Course Content

Course Description:

In this course, you will be introduced to using Data Analysis Expressions (DAX), which is the expression language that is used to create custom calculations in the Power BI Data model. The course covers some of the theoretical underpinnings of the data model and DAX, but the emphasis is on using DAX to solve common business problems. Students will learn how to write their own calculated columns, measures, and tables, how to visualize the way Power BI computes DAX calculations, and how to troubleshoot custom code. This instructor-led course consists of a combination of lecture, demonstrations, and hands-on labs.

Course Objectives:

This course will cover the following DAX functions:

- **Date and time functions:** CALENDAR(), CALENDARAUTO(), DATE(), NOW(), TODAY(), WEEKDAY(), WEEKNUM(), YEAR(), MONTH(), DAY()
- **Filter functions:** ALL(), ALLEXCEPT(), CALCULATE(), CALCULATETABLE(), FILTER(), LOOKUPVALUE(), REMOVEFILTERS()
- **Information functions:** CONTAINS(), HASONEFILTER(), HASONEVALUE(), ISINSCOPE(), ISBLANK(), ISEMPTY(), ISERROR(), USERNAME()
- **Logical functions:** AND(), COALESCE(), IF(), IFERROR(), NOT(), OR(), SWITCH(), TRUE(), FALSE()
- **Math and Statistical Functions:** DIVIDE(), SUM(), SUMX(), AVERAGE(), AVERAGEX(), COUNT(), COUNTROWS(), COUNTX(), DISTINCTCOUNT(), MAX(), MAXX(), MEDIAN(), MEDIANX(), MIN(), MINX(), RANKX()
- **Table manipulation functions:** ADDCOLUMNS(), SELECTCOLUMNS(), CROSSJOIN(), DATATABLE(), NATURALINNERJOIN(), SUMMARIZE(), VALUES()
- **Text functions:** CONCATENATEX(), FIND(), LEFT(), LEN(), MID(), REPLACE(), SEARCH(), TRIM(), VALUE()
- **Time intelligence functions:** DATEADD(), DATESBETWEEN(), DATESMTD(), DATESQTD(), DATESYTD(), PARALLELPERIOD(), SAMEPERIODLASTYEAR(), TOTALMTD(), TOTALQTD(), TOTALYTD()

Prerequisites:

Although experience with Power BI Desktop is not strictly required for this class, students with at least some familiarity will be better equipped to get the most out of the lab work.

Target Audience:

This course is intended for business users who have been using Power BI to build analytic solutions and are ready to take advantage of the power and flexibility that DAX provides. Learning DAX is a very common "next step" for experienced Power BI users.

Topics:

Lesson 1: Getting Started with DAX

- What is DAX?

Introduction to DAX for Power BI

Course ID #: 7000-633-ZZ-Z

Hours: 14

- Basics of DAX syntax
- Creating a calculated column
- Creating a calculated measure
- Creating a calculated table
- Differences in evaluation context
- Rules of evaluation
- Working with variables
- Commenting your code
- Testing your code

Lesson 2: Performing Basic Calculations
- Implicit measures
- Adding quick measures
- Doing basic math
- Using logic in your calculations
- Aggregating and summarizing data
- Working with DAX data types

Lesson 3: Working with Context in the Data Model
- Context defined
- Data modeling basics
- Introduction to dimensional modeling
- Relationships and their effect on the evaluation context
- Getting data from other tables using RELATED() and RELATEDTABLE()
- Modifying the context using CALCULATE()
- Looking up data without using relationships

Lesson 4: Performing More Advanced Calculations

- Handling errors gracefully
- Using DAX iterator functions
- Using table manipulation functions
- Troubleshooting your calculations using the Performance Analyzer and DAX Studio

Lesson 5: Working with Time
- Performing date calculations
- Working with date tables
- Generating a date table with the CALENDAR() function
- Defining custom operating periods
- YTD, QTD, and MTD calculations
- Custom to-date calculations
- Finding year-over-year change
- Finding moving averages

Lesson 6: Enhancing the User Experience
- Controlling visibility of your measures
- Using What-if parameters
- Adding banding
- Using DAX to provide row-level security

Register for this class by visiting us at:
www.tcworkshop.com or calling us at 800-639-3535