



10232 - SharePoint 2010

Designing and Developing Microsoft SharePoint Server 2010 Applications

Introduction

This **five-day** instructor-led course is intended for SharePoint Development professionals who are responsible for leading projects, designing solutions, and identifying problems. In this course, students learn the skills and best practices that are required to help organizations design and develop effective SharePoint applications.

Audience

This course is intended for developers and development leads who will be responsible for designing custom code solutions that are deployed to SharePoint 2010 servers. To be successful in this course, the student will have at least two years of SharePoint development experience and should have experience with ASP.NET and Visual Studio 2010.

At Course Completion

After completing this course, students will be able to:

- Develop strategies for caching, session state, as well as design for high performance sites by limiting page size and iteration.
- Determine the most suitable presentation method, visual elements, programmatic objects and multilingual strategy which meets the design objectives.
- Evaluate available data access and storage methods and determine the appropriate implementation for the application requirements.
- Identify the pros and cons of various data capture options and specify the most effective method or combination of methods for capturing user input.
- Evaluate the use and implementation of SharePoint artifacts and determine which artifacts best meet the needs of the application requirements.
- Design processing systems to get work done in the solution.
- Create an effective strategy for implementation and deployment of custom solutions in both development and production environments.
- Create a development strategy to allow multiple developers and administrators to work together.
- Devise a strategy for developing and deploying upgrades over time as the solution evolves.
- Develop an information architecture strategy that will support flexibility and growth and a navigation strategy that fits on top of this information architecture.
- Plan a comprehensive branding strategy and determine the necessary application elements required to support that strategy.
- Design and implement a security approach which supports both code access and end-user functionality.



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- Design an effective strategy for optimizing page render times and data access methods within SharePoint 2010.
- Determine the appropriate use of unit and integration tests within SharePoint and design an effective strategy for insuring maximum code reliability.

Prerequisites

Before attending this course, it is recommended that students have:

- Understanding of the problem-solving techniques that apply to the Software Development Lifecycle (SDLC), including the versioning of software and the management of configuration and content in a software system
- Basic knowledge of Web application architecture
- Experience in developing in a team environment
- Working knowledge of ASP.NET and Visual Studio
- Experience in SharePoint infrastructure including servers and services
- Experience in SharePoint development including the APIs and XML schemas necessary to create web parts, perform data access, and provision fields, lists, content types, etc.

Course Outline

Module 1: Advanced ASP.NET Concepts for SharePoint

This module helps you to review the essential information regarding ASP.NET including how to improve performance for high-scale sites like SharePoint. This module covers concepts around view state, caching, and session state and provides an opportunity to learn to make appropriate choices.

Lessons

- Server Memory
- Server CPU
- Transfer and Client

Lab: Page Size and View State

- Using Fiddler to Observe Page Loading
- Using Fiddler to Examine Page Size
- Reducing Page Size



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Lab: Memory and Performance

- Capturing a Memory Profile
- Reviewing the Report
- Resolving Memory Issues and Retest

After completing this module, students will be able to:

- Review the fundamentals of memory management.
- Identify the key things to drive high CPU utilization.
- Identify factors impacting client performance.

Module 2: Designing for User Experience

This module provides the key criteria and structure necessary to make appropriate decisions about what kind of user interface component to use based on the needs of the solution.

Lessons

- SharePoint Background
- Page Parts
- Pages
- Globalization and Localization
- Designing for Accessibility

Lab: Selecting Page Parts

- Plant Summary Page
- Plant Configuration Page
- Employee List
- Line Status

Lab: Selecting Page Types

- Line Dashboard
- Manager's Dashboard
- Alert Notification

After completing this module, students will be able to:

- Review the fundamentals of SharePoint architecture and how it impacts the page design experience.



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- Determine the appropriate page part in SharePoint for a given situation.
- Determine the appropriate page in SharePoint for a given situation.
- Identify the considerations for globalizing and localizing your applications.
- Determine the design impact of WCAG standards for projects requiring accessibility compliance.

Module 3: Designing for Data

This module explains defining what storage will look like. This module discusses the information about data design critical to the performance and accessibility of the solution. The module also covers scalability issues related to data as well as the structural components such as the use of lists, list definitions, content types, and fields.

Lessons

- List and Library Fundamentals
- Large Data Strategies
- SharePoint Data Management

Lab: Time Tracking

- Creating List Views
- Indexing Key Columns

Lab: Invoice Management

- Establishing an Invoice Content Type
- Creating a Solution for Storing Invoices
- Testing the Solution for Storing Invoices

After completing this module, students will be able to:

- Review the fundamentals of foundation for operating with data in SharePoint.
- Evaluate data size to arrive at potential solutions for large data storage needs.
- Manage data to arrive at an appropriate data access strategy.

Module 4: Designing Data Capture and Integration

This module discusses strategies on how to get the data into the system. This module covers the techniques for capturing data – including office integration and integrating to other systems with BCS.

Lessons



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- Designing for Data Capture
- Designing for Integration

Lab: Creating External Lists

- Connecting to the Data Source
- Defining the External Content Types
- Defining the External Lists
- Setting Security for the Content Types
- Defining an Association

Lab: Creating an InfoPath Form

- Deciding the kind of form to create
- Creating the Header fields
- Creating the Lines
- Publishing the Form to a SharePoint Library

After completing this module, students will be able to:

- Apply the appropriate approach to data capture in SharePoint.
- Identify the integration options and technologies that are built into the SharePoint platform including the Business Data Catalog (BDC) and Business Connectivity Services (BCS).

Module 5: Designing Artefacts

This module discusses items that will need to be implemented in SharePoint to tie the user interface and the data structure together. The module covers information about artifacts to begin the transformation of the abstract design into a specific set of deliverables that need to be created through SharePoint.

Lessons

- Customer Requirements
- Creating Sites

Lab: Incident Response Site

- Evaluating the Requirements
- Designing the Solution

Lab: Expense Reports

- Evaluating the Requirements
- Designing the Solution



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After completing this module, students will be able to:

- Implement the techniques for evaluating and refining customer requirements.
- Determine an approach for matching customer requirements to SharePoint artefacts.

Module 6: Designing Processing Solutions

This module covers the details of options for developing solutions. The module provides decision criteria for the determination of sandbox versus full trust (or a hybrid of the two) deployments. The module also provides details for making decisions about processing including how to address long running operations and how to decide the appropriate processing solutions.

Lessons

- Multi-Server Configurations
- In and Out of the Sandbox
- Getting Work Done
- Working with Workflows

Lab: Engineering System

- Evaluating Client Capabilities and Requirements
- Evaluating Sandbox Capabilities and Requirements
- Evaluating Farm Deployment Capabilities and Requirements

Lab: Sensor Report

- Designing Data Access for Sensor Data
- Designing a Processing Solution for the Report
- Designing a Processing Solution for Approval

After completing this module, students will be able to:

- Explain the processing solutions and approaches that must be created when working in a multi-server environment.
- Identify the benefits and limitations of the SharePoint Sandbox features.
- Determine the choices available for in-page, client, event receiver, workflow, and timer execution models.
- Evaluate how SharePoint workflows are executed and the factors impacting design.

Module 7: Designing Packaging

This module addresses the first order problem of factoring the solution into features and packages so that it can be upgraded. This module covers the baseline skills of determining the number, scope, and dependency of features and determining the right number of packages.



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Lessons

- Understanding the Packaging Lifecycle
- Establish Design Principles

Lab: Building a Business Document Solution

- Designing a Solution
- Create the Final Solution

Lab: Working with Dependencies

- Creating a Common Assembly
- Creating a dependent Solution

After completing this module, students will be able to:

- Explain how packages are created and delivered.
- Determine the size of features to be able to effectively maintain the given solution.

Module 8: Designing a Development Strategy

This module focuses on two key items necessary to deploy larger solutions, configuration and logging. This module provides the students a platform to expand the scope of the solution and focus on issues related to dozens of projects on a server, each with its own approach to configuration and logging.

Lessons

- Developing for the Enterprise
- The Role of Logging
- Application Flexibility and Configuration

Lab: Team-based Logging and Configuration

- List based configuration appraisal
- SharePoint List based configuration
- SharePoint List based logging
- Configure logging level

Lab: Operational Logging



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- Add Logging to SharePoint ULS

After completing this module, students will be able to:

- Identify the team development needs for SharePoint.
- Explain operational and diagnostic logging including the differences and the options for recording.
- Determine the options for storing configuration in a SharePoint environment.

Module 9: Developing Versioning and Deployment

This module delves into the challenges of versioning in a SharePoint environment. The module also addresses deployment issues because most deployment issues are related to the versioning process.

Lessons

- Application Lifecycle
- Versioning Strategy
- Upgrading

Lab: Versioning Assemblies

- Defining Base Version
- Upgrading the Assembly

Lab: Feature Upgrade

- Creating Upgrade Manage Page
- Adding Feature to Upgrade
- Upgrade Feature

After completing this module, students will be able to:

- Review the fundamentals of the software development lifecycle and its relation to configuration management.
- Determine the approach for versioning a given application.
- Address specific concerns for upgrading a given application that has been deployed to production.

Module 10: Designing Information Architecture and Navigation

This module helps to draw the distinction between information architecture and branding topics. The module helps to separate taxonomy (organization) from navigation (user interface).



Lessons

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- Designing an Information Architecture
 - Planning for Software Boundaries
 - Designing Content Navigation

Lab: Categorizing Information

- Card Sort
- Design Content Types and Site Columns

Lab: Implementing Farm Level Navigation

- Deploying a custom SiteMap
- Adding an ASP Menu to the Master Page

After completing this module, students will be able to:

- Determine the technique necessary to develop an information architecture based on SharePoint.
- Explain the scalability concerns for individual items in SharePoint in the context of information architecture.
- Determine the appropriate navigation solution for a given application.

Module 11: Designing Branding and Customization

This module covers branding options, including what tools can be used to customize the appearance. The module moves us to including the users and power users of the ultimate solution.

Lessons

- Introduction to Branding
- Themes
- Master Pages
- Cascading Style Sheets
- Tools Overview
- Implementing SharePoint Branding

Lab: Deploying Custom Branding

- Deploying a Custom Site Column and Content Type
- Using custom CSS
- Deploying a custom master page



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Lab: Deploying a Custom Content Type

- Deploying a Custom Site Column and Content Type

Module 12: Designing Security

This module describes how to design security for performance and provide a holistic view so to evaluate security implications and tradeoffs. This module also outlines the new Claims based authentication in SharePoint 2010 and how Forms Based Authentication fits into this model.

Lessons

- Security within SharePoint
- Using an Alternate Identity Store
- Forms-Based Authentication
- Deeper look at SharePoint Claims

Lab: Setting Up a Customer Service Site

- Setting Up the Authentication Provider
- Creating an FBA-Claims Site
- Optional Exercise: Viewing Claims for an FBA User

Lab: Solving a Security Issue

- Understanding the Scope and Relating it to Configuration
- Designing a Security Strategy

After completing this module, students will be able to:

- Explain the role of security in SharePoint.
- Evaluate the impact of alternate identity stores on a given security approach.
- Discuss the challenges and impact of forms-based authentication toward solving security concerns.

Module 13: Designing for Page and Data Access Performance

This module discusses page and data access performance and how to plan for a high performance site.

Lessons

- Optimizing SharePoint Page Performance
- Analyzing Performance with the SharePoint Developer Dashboard
- Optimizing SharePoint Data Access Performance



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Lab: Using Developer Dashboard

- Using the SharePoint Server 2010 Developer Dashboard to Capture Performance Metrics
- Leveraging the SharePoint Server 2010 Search API for Large Data Queries

After completing this module, students will be able to:

- Explain how SharePoint pages are built for optimized performance.
- Evaluate pages with performance issues in terms of elapsed time as well as database impact by using the SharePoint Developer Dashboard.
- Determine an appropriate SharePoint data access technique to deliver SharePoint data quickly and efficiently for a given scenario.

Module 14: Designing Testing Strategy

This module discusses what we do at the end of the development process, testing. The module also covers functional testing and scale/performance testing.

Lessons

- Testing Concepts
- Unit, Integration, Regression Testing
- Performance Testing

Lab: Designing a Testing Strategy

- Unit Testing
- Performance Testing
- Load Testing

After completing this module, students will be able to:

- Evaluate the core testing concepts and their impact on quality.
- Evaluate the core concepts of unit testing, integration testing, and regression testing.
- Test the performance of a given solution.

Course Duration

- 5 Days
- include equipment, training material, lunch and refreshments