

Developing Microsoft SharePoint Server 2016 Solutions

Course Duration: 40 Hours (5 Days)

Overview

The "Developing Microsoft SharePoint Server 2016 Solutions" course is designed for professional developers who already have some experience with SharePoint and are looking to deepen their understanding and skills in creating custom solutions for SharePoint Server 2016. This course is structured to guide learners through various aspects of SharePoint development, from an introduction to the developer landscape to the intricacies of add-ins and identity management. Throughout the course, learners will explore key topics such as the SharePoint object hierarchy, working with lists and libraries, managing features and solutions, Server-side coding, Client-side SharePoint development, and Managing identity and permissions. The course also covers advanced topics like JavaScript injection, Remote provisioning, Developing and distributing add-ins, and Customizing user interface elements. By learning SharePoint Add-ins development, Remote hosted add-ins, client-side object model (CSOM), and REST API, participants will be equipped to tailor SharePoint environments to their organization's needs, ensuring efficient App management and seamless user experience. Additionally, modules on Branding and navigation provide insights into enhancing the look and feel of SharePoint sites. Upon completion, learners will have the expertise to build and manage robust SharePoint solutions, adding significant value to their roles as SharePoint developers.

Audience Profile

The Developing Microsoft SharePoint Server 2016 Solutions course is designed for experienced developers looking to enhance their SharePoint skillset. It is ideal for:

- SharePoint Developers
- .NET Developers specializing in SharePoint
- Software Architects working on SharePoint projects
- Technical Leads overseeing SharePoint development teams
- IT Professionals transitioning into SharePoint development
- Systems Engineers supporting SharePoint environments
- Enterprise Application Managers responsible for SharePoint applications
- SharePoint Administrators seeking to expand their technical expertise

Course Syllabus

Module 1: Getting Started with SharePoint Server 2016

- This module examines different approaches to developing applications with SharePoint Server 2016 and the scenarios in which each approach is appropriate. Students will also be introduced to a set of tools commonly used during SharePoint development.

Lessons:

- Introducing the SharePoint Developer Landscape
- Choosing Approaches to SharePoint Development
- Understanding SharePoint 2016 Deployment and Execution Models

Lab: Comparing Web Parts and App Parts

- Creating and Deploying a SharePoint Web Part
- Creating and Deploying a SharePoint App Part

After completing this module, students will be able to:

- Describe the opportunities available for developers in SharePoint Server 2016.
- Choose appropriate execution models for custom SharePoint components.
- Choose appropriate deployment models for custom SharePoint components.

Module 2: Working with SharePoint Objects

- This module introduces the server-side SharePoint object model and explains how the core classes relate to sites and site collections. Students will learn how to manage permissions for server-side code.

Lessons:

- Understanding the SharePoint Object Hierarchy
- Working with Sites and Webs
- Working with Execution Contexts

Lab: Working with Sites and Webs

- Working with Sites and Webs in Managed Code
- Working with Sites and Webs in Windows PowerShell

Lab: Working with Execution Contexts

- Running Code with Elevated Privileges
- Adapting Content for Different User Permissions

After completing this module, students will be able to:

- Explain the purpose of key classes in the server-side SharePoint object model.
- Programmatically interact with SharePoint site collections and sites.

- Adapt solutions for users with different levels of permissions.

Module 3: Working with Lists and Libraries

- This module explains how to interact with lists and libraries programmatically using the server-side SharePoint object model. Students will learn to use query classes and LINQ to SharePoint to retrieve data efficiently, especially when working with large lists.

Lessons:

- Using List and Library Objects
- Querying and Retrieving List Data
- Working with Large Lists
- Defining Custom Lists
- Working with Content Types

Lab: Querying and Retrieving List Data

- Querying and Updating List Items

Lab: Working with Large Lists

- Using the ContentIterator Class

Lab: Working with Content Types

- Creating a System to Capture Vacation Requests

After completing this module, students will be able to:

- Interact with lists and libraries programmatically.
- Query and retrieve list data.
- Perform operations efficiently on large lists.
- Create and configure content types declaratively and programmatically.

Module 4: Designing and Managing Features and Solutions

- This module covers creating and deploying custom SharePoint solutions and features. Students will also learn when and how to use sandboxed solutions.

Lessons:

- Understanding Features and Solutions
- Configuring Features and Solutions
- Working with Sandboxed Solutions

Lab: Working with Features and Solutions

- Configuring SharePoint Features
- Creating Feature Receiver Classes
- Creating Features with Dependencies

After completing this module, students will be able to:

- Explain the purpose and key functionality of Features and Solutions.
- Configure and manage Features and Solutions.
- Create and manage sandboxed solutions.

Module 5: Working with Server-Side Code

- This module describes how to develop and deploy Web Parts and event receivers in a SharePoint solution.

Lessons:

- Developing Web Parts
- Using Event Receivers
- Using Timer Jobs
- Storing Configuration Data

Lab: Working with Server-Side Code

- Developing an Event Receiver
- Updating a Web Part
- Creating a Timer Job

After completing this module, students will be able to:

- Describe the process of developing a Web Part.
- Use event receivers to handle SharePoint events.
- Use timer jobs to perform scheduled operations.
- Store and manipulate configuration data for custom components.

Module 6: Client-Side SharePoint Development

This module covers the use of the JavaScript Client Object Model (CSOM), managed code CSOM, and the REST API to build SharePoint add-ins.

Lessons:

- Using the Client-Side Object Model for Managed Code
- Using the Client-Side Object Model for JavaScript

- Using the REST API with JavaScript

Lab: Using the Client-Side Object Model for Managed Code

- Adding a Site Column
- Adding the Mileage Claim Content Type
- Adding the Claims List

Lab: Using the REST API with JavaScript

- Creating List Relationships
- Adding Vote Recording
- Displaying Votes for Each Suggestion

After completing this module, students will be able to:

- Use the client-side object model (CSOM) for managed code to interact with a SharePoint deployment.
- Use the client-side object model (CSOM) for JavaScript to interact with a SharePoint deployment.
- Use the REST API with JavaScript or C# to interact with a SharePoint deployment.
- Use the client-side object model for JavaScript to interact with a SharePoint deployment.
- Use the REST API with JavaScript or C# to interact with a SharePoint deployment.

Module 7: JavaScript Injection and Remote Provisioning

- This module begins by explaining the central concept of JavaScript injection, where scripts containing custom JavaScript code are uploaded to SharePoint Online and executed using the permissions of the current user. Students will learn how to get started with JavaScript injection using the Script Editor Web Part. Next, they will learn how to extend a SharePoint site by adding new pages and custom JavaScript code that utilizes the JavaScript Object Model (JSOM) and the SharePoint REST API. The module then explains how to use remote provisioning to effectively deploy a custom solution that incorporates JavaScript injection. Along the way, students will learn about loading JavaScript library dependencies and executing custom JavaScript code using user custom actions such as ribbon buttons, ECB menu items, and ScriptLinks. They will also learn how to use client-side rendering techniques and JSLink to create customized views for SharePoint lists.

Lessons

- Enabling Scripting in SharePoint 2016
- Understanding JavaScript Injection
- JSOM Programming
- Remote Provisioning Using CSOM
- Designing MDS-Enabled Pages
- JSLink and Client-Side Rendering

Module 8: Managing Identity and Permissions

This module describes how to manage permissions through code and customize authentication using custom claims providers.

Lessons

- Understanding Identity Management in SharePoint 2016
- Managing Permissions in SharePoint 2016
- Configuring Forms-Based Authentication
- Customizing the Authentication Experience

Lab: Managing Permissions Programmatically in SharePoint 2016

- Managing List Permissions Programmatically

Lab: Creating and Deploying a Custom Claims Provider

- Creating a Custom Claims Provider
- Supporting Search and Resolve in a Claims Provider
- Deploying and Testing a Claims Provider

After completing this module, students will be able to:

- Describe how authentication and identity management work in SharePoint 2016.
- Verify and manage permissions programmatically in SharePoint 2016.
- Create and configure custom membership providers and role managers for forms-based authentication.
- Create claims providers and customize the sign-in experience.

Module 9: Introducing Add-ins for SharePoint

This module introduces SharePoint Add-ins, a new way to customize SharePoint functionality with SharePoint Server 2016.

Lessons

- Overview of Add-ins for SharePoint
- Developing Add-ins for SharePoint

Lab: Creating a Site Suggestions Add-in

- Creating a New SharePoint Add-in Using the Client-Side Object Model

After completing this module, students will be able to:

- Describe SharePoint Add-ins and compare them to SharePoint farm solutions and sandboxed solutions.
- Develop Add-ins for SharePoint 2016 that work both on-premises and in the cloud.

Module 10: Developing Remote Hosted SharePoint Add-ins

- This module examines the difference between provider-hosted Add-ins and remote-hosted Add-ins. Students will also create and deploy a provider-hosted Add-in.

Lessons

- Overview of Remote Hosted Add-ins
- Configuring Remote Hosted Add-ins
- Developing Remote Hosted Add-ins

Lab: Configuring a Provider-Hosted SharePoint Add-in

- Configuring a Server-to-Server Trust Relationship
- Creating a Provider-Hosted Add-in

Lab: Developing a Provider-Hosted SharePoint Add-in

- Working with SharePoint Data Using the Chrome Control

After completing this module, students will be able to:

- Describe how remote-hosted Add-ins work and how to configure the necessary permissions and cross-domain calls.
- Configure Add-ins for hosting on Windows Azure or remote servers.
- Develop Add-ins for hosting on Windows Azure or remote servers.

Module 11: Publishing and Distributing Add-ins

- This module introduces the App Catalog, allowing users to locate, purchase, and install Add-ins easily. Students learn how to package and publish Add-ins to the App Catalog.

Lessons

- Understanding the App Management Architecture
- Understanding App Packages
- Publishing Add-ins
- Installing, Updating, and Uninstalling Add-ins

Lab: Publishing an Add-in to a Corporate Catalog

- Creating an App Catalog
- Creating an App Package
- Publishing an App Package

Lab: Installing, Updating, and Uninstalling Add-ins

- Installing an Add-in

- Upgrading an Add-in
- Removing an Add-in

After completing this module, students will be able to:

- Explain how SharePoint manages Add-in publishing and distribution.
- Describe the contents of an app package.
- Publish Add-ins to a corporate catalog or the Office Marketplace.
- Install, update, and uninstall Add-ins.

Module 12: Customizing User Interface Elements

- This module explains different ways to customize the SharePoint user interface, such as adding buttons to the ribbon or modifying the appearance of list views.

Lessons

- Working with Custom Actions
- Using Client-Side User Interface Components
- Customizing the SharePoint List User Interface

Lab: Using the Edit Control Block to Launch an Add-in

- Configuring an Add-in to Display Customer Orders
- Using a Custom Action to Launch an Add-in

Lab: Using jQuery to Customize the SharePoint List User Interface

- Creating a Custom List View

After completing this module, students will be able to:

- Use custom actions to modify the SharePoint user interface.
- Use JavaScript to work with client-side SharePoint user interface components.
- Describe how to modify the appearance and behavior of list views and forms.