PL-400T00: Microsoft Power Platform Developer

Course Content

Course Description:

In this course, students will learn how the Microsoft Power Platform helps organizations optimize their operations by simplifying, automating and transforming business tasks and processes. In this course, students will learn how to build Power Apps, Automate Flows and extend the platform to complete business requirements and solve complex business problems.

Course Objectives:

Upon successful completion of this course, students will be able to:

- Create a model-driven app
- Identify restrictions that are associated with columns
- Create and manage business rules in Dataverse
- Create a custom security role and assign it to entities and users
- Change the control with which a user provides information
- Use the different types of controls
- Determine whether to use Clear and Collect or ClearCollect in their scenario
- Explain what AI Solutions exist as it relates to Microsoft Power Platform
- Build a flow that runs at recurring time intervals
- And so much more!

Prerequisites:

Candidates should have an introductory knowledge of Power Platform. Candidates should have development experience that includes JavaScript, JSON, TypeScript, C#, HTML, .NET, Microsoft Azure, Microsoft 365, RESTful Web Services, ASP.NET, and Power BI.

Target Audience:

- Developer

Candidates for this course design, develop, secure, and troubleshoot Power Platform solutions. Candidates implement components of a solution that include application enhancements, custom user experience, system integrations, data conversions, custom process automation, and custom visualizations. Candidates will gain applied knowledge of Power Platform services, including in-depth understanding of capabilities, boundaries, and constraints. Candidates should have development experience that includes JavaScript, JSON, TypeScript, C#, HTML, .NET, Microsoft Azure, Microsoft 365, RESTful Web Services, ASP.NET, and Power BI.

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Topics:

Lesson 1: How to build your first model-driven app with Dataverse
- Introduction to Dataverse
- Introduction to model-driven apps
- Model-driven apps, powered by Microsoft Dataverse
- Explore sample apps
- Check your knowledge
- Summary

Lesson 2: Get started with model-driven apps in Power Apps
- Introducing model-driven apps
- Components of model-driven apps
- Design model-driven apps
- Exercise
- Exercise - Control security when sharing model-driven apps
- Exercise - Create a model-driven app
- Check your knowledge
- Summary

Lesson 3: Manage tables in Dataverse
- Identify tables and table types in Dataverse
- Create a custom table
- Enable attachments within a table
- Licensing requirements for each table type
- Lab - Create a new custom table and enable attachments
- Check your knowledge
- Summary

Lesson 4: Create and manage columns within a table in Dataverse
- Define columns in Microsoft Dataverse
- Column types in Microsoft Dataverse
- Add a column to a table
- Create a primary name column
- Restrictions that apply to columns in a table
- Create an auto numbering column
- Create an alternate key
- Exercises
- Check your knowledge
- Summary

Lesson 5: Working with choices in Dataverse
- Define choice column
- Standard choices column
- Lab - Create a new choice or modify an existing choice
- Check your knowledge
- Summary

Lesson 6: Create a relationship between tables in Dataverse
- Relate one or more tables - Introduction
- Relationship types that are available in Microsoft Dataverse
- Create a one-to-many relationship between tables
- Create a many-to-many relationship between tables
- Edit or delete relationships
- Exercise - Create two tables and relate them by using a one-to-many relationship
- Check your knowledge
- Summary

Lesson 7: Define and create business rules in Dataverse
- Define business rules - Introduction
- Define the components of a business rule
- Create a business rule
- Exercise - Create a business rule
- Check your knowledge
- Summary

Lesson 8: Create and define calculation or rollup columns in Dataverse
- Introduction to rollup columns
- Create a rollup column
- Introduction to calculation columns
- Create a calculation column
- Exercise - Create a rollup column
- Exercise - Create a calculation column
- Check your knowledge
- Summary

Lesson 9: Get started with security roles in Dataverse
- Introduction to environment roles
- Understand environment roles
- Adding or disabling an environment user
- Understand security concepts in Dataverse
- Understand user security roles and security role defaults
- Exercise - Create a custom role
- Check the roles that a user belongs to
- Configure Dataverse teams for security
- Configure Dataverse group teams for security
- Check your knowledge
- Summary

Lesson 10: Get started with Power Apps canvas apps
- Introduction to Power Apps
- Power Apps building blocks
- Exercise - Create your first app in Power Apps
- Ways to build Power Apps
- Power Apps related technologies
- Additional Power Apps related technologies
- Designing a Power Apps app
- Check your knowledge
- Summary

Lesson 11: Customize a canvas app in Power Apps
- Improve apps by making basic customizations in Power Apps
- Create a navigation model for your canvas app
- Explore screens and controls in Power Apps
- Exercise - Get started with functions in Power Apps
- Check your knowledge
- Summary

Lesson 12: Manage apps in Power Apps
- Exercise - Manage app versions in Power Apps
- Exercise - Share apps in Power Apps
- Exercise - Understand environments in Power Apps
- Power Apps review
- Check your knowledge
- Summary

Lesson 13: Navigation in a canvas app in Power Apps
- Understanding navigation
- The navigation and back function
- Lab - Create navigation functions
- More ways to use the navigation function
- Check your knowledge
- Summary

Lesson 14: How to build the UI in a canvas app in Power Apps
- Use themes to quickly change the appearance of your app
- Branding a control
- Icons
- Images
- Personalization
- Using the tablet or phone form factors
- Exercise - Create UI for a new canvas app
- Check your knowledge
- Summary

Lesson 15: Use and understand Controls in a canvas app in Power Apps
- Introduction to controls
- Core properties of controls
- Entering and displaying data with text controls
- Additional controls for enhancing your app's usability
- Media
- Lab - Create a canvas app with unique controls
- Check your knowledge
- Summary

Lesson 16: Document and test your Power Apps application
- Create test plans
- User interface testing
- Performance optimization
- Diagnostics and analytics
- Documentation and the customer
- Check your knowledge
- Summary

Lesson 17: Use imperative development techniques for canvas apps in Power Apps
- Imperative versus declarative development
- The three types of variables in Power Apps
- Global variables
- Contextual variables
- Collections
- Additional variable concepts
- Exercise - Using the variables and collections
- Check your knowledge
- Summary

Lesson 18: Create formulas that use tables, records, and collections in a canvas app in Power Apps
- Formulas that process multiple records
- Math operations on tables
- Combine and separate records
- The ForAll function
- Lab - Using the ForAll function in a gallery
- Check your knowledge
- Summary

Lesson 19: Perform custom updates in a Power Apps canvas app
- Sometimes you need something more than forms
- Using the Patch function to create and edit records
- Deleting record(s) from data sources and collections
- Using Patch function to update a Gallery
- Check your knowledge
- Summary

Lesson 20: Complete testing and performance checks in a Power Apps canvas app
- The importance of thinking about performance
- Improve performance with data sources
- Testing and troubleshooting your app
- Exercise - Using the Concurrent function to test performance
- Check your knowledge
- Summary

Lesson 21: Work with relational data in a Power Apps canvas app
- What is relational data?
- Work with relationships in Power Apps
- Exercise - Work with relational data
- Microsoft Dataverse for apps makes relationships even easier
- Check your knowledge
- Summary

Lesson 22: Work with data source limits (delegation limits) in a Power Apps canvas app
- Delegation overview
- Functions, predicates, and data sources combine to determine delegation
- Delegation warnings, limits, and non-delegable functions
- Check your knowledge
- Summary

Lesson 23: Connect to other data in a Power Apps canvas app
- Overview of the different data sources
- Work with action-based data sources
- Power Automate is a companion to Power Apps
- Check your knowledge
- Summary

Lesson 24: Use custom connectors in a Power Apps canvas app
- Overview of custom connectors
- Overview of the custom connector lifecycle
- Use postman for your custom connector
- Check your knowledge
- Summary

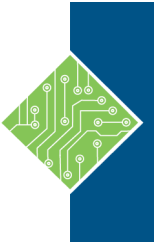### Lesson 25: Get started with Power Automate
- Introducing Power Automate
- Exercise - Create your first flow
- Exercise - Create recurring flows
- Exercise - Monitor incoming emails
- Exercise - Share flows
- Troubleshoot flows
- Check your knowledge
- Summary

Lesson 26: Build approval flows with Power Automate
- Provide solutions to real-world scenarios.
- Exercise - Build an approval request
- Exercise - Build a flow that processes an approval request
- Exercise - Learn to build a flow that runs at recurring time intervals
- Exercise - Create a business process flow
- Exercise - Create a business process flow that has conditions
- Check your knowledge
- Summary

Lesson 27: Introduction to expressions in Power Automate
- Introduction to expressions
- Get started with expressions
- Notes make things easier
- Types of functions
- Write complex expressions
- Exercise - Creating a manual flow and using expressions
- Check your knowledge
- Summary

Lesson 28: Introduction to Microsoft Power Platform developer resources
- Introduction to Microsoft Power Platform for Developers
- Overview of Microsoft Dataverse and the Common Data Model
- Extending Power Platform with Azure
- Check your knowledge
- Summary

Lesson 29: Use developer tools to extend Microsoft Power Platform
- Introduction to developer Microsoft Power Platform tooling
- Exercise - Install and use developer tools
- Solutions overview
- Deploy apps with Package Deployer
- Exercise - Use the Power Apps CLI
- Check your knowledge
- Summary

Lesson 30: Introduction to extending Microsoft Power Platform
- Introduction
- User experience extensibility
- Microsoft Dataverse extensibility
- Exercise - Create a Custom API
- Determine when to configure or when to code
- Check your knowledge
- Summary

Lesson 31: Introduction to Dataverse for developers
- Introduction to developing with Microsoft Dataverse
- Microsoft Dataverse extensibility model
- Event framework
- Check your knowledge
- Summary

Lesson 32: Extend plug-ins
- Introduction to Plug-ins
- Plug-ins usage scenarios
- Custom workflow extensions
- Plug-in execution context
- Exercise - Write your first plug-in
- Exercise - Write a custom workflow extension
- Check your knowledge
- Summary

Lesson 33: Performing common actions with client script
- Introduction to client-side scripting
- Upload scripts
- Event handlers
- Context objects
- Client scripting common tasks
- Exercise - Use client script to hide a form section
- Check your knowledge
- Summary

Lesson 34: Automate business process flows with client script
- Introduction to conducting global operations with the client API Xrm object
- Client scripting best practices
- Debugging client script
- Exercise - Use table data from client script
- Check your knowledge
- Summary

Lesson 35: Get started with Power Apps component framework
- Introduction to Power Apps component framework
- Power Apps component framework architecture
- Power Apps component tooling
- Demo of Power Apps code component
- Check your knowledge
- Summary

Lesson 36: Build Power Apps component
- Introduction to creating a code component
- Create a code component solution package
- Test and debug code components
- Check your knowledge
- Summary

Lesson 37: Use advanced features with Power Apps component framework
- Introduction to using React within a Power Apps component
- Use the formatting API in a Power Apps component
- Use the Microsoft Dataverse web API in a Power Apps component
- Write a pop-up Power Apps component
- Check your knowledge
- Summary

Lesson 38: Work with Dataverse Web API
- Introduction
- Introduction to the Microsoft Dataverse Web API
- Authenticate against Microsoft Dataverse by using OAuth
- Interact with Microsoft Dataverse Web API by using Postman
- Use OData to query data
- Use FetchXML to query data
- Call Power Automate actions from the Web API
- Use the Web API to impersonate another user
- Track entity data changes with change tracking and the Web API
- Check your knowledge
- Summary

Lesson 39: Integrate Dataverse Azure solutions
- Microsoft Dataverse Azure Solutions overview
- Expose Microsoft Dataverse data to Azure Service Bus
- Write a Service Bus Event Listener that consumes Microsoft Dataverse messages
- Publish Microsoft Dataverse events with webhooks
- Write an Azure Function that processes Microsoft Dataverse events
- Check your knowledge
- Summary

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