12 and 13 respectively.
15. Click the filter drop-down of the Salesperson column header.	Sorting and filtering controls are displayed in the menu.
I I I I I I I I I I I I I I I I I I I	
16. <i>Uncheck</i> the (<i>Select All</i>) checkbox, then check the checkboxes for first three names in the list.	Only records for these three reps will be imported.
17. On the <i>Home Tab</i> , click the [Close & Load] button drop-down and choose <i>Load to</i> .	The second <i>Import Data</i> dialog is opened.
18. Select the <i>Table</i> and <i>New worksheet</i> radio buttons, then click the [OK] button.	A new table is placed on <i>Sheet3</i> . Notice the salesperson column only has the three selected names and the order date column is divided into the three desired columns, and the unit cost column is formatted with decimal numbers.
19. Save the file.	Ctrl S.

Editing a Query

After the data has been imported and tables or PivotTables created from the data, it may be necessary to go back and make further changes to the existing query. This is done from the *Data Tab* in *Excel*. The *Queries & Connections* pane lists all existing queries and allows you to jump to the data based on the selected query.

Accessing the Queries

- Open a workbook with data based on a query.
- ♦ Activate the *Data Tab*.
- In the Queries & Connections Group click the [Queries & Connection] button.



♦ The *Queries & Connections* pane opens.



- Clicking one of the connections will jump you to where the data is being used in the workbook.
- Hovering over a connection bring up a preview of the query and options related to the query.

Company Name	Country	Salesperson	Order ID.1	Order ID.2	Orde
Alfreds Futterkiste	Germany	Nancy Davolio	10835	null	1/
Alfreds Futterkiste	Germany	Nancy Davolio	10835	null	1/
Alfreds Futterkiste	Germany	Nancy Davolio	10952	null	3,
Alfreds Futterkiste	Germany	Nancy Davolio	10952	null	3,
Alfreds Futterkiste	Germany	Janet Leverling	11011	null	4,
Alfreds Futterkiste	Germany	Janet Leverling	11011	null	4/
Alfreds Futterkiste	Germany	Michael Suyama	10643	null	8/
Alfreds Futterkiste	Germany	Michael Suyama	10643	null	8/
Alfreds Futterkiste	Germany	Michael Suyama	10643	null	8/
Columns [11]					>
Columns [11] Company Name, Country, Salesy ast refreshed 156 PM Coad status	person, Order ID.1, Ord	ler ID.2, Order Date, Pro	duct Name, Unit Pri	ce, Quantity, Sale,	>
Columns [11] Company Name, Country, Salesy a.ast refreshed 456 PM .coad status .coad status	person, Order ID.1, Ord	ler ID.2, Order Date, Pro	duct Name, Unit Pri	ce, Quantity, Sale,	>
Columns [11] Company Name, Country, Sales; Last refreshed K56 PM Load Status Load status Load sources [1] Curvers/brian ireson/desktop	person, Order ID.1, Ord	ier ID.2, Order Date, Pro on\excel_2019_pivottabl	duct Name, Unit Pri es\data files\shippi	ce, Quantity, Sale, ngbase.csv	>



ery,

- Choosing *Edit* from the bottom of the preview will reopen the query in *Power Query Editor*.
 - All the previous APPLIED STEPS are listed and fully editible.
 - You have full control to continue making changes to the query.
 - Whatever changes are made will be reflected in the table or PivotTable in excel when the [Close & Load] button is clicked.

5.3 - Re-Editing the Query



Iı	nstructions:	Results/ Comments:
1.	MyQuery.xlsx should still be open.	If not, re-open it.
2.	Activate the <i>Data Tab</i> .	
3.	In the Queries & Connections Group , click the [Queries & Connections] button.	The <i>Queries & Connections</i> pane opens or closes on the right side of interface, set it to open.
4.	Scroll over the two connections.	As you hover over the connection, a large preview window appears. The preview shows a snapshot of the data and connection related tools to edit, load, duplicate, merge, append, access the connection properties, or delete the connection.
5.	Click the first connection.	You should be taken to the PivotTable on <i>Sheet1</i> .
6.	Click the second connection.	You should be taken to the table on <i>Sheet3</i> .
7.	Click the [Edit] button at the bottom of the preview window of the second connection.	The <i>Power Query Editor</i> window opens. Notice that all the step are still listed in the APPLIED STEPS section of the <i>Query</i> <i>Settings</i> pane. Right-click the connection will also allow you to edit the query.
8.	Click the X 's to remove the last several steps to the point the order date column is no longer split.	Step back to remove the <i>Split by Delimiter</i> step.
9.	Click the [Close & Load] button.	If the drop-down menu appears, choose <i>Load</i> . The data in the table is reloaded and refreshed on the <i>Excel</i> spreadsheet.
10	. Save and close the file.	Ctrl S and Ctrl W.



Tips and Notes



Appendix A

Lesson Overview

You will cover the following concepts in this chapter:

- ♦ Unlocking a Slicer
- Custom Slicer Styles
- Creating Custom PivotTable Styles
- Using Custom PivotTable Styles



Lesson Notes

Unlocking a Slicer

Unlocking a Slicer in a Protected Worksheet

- Select the slicer(s) you wish the user to be able to manipulate.
- Right-click on a slicer and select Size and Properties... from the shortcut menu.

	Send to Bac <u>k</u>	•
	Assig <u>n</u> Macro	
	Edit <u>A</u> lt Text	
10	Size and Properties	
□- □-	Slicer S <u>e</u> ttings	

The Format Slicer pane opens on the right side of the screen.

Format Slicer	~	×		
[.				
Position and Layout				
▲ Size				
H <u>e</u> ight	1.21*	÷		
Wi <u>d</u> th	3.44"	÷		
Rotation		÷.		
Scale <u>H</u> eight	100%	* *		
Scale <u>W</u> idth	100%	÷		
Lock <u>a</u> spect ratio				
Relative to original picture size				
Properties				
 Move and size with ce 	lls			
Move but don't size w	ith cells			
 <u>D</u>on't move or size wit 	h cells			
✓ Print object				
✓ Locked ①				
Lock <u>t</u> ext				

- Expand the Properties section and deselect the check box next to Locked.
- Click into the worksheet to deselect the **Slicer(s)**.
- Click the *Review Tab*. In the Changes group, click on the [Protect Sheet] button.
- Click on the checkbox to Allow all users of this worksheet to: Use PivotTable & PivotChart.
- Click on the checkbox to Allow all users of this worksheet to: Select unlocked cells.

Appendix A
Custom Slicer
Styles
There are different ways to format your Slicers so that the user
can see what values have been selected and applied. Using
the New Slicer Style item from the Slicer Styles Gallery on
the Slicer Tools Options Tab, you can change the way a button
appears when hovered over or selected.
Select the Slicer you would like to affect, or choose one
and press [Ctrl + A] to select all of the Slicers.

- Click the *Options Tab*. Click on the [More] button on the Slicer Styles Gallery.
- Select New Slicer Style.
- Type in an appropriate name for your Slicer Style in the Name: text box.
- In the New Slicer Style dialog, select one of the Slicer Elements in the list.
- Click on the [Format] button and select the formatting you would like to apply to that Element.
- Repeat the previous steps for all of the Slicer Elements you would like to change.
- To reuse the Slicer Style you just created, click on it in the Custom section of the Slicer Style Gallery.

lame:	Slices Shele 1	
anne.	Slicer Style 1	
Slicer	<u>E</u> lement:	Preview
Who	le Slicer	
Head	ler	
Selec	ted Item with Data	
Selec	ted Item with no Data	=
Unse	lected Item with Data	
Unse	rected Item with no Data	
Hove	red Selected Item with no Data	
Hove	red Unselected Item with Data	*
Eleme	Eormat Clear	
	ar default clicer chile for this document	
	as acruait sheer style for this document	


Custom Slicer Styles, continued

Some of the items that can be changed in a **Slicer Style** are:

- Header This is the Field Name at the top of the Slicer.
- Selected Item with Data This is a value in the Slicer that is *selected* and has associated data in the PivotTable, and therefore, the PivotChart.



- Selected Item with no Data This is a value in the Slicer that is *selected* and does not have associated data in the PivotTable and PivotChart. For example, if you filter the PivotTable and PivotChart to show data for a certain month, but there were no sales of the selected Product on the Slicer in that month.
- Unselected Item with Data This is a value in the Slicer which has corresponding data within the filter criteria, but has not yet been selected in the Slicer.
- Unselected Item with no Data It is helpful to format this element when you wish to see items that do not have corresponding data within the filter criteria. Using the example above, you may format this element if you would like to see which **Products** do not have sales in that month before you even select them.
- Hovered Selected Item with Data This is a value in the Slicer that has already been selected. However, you may wish to also see a format change when you pass your mouse pointer over the value.

Appendix A

Custom Slicer Styles, continued

- Hovered Selected Item with no Data This is a value that has been selected in the Slicer that does not have corresponding data in the PivotTable and/or PivotChart. When you pass your mouse pointer over this value, you may want to see a change in format.
- Hovered Unselected Item with Data Change this element when you want a different format when you Pass your mouse pointer over a value that has not been selected, but *does* have corresponding data in the PivotTable and/or PivotChart.
- Hovered Unselected Item with no Data Change the format of this element when you wish to emphasize, on hover, buttons which do not have corresponding data in the PivotTable. This way you can see which items will not produce a result when selected.



Page A7

(0) **Creating Custom** Applying a Custom PivotTable Style **PivotTable** Click on any cell in the **PivotTable**. Styles, Select your custom **PivotTable Style** from the **Custom** ٢ section at the top of the **PivotTable Styles** Gallery. continued Modifying a Custom PivotTable Style Click on any cell in the **PivotTable**. Note Once created, your Right-click on your custom PivotTable Style in the custom **PivotTable** Custom section of the **PivotTable Styles** gallery. style will not be applied automatically. ٢ Select **Modify**. You must click on it in the gallery to apply it. Custom Apply and Clear Formatting Apply (and Maintain Formatting) Light



When the *Modify PivotTable Style* dialog box opens, make the appropriate changes by, once again, selecting the *Table Element*: and then clicking on the [Format] button.

Add Gallery to Quick Access Toolbar

Click [OK] when you have completed the modifications.

Modify...

Duglicate... Delete

Set As Default



Appendix A

Using Custom	Using a PivotTable Style in Another Workbook
PivotTable Styles	Select the Proof Table in the originating workbook with the style you would like to use.
	Sopy it.
	Paste it into the workbook where you would like to use the PivotTable Style .
	Click on the PivotTable and create a New PivotTable Style using the New PivotTable Style menu item from the PivotTable Style Gallery.
	Click the checkbox at the bottom of the New PivotTable Quick Style dialog box to Set as default PivotTable quick style for this document.
	Oblight Prove Delete the Pivot Table from which you copied the style.



Tips and Notes



Appendix B

Lesson Overview

You will cover the following concepts in this chapter:

- Eliminating Leading and Trailing Spaces
- Removing Blank Rows and Columns in Your Data

)	
Troubleshooting Data	Leading and Trailing Spaces Sometimes the data being used for your PivotTable does not summarize correctly. One reason for this is that there may be extra spaces in the data itself. This can happen when the data it
	imported from another database or application. Excel treats a space as a character, therefore, this data is considered separate pieces of information even though it looks the same in the spreadsheet. This issue can be resolved with the Trim function.
	The TRIM Function
	In the datasheet, click into a blank cell or create a "dummy" column to create the formula.
	Type =TRIM(reference cell)
	Fill the formula down to the rest of the cells in the column.
	Copy the cells just created.
	Paste the values back to the original column.
	Refresh the PivotTable .
	 Click on the <i>Home Tab</i>, then select the [Find & Select button in the Editing group. Click on Go To Special to open the <i>Go To Special</i> dialog box
	Select the Blanks option button and click [OK] .
	Go To Special
	Select © Comments © Constants © Constants © Formulas ♥ Numbers ♥ Text © Direct only ♥ Logicals ♥ Errors ♥ Errors ♥ Blacks
	 ♥ Dialities ♥ Visible cells only ♥ Current region ♥ Conditional formats ♥ Current array ♥ Data validation ♥ Objects ● All ● Same
	OK Cancel
)	

0

Troubleshooting Data, continued



Delete the cells using the *Delete* (cells) dialog box from the [Delete] button on the *Home Tab*.

Delete	8 22
Delete	
Shift cells lef	t
Shift cells up	
Entire row	
Entire <u>c</u> olum	n
ОК	Cancel



Tips and Notes



Appendix C: Creating PivotTables from External Data - 2016

You will cover the following concepts in this chapter:

- Importing Data from External Data Sources
- Importing External Data Using the PivotTable Tool
- Creating a PivotTable from an Access Object
- Importing Data Using Microsoft Query Connection



Lesson Notes

Importing Data from External Data Sources

Note A *driver* is software that helps programs communicate with each other without knowing the precise details of the program being accessed. It is often the case that the data you need for your Excel **PivotTable** is stored in a database application or other files. Database applications are great for managing, maintaining, and retrieving large amounts of data. Database programs also provide features for defining relationships between data entities, for developing queries to extract information, and for securing sensitive information. For these reasons and more, organizations often make extensive use of databases.

Excel allows you to import data from a number of external sources. Moreover, the imported data can be linked to the source, so that any changes to the underlying source data tables can be refreshed and updated in your Excel worksheets.

The Microsoft Office suite provides drivers that will allow Excel to connect to a wide array of data sources.

Some of the data sources that you can connect to with Excel are:

- Microsoft SQL Server
- SQL Server Analysis Services Cube
- Microsoft Access and Microsoft FoxPro
- ♦ ODBC DSN
- ♦ OLAP Services and OLAP cubes
- ♦ dBase
- Oracle
- Paradox

In this lesson, we will discuss three different methods of importing external data into a **PivotTable**.

- Using the Insert PivotTable tool
- Using the From Access Object tool
- Using the Microsoft Query Connection

The advantages of each are discussed in their respective sections.



Connections to external data in the current workbook can be viewed and refreshed with the **[Connections]** button in the **Connections Group** on the *Data Tab*.

In a **PivotTable** or **PivotChart**, external connections can be refreshed using the **[Refresh]** button on the *Analyze Tab*.

Importing External Data Using the PivotTable Tool

 \bigcirc

Creating a PivotTable from External Data Using the PivotTable Tool

The advantage of creating the **External Data Connection** from the **PivotTable** tool is efficiency. By using the *Create PivotTable* dialog box, you can create the connection and the **PivotTable** simultaneously.

Select the *Insert Tab* and click the down arrow on the [PivotTable] button.

The Create PivotTable dialog box will be displayed.

Click the Use an External Data Source option button.

Create PivotTable		?	x
Choose the data th	at you want to analyze		
Select a table of the select of the selec	or range		
<u>T</u> able/Rang	je:		Ť
Use an externa	I data source		
Choose <u>(</u>	onnection		
Connectio	n name:		
O Use this work!	oook's Data Model		
Choose where you	want the PivotTable report to be plac	ed	
O <u>N</u> ew Workshe	et		
Existing Works	heet		
<u>L</u> ocation:	Sheet1!\$A\$1		<u>↑</u>
Choose whether yo	u want to analyze multiple tables		
🗌 Add this data i	to the Data <u>M</u> odel		
	ОК	Ca	ncel

- Click the [Choose Connection...] button.
 - When the *Existing Connections* dialog box appears, select an item from the list and click [Open].
 - OR -
 - Select [Browse for More...] to select a database not yet connected.



Appendix C: Creating PivotTables from External Data - 2016

Importing External Data Using the PivotTable Tool, continued



- Once you have selected the database, click [Open].
- Depending on the external data source you have chosen, you may be asked for login credentials (a username and password) or other verifying information. If so, enter the appropriate information in the fields provided and click [OK].
- You will be returned to the *Create PivotTable* dialog box to continue making your selections.
- When you click [OK], the PivotTable will be created. You will see the PivotTable area and PivotTable Field List Task Pane as before, but now the field headings in the PivotTable Field List are from the external data source that you have selected.
- Once you build a PivotTable using external data, you can refresh the table by clicking the Refresh button on the Data Tab. You may also use the [Refresh] button on the PivotTable Tools Analyze Tab or the PivotChart Analyze Tab. This will update the PivotTable with any changes made to pertinent data in the source database.

The connection you have created will be listed in the *Existing Connections* dialog box located on the *Data Tab* in the **Connections Group** for future use.

Action 5.1 - Creating a PivotTable from External Data Using the PivotTable Tool



Ins	tructions:	Results/ Comments:
1.	Open a blank workbook.	
2.	Select the <i>Insert Tab</i> .	
3.	From the Tables group, select the [PivotTable] button.	
4.	Select the Use an external data source option button.	
5.	Click [Choose Connection].	
6.	Click the [Browse for More] button.	This will open an Explorer window to allow you to browse for the database file.
7.	From the exercise files folder, select the MultipleCriteria.accdb file.	
8.	Click [Open] .	This will open the <i>Select Table</i> dialog box which lists all of the tables and queries available to import.
9.	From the list of available tables in the <i>Select Table</i> dialog box, choose the Products table.	
10.	Click [OK] , then click [OK] again to close the <i>Create PivotTable</i> dialog box.	This will create a PivotTable frame and show a PivotTable Field List with fields from the Products table.
11.	Drag CategoryID to the Rows area.	
12.	Drag SupplierID to the Columns area.	
13.	Click on the checkbox for UnitsInStock .	
14.	Save the file in your Student Folder with the name Products PivotTable and close the file.	

Creating a PivotTable from an Access Object

PivotTables can also be created from Access database objects using the *Data Ribbon*. Just like a linked spreadsheet, the data in the **PivotTable** is also linked to the data in the Access database.

The advantage to using this method is that Excel only looks for Access data, making it easier to browse for the source file.

The disadvantage to using this method is that this method does not add the connection to the existing connections for future use.

Using the Data Ribbon

Solution Display Excel's *Data Ribbon*.

File	Hon	ne	Insert	Page Layout	Formulas	Data	Revie	w۱	√iew	Developer	,	♀ Tell n	ne what	you want to do
From Access	From Web	From Text	From Other Sources *	r Existing Connections	New Query + Co	Show Que From Tabl Recent So	eries le ources	Refresh All •	C C	onnections roperties dit Links	2↓ ∡↓	Z A Z Z	Filter	Clear
		Get Ext	ternal Data		Get &	Transform			Conneo	tions			Sort & Fi	Iter

- In the Get External Data group, click the [From Access] button.
- The *Select Data Source* dialog box will be displayed.
- Select the Access database that will serve as the source of the data.



Click the **[Open]** button.



resulting query or table.



0





If the Access database being used has multiple tables or queries, the *Select Table* dialog box will be displayed.

Name	Description	Modified	Created
~TMPCLP11811		12/30/2014 9:08:58 AM	12/30/2014 9:04:32 AM
III CompanyNames		12/30/2014 9:08:28 AM	12/30/2014 9:08:28 AM
III Countries		12/30/2014 9:08:28 AM	12/30/2014 9:08:28 AM
III Orders		12/30/2014 9:08:28 AM	12/30/2014 9:08:28 AM
III Products		12/30/2014 9:08:28 AM	12/30/2014 9:08:28 AM
III Table4		12/30/2014 9:08:28 AM	12/30/2014 9:08:28 AM

- Choose the table or query that contains your source data.
- Click the **[OK] button**.
- The next step is to use the *Import Data* dialog box to select how you want to view the imported data in Excel.

Import Data	8	X
Select how you want to view this data in y	our workl	book.
📰 💿 <u>T</u> able		
🚺 🔘 <u>P</u> ivotTable Report		
📑 🔘 Pivot <u>C</u> hart		
Only Create Connection		
Where do you want to put the data?		
Existing worksheet:		
=\$K\$40	S	
New worksheet		
Add this data to the Data Model		
Properties OK	Cance	el

Click the [Properties] button in the Import Data dialog box to see the Connection Properties dialog box.



Creating a PivotTable from an Access Object, continued

onnection Properti	es 🤋	23
Connection <u>n</u> ame: Descr <u>i</u> ption:	ShippingDatabase	
Usa <u>q</u> e <u>D</u> efiniti	on	
Refresh control -		
Last Refreshed:		
Enable back	round refresh	
Refresh every	60 🔶 minutes	
📃 Refresh data	when <u>o</u> pening the file	
Remove d workbool	ata from the external data range before saving the ‹	
🔽 Refresh this d	onnection on Refresh <u>A</u> ll	
OLAP Server Forma	itting	
Retrieve the follo	owing formats from the server when using this	
Number Form	at Fill Color	
Font Style	Text Color	
OLAP Drill Through	1	
Maximum numb	er of records to retrieve:	
Language		
Retrieve data available	and errors in the Office display language when	
	OK Can	cel

- In this box you can enable or disable settings for connections to external data sources, and use, reuse or switch connection files.
- The Usage tab is used to control the way that the connection information is used in the workbook.
 - If you put a check by Refresh data when opening the file, the table data will be refreshed from the database when you open the Excel workbook.
 - You can also specify how much time should pass between refreshes with the **Refresh every** check box.
- The *Definition* tab controls how the connection information is defined and the source of the connection information.
 - When everything is set the way you want, click [OK] to implement the changes and return to the *Import Data* dialog box.
 - When you have selected the PivotTable Report or PivotChart option button in the *Import Data* dialog box, click the [OK] button.

 Creating a PivotTable from an Access
 Object, continued

Here is the original data from the Access database.

All Access Obie		ľ	qryItalyND			
7.117.10005.005.005.005.005.005.005.005.005.0	0		Salesperson -	Product Name 🗸	Country 👻	Quantity 👻
Search	þ		Nancy Davolio	Geitost	Italy	20
lables	^		Nancy Davolio	Tarte au sucre	Italy	10
CompanyNames			Nancy Davolio	Jack's New England Clam Chowder	Italy	20
Countries			Nancy Davolio	Teatime Chocolate Biscuits	Italy	5
Orders			Nancy Davolio	Zaanse koeken	Italy	5
Products			Nancy Davolio	Chef Anton's Cajun Seasoning	Italy	5
Tabled			Nancy Davolio	Guaraná Fantástica	Italy	12
			Nancy Davolio	Raclette Courdavault	Italy	6
Queries	~	*				
grvitalvND						

Here is a **PivotTable** report based on imported data from the database.

	A	в	с	D	E	F	G			
1								П	PivotTable Field	ls •×
2								1	ACTIVE ALL	
3	Salesperson	Countr -	Product Name	Sum of Quantity						
4	Nancy Davolio	Italy	Chef Anton's Cajun Seasoning	5					Choose fields to add to rep	iort: 🖓 🔻
5			Geitost	20					4 apriltalyND	
6			Guaraná Fantástica	12					✓ Salesperson	
7			Jack's New England Clam Chowder	20					Product Name	
8			Raclette Courdavault	6					Country	
9			Tarte au sucre	10					Country	
10			Teatime Chocolate Biscuits	5					Quantity	
11			Zaanse koeken	5						
12		Italy Tota	(83						
13	Nancy Davolio Total			83						
14										
15										
16									Drag fields between areas	below:
17										
18									T FILTERS	COLUMNS
19										
20										
21										
22										
23									\equiv ROWS Σ	VALUES
24									Salesnerson 🔻 Si	m of Quant 🔻
25									Country T	an or secondar ?
26									Broduct Name *	
27									Froudeciname +	
28										
20		01 14							Defer Lavout Update	UPDATE
	Sheet.	2 Sheet1	÷	: 4					,	

If you right click on the table you created in Excel, and click the *Refresh option* from the pop up menu that appears, the data in your Excel table will be updated with any changes made to the source data in the database.



Action 5.2 - Creating a PivotTable and PivotChart from Access Data



Instructions:

- 1. Open a blank workbook.
- 2. Select the *Data Tab*.
- 3. From the **Get External Data** group, select the **[From Access]** button.
- 4. Select the *MultipleCriteria.accdb* database from your exercise files folder, click **[Open]**.
- 5. In the *Select Table* dialog box, select **Orders** and click **[OK]**.
- 6. In the *Import Data* dialog box, select **[PivotChart]**.
- In the Where do you want to put the data? area, make sure Existing Worksheet is selected and the range in the text box is [\$A\$1].
- 8. Click [OK].
- 9. The **PivotChart** and **PivotTable** frames will appear on the worksheet and the **PivotChart Fields** will appear on the right-side of the worksheet.
- 10. Click on the **PivotChart** frame.
- 11. In the **PivotChart Fields Task Pane** select **ShipCountry** and drag to **Axis** (Categories).

Results/ Comments:



Action 5.2 - Creating a PivotTable and PivotChart from Access Data, continued

Instructions:

- 12. Then drag ShipRegion and ShipPostalCode from the PivotChart Fields Task Pane into the Axis (Categories) under ShipCountry.
- 13 .Drag **Freight** into the **Values** area.
- 14. In the **Values** area, click on the dropdown arrow next to **Sum of Freight** and select **Value Field Settings...**.
- 15. Select the **[Number Format]** button.
- 16. When the *Format Cells* dialog box opens, select **Accounting** to format the field.
- 17. Click **[OK]** to close the *Format Cells* dialog box, and then click **[OK]** again to close the *Value Field Settings* dialog box.
- 18. In the **PivotChart Fields Task Pane**, drag the **ShipPostalCode** out of the **Axis fields (Categories)** box.
- 19. In the *PivotChartTools*, click the *Design Tab*. In the Chart Layouts group, select **[AddChartElment]** and trace to Data Table and then select No Legend Key.

Results/ Comments:

This will start to populate the **PivotChart** and the **PivotTable** with the items that you have selected and you will begin to see how the data is going to display.

Notice that the PivotChart which, is displayed, does not display very useful information at this point. We will make changes to display the information we need.

Notice that the **PivotTable** changes to show totals by **Country** and **Region** and a **Grand Total** is at the bottom of the **PivotTable**.



	Α			В
1	Row Labels	Ŧ	Sun	n of Freight
2	🗆 Canada		\$	136.10
3	BC		\$	132.60
4	Québec		\$	3.50
5	🗆 USA		\$	875.50
6	CA		\$	42.60
7	ID		\$	42.40
8	MA		\$	13.25
9	MO		\$	18.00
10	MT		\$	24.50
11	OR		\$	38.85
12	UT		\$	3.25
13	WA		\$	683.70
14	WV		\$	8.95
15	Grand Total		\$	1,011.60

Results/ Comments:



The resulting PivotTable and PivotChart should look like this:

20. Save the file as **My PivotChart.xlsx** and close the file.

A table containing the amounts for each region appears below the horizontal axis.

Importing Data Using Microsoft Query Connection

The **Microsoft Query Connection** allows you to import data from any Microsoft Application *while filtering the data*. The advantage of using this method is that the data that is imported fits a specific criteria and you do not end up with data you cannot use or that has to be deleted. In addition, any connection established using this method is added to the **Existing Connections** list and can be used in future data retrieval.

- Select the *Data Tab*.
- From the Get External Data group, click the [From Other Sources] drop-down arrow.



A menu is displayed with a number of options for connecting to an external data source.

The bottom option in this menu, Microsoft Query, is a powerful tool that will allow you to create a connection and build a query. A *query* is a way to extract specific information from a database.



Appendix C: Creating PivotTables from External Data - 2016

Importing Data Using Microsoft Query Connection,

Note

ODBC stands for Open Database Connectivity. This is a utility used to define a connection between a computer and a database. The ODBC connection contains information needed to allow a computer user to access the information stored in a database that is not located on the local computer.

- Once you have selected From Microsoft Query from the [Other Sources] button, you will see the following dialog box. You will be creating an ODBC connection to the database.
- The <New data source> option should already be selected.



- Click [OK],
- **♦** The *Create New Data Source* dialog box displays.
- ♦ Type a name for your data source.
- Click the drop-down to select a driver type for the new data source.



Click the **[Connect]** button to establish a connection.

Crea	te New Data Source
	What name do you want to give your data source?
1.	Test 2
	Select a driver for the type of database you want to access:
2.	Microsoft Access Driver (*.mdb, *.accdb)
	Click Connect and enter any information requested by the driver:
3.	Connect
	Select a default table for your data source (optional):
4.	_
	Save my user ID and password in the data source definition
	OK Cancel

Importing Data Using Microsoft Query Connection, continued

Click on the [Select] button

Data Source Nam	e:	ОК
Description: - Database		Cancel
Database:		Help
Select	Create Repair Compact	Advanced
-System Database	ð	
-,		
None		

Showse to the location of the database and select the database you want to connect to. Click **[OK]**.

Database Name ShippingDatabase.accdb	Directories: c:\\desktop\databases	ОК
MultipleCriteria.accdb	C:\	Cancel
ShippingDatabase.accv	David	Help
-	Desktop 🗁 Databases	Read Only
list Files of Tune:	Drivee:	

You may be asked at this point to provide login credentials for the data source. Enter your login credentials and click [OK].

Data Source	ОК
A designation	Cancel
Login name: admin	Database
Password:	Help

Once this named connection is created, the *Query Wizard-Choose Columns* dialog box will open to allow you to choose the tables and the columns of information that you can include in your query.

Importing Data Using Microsoft Query Connection, continued

Available tables and columns:		Columns in your query	
CompanyNames ID Countries_ID Countries ID ID ID ID ID ID ID ID ID ID		Company Name Country	
Preview of data in selected colur	nn:		

- Select the table you want to include in your query by clicking on the [Expand] button, [+]. Then, select the column of data you want to include in your query. Press the [>] to move your selection into the *Columns in your query* box.
- When you have selected all the columns you want to include in your query, click [Next]
- The Query Wizard Filter Data dialog box is displayed. You can filter the data to extract specific information.
- Select from one of your Column to filter: and in the Only include rows where: drop-down use the search criteria to build your filter.
- Once you have made all of your selections, click [Next].



- The Query Wizard Sort Order dialog box will open and offer you the option to sort your selected data. Select the drop-down under Sort by and choose Ascending or Descending.
- Once you have completed your selections, click [Next].

Appendix C: Creating PivotTables from External Data - 2016

Importing
 Data Using
 Microsoft Query
 Connection,
 continued

peciry now you want your data sorred. you don't want to sort the data, click Next.			
Sort by Company Name	•	 Ascending Descending 	_
Then by	•	C Ascending C Descending	
Then by	Ţ	C Ascending C Descending	

The final step is the Query Wizard - Finish dialog box which offers you the options to Return Data to Microsoft Excel or View Data or Edit Query in Microsoft Query if you want to make any changes, and Save Query if you are going to use the query again.

Save in:	🕌 Queries 🗾 👻	+ 🗈 📩 🖬 -	
(Ea	Name	Date modified	Туре
Recent Places	📾 Query from MS Access Database.dqy 📾 Query from Multiple.dqy	8/8/2015 10:29 PM 8/8/2015 11:45 PM	Micros
	Shipping Quantity Over 20.dqy	8/8/2015 10:06 PM	Microso
Desktop			
Libraries			
M.			
Computer			
Network			
	<		
	File name: Query from Multiple day	-	Save

- Name the query if you are going to save it. You will see in the background the information the query is extracting from the table. Click [Save].
- If you are selecting the option to Return Data to Microsoft Excel, Click [Finish].



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Importing Data Using Microsoft Query Connection, continued

You will now see the *Import Data* dialog box offering you the import options for your data, Click **[OK]**.

Import Data	A N
Select how you want to view this data i	in your workbook.
🔲 💿 <u>T</u> able	
🚺 🔘 <u>P</u> ivotTable Report	
📑 🔘 Pivot <u>C</u> hart	
📄 🔘 Only Create Connection	
Where do you want to put the data?	
Existing worksheet:	
= SAS1	E
Mew worksheet	
Add this data to the Data Model	

Your **Query** data will then appear in an Excel worksheet based on your selections in the dialog box.

	А		В	С	D
1	Company Name	Ŧ	Order ID 💌	Order Date 🛛 💌	Quantity 💌
2	Around the Horn		10812	1/2/2007 0:00	40
з	Berglunds snabbköp		10812	1/2/2007 0:00	20
4	Blauer See Delikatessen		10428	1/28/2007 0:00	20
5	Bon app'		10908	2/26/2007 0:00	20
6	B's Beverages		10942	3/11/2007 0:00	28
7	Cactus Comidas para llevar		11010	4/9/2007 0:00	20
8	Chop-suey Chinese		10562	6/9/2007 0:00	20
9	Du monde entier		10655	9/3/2007 0:00	20
10	Eastern Connection		10727	11/3/2007 0:00	20
11	Franchi S.p.A.		10813	1/5/2007 0:00	35
12	Godos Cocina Típica		10851	1/26/2007 0:00	42

Excel table created from imported data



- 1. Open a blank workbook.
- 2. Select the *Data Tab*.
- 3. From the **Get External Data** group, click the **[From Other Sources]** button.
- 4. Select From Microsoft Query.
- 5. Make sure **<New Data Source>** is selected and click **[OK]**.
- 6. In the *Create New Data Source* dialog box, type **Test** for the name of the **Data Source**.
- From the Select a driver for the type of database you want to access: drop-down list, select [Microsoft Access Driver *.mbd, *.accdb].
- 8. Under *Click Connect and enter any information requested by the driver:,* click **[Connect]**
- 9. In the ODBC Microsoft Access Setup dialog box, under Database, click on [Select] and browse to select the database ShippingDatabase.accdb.
- 10. Click **[OK]** to close the *Select Database* dialog box.
- 11. Then, click **[OK]** in the *ODBC Microsoft Access Setup* dialog box to return to the *Create New Data Source* dialog box.
- 10. Under *Select a Default Table for Your Data Source (optional)* select the drop-down.
- 11. Do not make a selection. Click **[OK]**.

Results/ Comments:

Offers options of connecting to a variety of databases to obtain information for analysis.

The *Choose Data Source* dialog box will open.

This ensures the necessary filter is used for Excel to interpret the data coming from the type of database you are connecting to.

What name do you v	want to give your data source?
1. Test	
Select a driver for th	e type of database you want to access:
2. Microsoft Access D	river (*.mdb, *.accdb)
Click Connect and e	nter any information requested by the driver:
3. Connect	
Select a default table	e for your data source (optional):
4.	v
🔲 Save my user ID	and password in the data source definition
0	OK. Cancel
<u> </u>	

Here, you can see the existing Access objects in this file from which you can extract information.



- 12. You may be prompted with a *Login Credentials* dialog box. If so, select **[OK]**.
- 13. Click **[OK]** to close the *Choose Data Source* dialog box.
- 14. Click the **[+]** to expand the **CompanyNames** table.
- 15. Select CompanyName and click the [>] arrow to move it into the *Columns in your query:* box.
- 16. Repeat steps 14 and 15 to move **OrderID**, **Order Date** and **Quantity**.
- 17. Click [Next].
- Select Quantity in the Column to filter: box, then select the drop-down under Quantity to Only include rows where: and choose is greater than or equal to. Select 20.0 from the next drop-down.
- 19. Click [Next].
- 20. Select **[Next]** to skip the *Query Wizard-Sort Order* step.

Results/ Comments:

The *Query Wizard – Choose Columns* dialog box will open and display the *Available Tables and Columns* you can select to add to the *Columns in Your Query* to be imported into your Excel workbook.

Vvalable tables and columns:	Columns in your query:	
Preview Now Options	< Back Next > Canc	el

The *Query Wizard – Filter Data* dialog box will open and offer you the ability to filter the data imported by criteria you select.

ilter the data to specify f vou don't want to filter	which rows to include in your query. the data, click Next.		
Column to filter:	Only include rows where: Quantity		
Order ID	is greater than or equal to 💌	20.0	•
Order Date Quantity	And	C Dr	_
	•		Ŧ
	C And	C Or	
	v		-
	C And	C Or	

The *Query Wizard-Sort Order* dialog box is displayed.

The *Query Wizard - Finish* dialog box is displayed.



- 21. At this point, **Return Data to Microsoft Excel** should be selected in the *Query Wizard-Finish* dialog box.
- Click the [Save Query] button and name the query Shipping Quantity Over 20. Then click [Save].
- 23. Click **[Finish]** in the *Query Wizard-Finish* dialog box.
- 24. Select **PivotTable Report** in the *Select how you want to view this data in your workbook.*
- 25. Click **[OK]** to place the **PivotTable frame** in the existing worksheet starting at cell **A1**.
- 26. Drag **Company Name** to the **Rows** area.
- 27. Drag **Quantity** to the **Values** area.
- 28. Save file as *External Query.xlsx*.



Excel Level 1	L-1
Excel Level 2	L-2
Excel Level 3	L-3
Excel Formulas	FM
Excel Data Analysis	DA
Excel Charts	CH
Excel PivotTables	PT
Excel Data Analysis	with
PowerPivot	PPT

MICROSOFT OFFICE EXCEL ASSOCIATE EXAM MO-200

Import data into workbooks	
Import data from .txt file	DA
Import data from .csv files	DA
Import data from .csv files	DA

Navigate within workbooks	
Search for data within a workbook	L-1
Navigate to named cells, ranges, or workbook elements	L-2
Insert and remove hyperlinks	L-3

Format worksheets and workbooks	
Modify page setup	L-1
Adjust row height and column width	L-1
Customize headers and footers	L-1

Customize options and views	
Customize the Quick Access toolbar	L-1
Display and modify workbook content in different views	L-2
Freeze worksheet rows and columns	L-2
Change window views	L-2
Modify basic workbook properties	L-2
Display formulas	L-1

Configure content for collaboration	
Set a print area	L-1
Save workbooks in alternative file formats	L-1
Configure print settings	L-1
Inspect workbooks for issues	L-1

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Excel Level 1 Excel Level 2 Excel Level 3 Excel Formulas Excel Data Analysis	L-1 L-2 L-3 FM DA
Excel Formulas Excel Data Analysis	FM Da
Excel Charts	CH
Excel PivotTables	PT with
PowerPivot	PPT

Manipulate data in worksheets	
Paste data by using special paste options	L-1
Fill cells by using Auto Fill	L-1
Insert and delete multiple columns or rows	L-1
Insert and delete cells	L-1

Format cells and ranges	
Merge and unmerge cells	L-1
Modify cell alignment, orientation, and indentation	L-1
Format cells by using Format Painter	L-1
Wrap text within cells	L-1
Apply number formats	L-1
Apply cell formats from the Format Cells dialog box	L-1
Apply cell styles	L-1
Clear cell formatting	L-1

Define and reference named ranges	
Define a named range	L-2 / FM
Name a table	DA

Summarize data visually	
Insert Sparklines	L-2
Apply built-in conditional formatting	L-2
Remove conditional formatting	L-2

Create and format tables	
Create Excel tables from cell ranges	L-2
Apply table styles	L-2
Convert tables to cell ranges	L-2

Modify tables	
Add or remove table rows and columns	L-2
Configure table style options	L-2
Insert and configure total rows	L-2

Excel Level 1	L-1
Excel Level 2	L-2
Excel Level 3	L-3
Excel Formulas	FM
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Excel Data Analysis	with
PowerPivot	PPT

Filter and sort table data	
Filter records	L-2
Sort data by multiple columns	L-2

Insert references	
Insert relative, absolute, and mixed references	L-1
Reference named ranges and named tables in formulas	L-2

Calculate and transform datas	
Perform calculations by using the AVERAGE(), MAX(), MIN(), and SUM() functions	L-1
Count cells by using the COUNT(), COUNTA(), and COUNTBLANK() functions	DA
Perform conditional operations by using the IF() function	FM

Format and modify text	
Format text by using RIGHT(), LEFT(), and MID() functions	DA
Format text by using UPPER(), LOWER(), and LEN() functions	DA
Format text by using the CONCAT() and TEXTJOIN() functions	DA

Create charts	
Create charts	L-2 / CH
Create chart sheets	L-2 / CH

Modify charts	
Add data series to charts	L-2 / CH
Switch between rows and columns in source data	L-2 / CH
Add and modify chart elements	L-2 / CH

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Excel Level 1	L-1
Excel Level 2	L-2
Excel Level 3	L-3
Excel Formulas	FM
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MICROSOFT OFFICE EXCEL EXPERT EXAM MO-201

Manage workbooks	
Copy macros between workbooks	L-3
Reference data in other workbooks	L-3
Enable macros in a workbook	L-3
Manage workbook versions	L-2

Prepare workbooks for collaboration	
Restrict editing	L-2
Protect worksheets and cell ranges	L-2
Protect workbook structure	L-2
Configure formula calculation options	FM
Manage comments	L-2

Use and configure language options	
Configure editing and display languages	L-1
Use language-specific features	L-1

Fill cells based on existing data	
Fill cells by using Flash Fill	L-1
Fill cells by using advanced Fill Series options	L-2

Format and validate data	
Create custom number formats	L-1
Configure data validation	L-3 / FM
Group and ungroup data	L-3
Calculate data by inserting subtotals and totals	L-3
Remove duplicate records	DA
TCW BOOK CODES

Excel Level 1	L-1
Excel Level 2	L-2
Excel Level 3	L-3
Excel Formulas	FM
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Apply advanced conditional formatting and filtering	
Create custom conditional formatting rules	L-2
Create conditional formatting rules that use formulas	L-2
Manage conditional formatting rules	L-2

Perform logical operations in formulas	
Perform logical operations by using nested functions including the IF(), IFS(), SWITCH(),	FM
SUMIF(), AVERAGEIF(), COUNTIF(), SUMIFS(), AVERAGEIFS(), COUNTIFS(), MAXIFS(),	FM
MINIFS(), AND(), OR(), and NOT() functions	FM

Look up data by using functions	
Look up data by using the VLOOKUP(), HLOOKUP(), MATCH(), and INDEX() functions	FM

Use advanced date and time functions	
Reference date and time by using the NOW() and TODAY() functions	FM
Calculate dates by using the WEEKDAY() and WORKDAY() functions	FM

Perform data analysis	
Summarize data from multiple ranges by using the Consolidate feature	L-3
Perform what-if analysis by using Goal Seek and Scenario Manager	L-3
Forecast data by using the AND(), IF(), and NPER() functions	FM
Calculate financial data by using the PMT() function	FM

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TCW BOOK CODES

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Excel Level 1	L-1
Excel Level 2	L-2
Excel Level 3	L-3
Excel Formulas	FM
Excel Data Analysis	DA
Excel Charts	CH
Excel PivotTables	PT
Excel Data Analysis	with
PowerPivot	PPT

Troubleshoot formulas	
Trace precedence and dependence	FM
Monitor cells and formulas by using the Watch Window	FM
Validate formulas by using error checking rules	FM
Evaluate formulas	FM

Create and modify simple macros	
Record simple macros	L-3
Name simple macros	L-3
Edit simple macros	L-3

Create and modify advanced charts	
Create and modify dual axis charts	CH
Create and modify charts including Box &	
Whisker, Combo, Funnel, Histogram, Map,	CH
Sunburst, and Waterfall charts	

Create and modify PivotTables	
Create PivotTables	PT
Modify field selections and options	PT
Create slicers	PT
Group PivotTable data	PT
Add calculated fields	PT
Format data	PT

Create and modify PivotCharts	
Create PivotCharts	PT
Manipulate options in existing PivotCharts	PT
Apply styles to PivotCharts	PT
Drill down into PivotChart details	PPT