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Information Technology & Training

Course 10232A:

Designing and Developing Microsoft SharePoint Server 2010 Applications

Length:	5 Days
Delivery Method:	Instructor-led (classroom)

About this Course

This five-day instructor-led course is intended for Microsoft 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 Profile

This course is intended for IT professionals who will be responsible for designing custom code for projects 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 Microsoft 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.

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- 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.
- 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 ensuring maximum code reliability.

Prerequisites

This course requires students to meet the following prerequisites:

- Understanding of the problem-solving techniques that apply to the Software Development Life Cycle (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: ASP.NET Advanced 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 ViewState, 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 ViewState

Using Fiddler to Observe Page Loading

Using Fiddler to Examine Page Size

Reducing Page Size

Lab : Memory and Performance

Starting a Performance Capture

Reviewing the Report

Resolving Memory Issues and Retest

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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

Line Dashboard

Managers Dashboard

Alert Notification

Lab : Selecting Page Types

Plant Summary Page

Plant Configuration Page

Employee List

Line Status

After completing this module, students will be able to:

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

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

Adding Indexes

Lab : Invoice Management

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Creating an Invoice Content Type

Enabling Content Organization

Testing Content Organization

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

Key Considerations for Data Capture

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

Creating the Calculations

Publishing the Form to a SharePoint Library

After completing this module, students will be able to:

Identify the key considerations for data capture in SharePoint.

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 Artifacts

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 artifacts.

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

Multiserver Configurations

In and Out of the Sandbox

Getting Work Done

Working with Workflows

Lab : Designing an Engineering System

Evaluating Client Capabilities and Requirements

Evaluating Sandbox Capabilities and Requirements

Evaluating Farm Deployment Capabilities and Requirements

Lab : Creating a Sensor Report

Designing Data Access for Sensor Data

Designing a Processing Solution for the Report

Designing a Processing Solution for the Approval

After completing this module, students will be able to:

Explain the processing solutions and approaches that must be created when working in a multiserver 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.

Lessons

Understanding Packaging Life Cycle

Establishing 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:

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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

The Benefits of Application Configuration

Lab : Team-Based Logging and Configuration

Appraising the List-Based Configuration

Using a SharePoint List-Based Configuration

Using SharePoint List-Based Logging

Configuring the Logging Level

Lab : Operational Logging

Adding 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 Version 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 Life Cycle Management

Source Control and Build

Versioning Strategy

Upgrading

Deployment

Lab : Versioning Assemblies

Defining Base Version

Upgrading the Assembly

Lab : Feature Upgrade

Creating Upgrade Manage Page

Adding Feature to Upgrade

Upgrading Feature

After completing this module, students will be able to:

Review the fundamentals of the software development life cycle and its relation to configuration management.

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Design a Source Control and build strategy.

Determine the approach for versioning a given application.

Address specific concerns for upgrading a given application that has been deployed to production.

Assess the effectiveness of deployment strategy.

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

Understanding Information Architecture

Planning for Software Boundaries

Navigation

Lab : Developing a Site Structure

Using Card Sort

Designing Content Types and Site Columns

Lab : Implementing Farm-wide Navigation

Deploying a Custom SiteMap

Adding an ASPmenu to a Custom 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 Support

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

Branding Options

Branding Decisions

Managing User Experience

Planning for Customization

Lab : Packaging Branding

Importing .wsp Files Into Microsoft Visual Studio

Extracting the File Resources

Writing the Feature Receiver to Apply Changes

Testing the Changes

Lab : Improving Brand Performance

Observing Current Performance

Turning on BLOB Caching

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Observing BLOB Cached Performance

Observing _layouts Performance

After completing this module, students will be able to:

Identify the need for branding and how it impacts the overall project.

Enumerate the branding options and their various strengths and weaknesses.

Identify the decisions to arrive at the best approach to branding.

Design a user experience that includes branding.

Create a strategy for managing customizations.

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.

Dissect SharePoint Claims implementations.

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

Lab : Designing for Page and Data Access Performance

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.

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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 a 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 Testing

Integration Testing

Performance Testing

Lab : Designing a Testing Strategy

Conducting Unit Testing

Conducting Performance Testing

Conducting 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.

Evaluate the core concepts of integration testing.

Test the performance of a given solution.