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step forward

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Microsoft Dynamics 365 Customer Engagement for Developers (55259AC)

Course outline

Module 1: Introduction to Dynamics 365 Power Platform Development

This module introduces the concept of extending Microsoft Dynamics 365 Customer Engagement Apps and Power Apps using Pro Code development. You will learn about the tools and resources that are available to Pro Code Developers as well as best practice methodologies and fundamentals.

Lessons

- Dynamics 365 and Power Platform Overview
- App Makers vs Pro Developers
- Pro Code Developer Options
- Development Tools
- The Customer Engagement Toolkit
- Environments and Solutions
- Security Considerations
- Application Lifecycle Management
- Valuable Skills
- Further reading and resources

Lab 1: Setting up you Lab Environment

- Set up a trial of Microsoft Dynamics 365 and Power Apps
- Install Sample Data

Lab 2: Developer Orientation

- Review the Developer Resources
- Review the Lab Files
- Review the Customer Engagement Toolkit

After completing this module, students will be able to:

- Describe the key features and tools available to developers in Microsoft Dynamics 365 Power Platform
- Be familiar with the developer resources and how to set up your development environment
- Understand the key skills required to develop and extend the Power Platform
- Know where to find help and further reading resources

Module 2: Working with the Common Data Service using the API

This module presents the various API options that are available to developers in connect to a interact with the Common Data Service programmatically. You will learn how to write server-side and client-side code to consume the API endpoints.

Lessons

- Introduction to API programming
- Authentication Considerations
- The Web API
- The Discovery Web Service
- The Organization Web Service

- Core Assemblies
- Early and Late-bound classes
- The Code Generation Tool
- Service Context
- CRUD Operations
- Using the QueryExpression Class
- Using LINQ

Lab 1: Using the Web API with Server-side code to connect to CDS

- Migrating Settings by using Windows Easy Transfer
- Configuring a Reference Image of Windows 7
- Configuring a Reference Image

Lab 2: Using the Organization service with Server-side code to connect to CDS

- Set up the Visual Studio Project
- Develop an App to perform operations using the Organization service
- Connect to the Common Data Service
- Test your App

Lab 3: Using the Web API with Client-side code to connect to CDS

- Set up the Visual Studio Project
- Develop an App to perform operations using Web API Client-side code
- Connect to the Common Data Service
- Test your App

After completing this module, students will be able to:

- Be familiar with the various API's available to connect to the Common Data Service
- Understand how to write server-side and client-side code to utilize the API's
- Be able to set up Microsoft Visual Studio to start developing code against the API's
- Know how to authenticate, connect and perform CRUD based operations programmatically against CDS.

Module 3: Developing Client-side Code
This module introduces the concepts of developing client-side code that works with the event driven Client API Object Model in Microsoft Dynamics 365 Model-driven Apps. You will also learn how to create and deploy client-side components using Web Resources that use the Web API to work with data in the Common Data Services (CDS).

Lessons

- Introduction to Client-side coding
- The Client-side Events
- The Client API Object Model
- Using Web resources

Lab 1: Writing a JavaScript Event Handler

- Write a JavaScript Function
- Create a JavaScript Web Resource
- Configure the Event Handler
- Test your JavaScript Code

After completing this module, students will be able to:

- Understand the concept of the Client API Object Model and client-side coding
- Know how to write client-side code to extend Model-driven Apps
- Be familiar with the concept of how to write JavaScript functions
- Deploy HTML and JavaScript Web Resources

Module 4: Developing Plug-Ins

In this module you will learn how to develop custom business logic in a Plug-In component using Microsoft .Net C# in Visual Studio. You will also learn how to deploy Plug-In components to the Common Data Service (CDS) using the Plug-In Registration Tool.

Lessons

- Introduction to Plug-Ins
- Writing Plug-In Code
- Using the Plug-In Registration Tool
- Debugging Plug-Ins with the Plug-In Profiler
- Deploying Plug-Ins with Solutions

Lab 1: Create and deploy a Plug-In

- Customize a Model-driven App
- Set up your Visual Studio Project
- Create a Plug-In
- Sign and Build the Assembly
- Deploy a Plug-In using the Plug-In Registration Tool
- Test your Plug-In
- Debug Plug-In code using the Plug-In Profiler Tool

After completing this module, students will be able to:

- Understand the need for custom business logic and Plug-Ins
- Know how to set up a Microsoft Visual Studio projects to start creating custom Plug-In component
- Be familiar with the process to write, deploy and test Plug-In code in Microsoft Visual Studio
- Use the Plug-In Registration Tool to deploy a Plug-In to the Common Data Service
- Debug issues with Plug-In code using the Plug-In Profiler tool
- Understand how to deploy Plug-Ins to a production environment using Solutions

Module 5: Developing Custom Workflow Activities

In this module you will learn how to develop a Custom Workflow Activity using Microsoft .Net C# in Visual Studio. You will also learn how to use a Custom Workflow Activity as a Workflow Step in Dynamics 365 Model-driven App.

Lessons

- Introduction to Custom Workflow Activities
- Writing Custom Workflow Activity code
- Deploying a Custom Workflow Activity

Lab 1: Create a Custom Workflow Activity

- Set up the Visual Studio Project
- Create a Custom Workflow Activity
- Sign and Build the Assembly

- Deploy a Custom Workflow Activity
- Create a Workflow
- Test your Custom Workflow Activity

After completing this module, students will be able to:

- Understand the need for custom Workflow Activities in Microsoft Dynamics 365 CE Version 9
- Know how to set up a Visual Studio project to start creating a custom Workflow Activity
- Be familiar with the process to create and deploy a custom Workflow Activity using the Plug-In Registration Tool
- Understand how to use a custom Workflow Activity in Dynamics 365 Processes

Module 6: Extending PowerApps
This module looks at the possibilities when using Custom Controls in Model-driven Apps to extend the out of the box functionality, including embedding Canvas Apps inside of Model-driven Apps.

Lessons

- Introduction Custom Controls
- Extending Model-driven Apps with Canvas Apps
- Embedding Canvas Apps as Custom Controls

Lab 1: Create a Canvas App and embed it into a Model-driven App

- Create Canvas Apps
- Create Model-driven App
- Embed Canvas App into Model-driven App as a Component
- Test your App

After completing this module, students will be able to:

- Be familiar with Custom Controls
- Understand how to configure Model-driven Apps and Canvas Apps to use Custom Controls
- Understand the process to configure Custom Controls

Module 7: The PowerApps Component Framework (PCF)
This module extends on the previous module as we look into creating custom components for Model-driven Apps and Canvas Apps using the Power Apps Component Framework (PCF).

Lessons

- Introduction to PCF
- The PCF Command Line Interface (CLI)
- Creating PCF Components
- The PCF Test Environment
- Deploying PCF Components in a Model-driven App

Lab 1: Create and deploy a PCF Control

- Install the Power Apps CLI
- Create your PCF control
- Packing PCF Components in Solutions
- Deploy a PCF Component
- Test your control

After completing this module, students will be able to:

- Understand the need for custom components and controls in Model-driven and Canvas Apps
- Know how to set up your project to start creating a custom PCF control
- Be familiar with the process to write, deploy and test PCF controls using the Power Apps CLI
- Know how to deploy a PCF control in Power Apps
- Understand how to deploy PCF controls to a production environment

Module 8: Developing Custom Connectors

This module looks at how Pro Developers can create Custom Connectors in the Power Apps Maker Portal to then be used by App Makers in Model-driven Apps and Canvas Apps to connect to external data sources and systems.

Lessons

- Connectors Overview
- Custom Connectors
- Process to create a Custom Connector

Lab 1: Create a Custom Connector

- Set up Visual Studio
- Register an App in Azure
- Create a Custom Connector
- Test your Connector in a Canvas App
- Sharing your Connector

After completing this module, students will be able to:

- Understand the need for Custom Connectors
- Know how to start creating a Custom Connector
- Understand how to set up Azure when building and securing Custom Connectors
- Know how to configure a Custom Connector in the Power Apps Maker Portal
- Understand how to share a Custom Connector

Module 9: Application Lifecycle Management (ALM)

In this module we look at the Application Lifecycle Management (ALM) options that are available to help manage and support a Dynamics 365 Power Platform deployment. The Microsoft Power Platform Build Tools and the Power Apps Center of Excellence Starter Kit are also presented in this module.

Lessons

- Introduction to ALM
- Environments and Solution Management
- Microsoft Power Platform Build Tools
- The Power Apps Center of Excellence

Lab 1: None

- None

After completing this module, students will be able to:

- Understand the need for ALM governance frameworks for Microsoft Power Platform Solutions
- Understand the benefits of implementing Microsoft Power Platform Build Tools for Azure DevOps

- Be familiar with the monitoring, governance and nurturing tools and dashboards available through the Power Apps Center of Excellence