

Advanced Windows Forms Technologies with Microsoft Visual Studio 2005

Workshop 2547A: Two days; Instructor-Led

Introduction

Elements of this syllabus are subject to change.

This two-day instructor-led workshop provides students with the knowledge and skills to develop advanced Microsoft(Windows(Forms applications using Microsoft(Visual Studio(2005. The workshop focuses on user interfaces, program structure, and implementation details.

Audience

This workshop is intended for corporate or independent software vendor (ISV) application developers who have a desire to learn more about specific technology areas in Windows application development.

At Workshop Completion

After completing this workshop, students will be able to:

- Build MDI applications.
- Customize Windows Forms and controls.
- Create customized print components.
- Perform drag-and-drop operations and implement Clipboard support.
- Perform asynchronous tasks in Windows Forms by using multithreaded techniques.
- Enhance the presentation of Windows Forms applications.

Prerequisites

Before attending this workshop, students must:

- Have attended or studied Workshop 2546A, Core Windows Forms Technologies with Visual Studio 2005 or possess equivalent knowledge and skills.
- Be able to manage a solution environment using the Visual Studio 2005 integrated development environment (IDE) and tools.
- Be able to program an application using a .NET Framework 2.0 compliant language, including the use of delegates and events.
- Understand advanced concepts including serialization, reflection, application domains, and multithreading.

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Workshop Outline

Unit 1: Building MDI Applications

This unit explains how to create multiple-document interface (MDI) applications that enable one parent window to host multiple documents. It demonstrates how to create MDI parent and child forms and how to determine the active MDI child and work with information on it. It also explains how to implement menu merging in an MDI application to make the menu on the parent form relevant to the active child form.

Lessons

- Windows Forms Layout Options
- What Are MDI Applications?

Lab 1: Building MDI Applications

- Exercise 1. Creating MDI Parent and Child Forms
- Exercise 2. Displaying and Comparing Information on MDI Child Forms
- Exercise 3. Implementing Menu Merging in MDI Applications

After completing this unit, students will be able to:

- Compare the different layout styles for Microsoft Windows Forms applications.
- Explain the key concepts and processes involved in implementing an MDI application.
- Create MDI parent and child forms.
- Display and compare information on MDI child forms.
- Implement menu merging in an MDI application.

Unit 2: Customizing Windows Forms and Controls

This unit explains how to develop custom Microsoft Windows Forms and controls. Students will learn how to develop user controls, use GDI+ operations, and create new controls that inherit from the Control class. In addition, it demonstrates how to create a nonrectangular Windows Form and how to add features such as attributes and Toolbox bitmaps to controls.

Lesson

- What Are the Methods of Authoring Controls for Windows Forms?
- Ways to Draw a User Interface by Using GDI+
- Creating a Nonrectangular Windows Form

Lab 2: Customizing Windows Forms and Controls

- Exercise 1. Creating a Control That Inherits from an Existing Control
- Exercise 2. Creating a Nonrectangular Windows Form
- Exercise 3. Creating a Custom User Control

After completing this unit, students will be able to:

- Explain the methods of authoring controls for Windows Forms.
- Draw a user interface by using GDI+.
- Create a control that inherits from an existing control.
- Create a nonrectangular Windows Form.

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- Create a custom user control.

Unit 3: Creating Customized Print Components

This unit explains how to print content from a Microsoft Windows Forms application by using the printing features of GDI+. Students will learn how to keep track of multiple pages when printing and render page content correctly.

Lesson

- Printing Features That Are Supported by .NET Framework 2.0
- Drawing Print Document Content by Using GDI+

Lab 3: Creating Customized Print Components

- Exercise 1. Printing a Report by Using GDI+
- Exercise 2. Creating a Customized Print Preview Dialog Box (if time permits)

After completing this unit, students will be able to:

- Describe the printing features that are supported by .NET Framework 2.0.
- Explain how to use GDI+ to draw print document content.
- Print content by using GDI+.
- Describe best practices for creating custom print components.

Unit 4: Performing Drag-and-Drop Operations and Implementing Clipboard Support

This unit introduces the properties, methods, and events that can be used to implement drag-and-drop functionality in a Microsoft Windows Forms application. Students will learn how to start and finish drag-and-drop operations and, specifically, how to implement drag-and-drop operations with a TreeView control. In addition, this unit demonstrates how to use the Clipboard to store and retrieve data.

Lessons

- Drag-and-Drop Operations in Windows Forms Applications
- Adding Clipboard Support in Windows Forms Applications

Lab 4: Performing Drag-and-Drop Operations and Implementing Clipboard Support

- Exercise 1. Implementing Drag-and-Drop Functionality in a Windows Forms Application
- Exercise 2. Adding Clipboard Support to an Application
- Exercise 3. Performing Drag-and-Drop Operations by Using TextBox and PictureBox Controls (if time permits)

After completing this unit, students will be able to:

- Describe the phases of a drag-and-drop operation.
- Describe the methods that you can use to provide Clipboard support.
- Implement drag-and-drop functionality in a Windows Forms application.
- Add Clipboard support to an application.

Unit 5: Performing Asynchronous Tasks by Using Multithreaded Techniques

This unit demonstrates how to create Microsoft Windows Forms applications that can run tasks in the background. It explains how to make use of the asynchronous methods and other features of components that support the Asynchronous Pattern for Components. Students will also learn how to use the classes in the System.Threading namespace to run one or more tasks in the background by using multiple threads in an application.

Lessons

- Asynchronous Programming in Windows Forms Applications
- Creating Thread-Safe Applications

Lab 5: Performing Asynchronous Tasks by Using Multithreaded Techniques

- Exercise 1. Loading a Bitmap Asynchronously
- Exercise 2. Performing Calculations by Using Multithreading

After completing this unit, students will be able to:

- Explain the concepts and processes that are involved in performing asynchronous programming.
- Load a bitmap into a Windows Forms application asynchronously.
- Perform multiple simultaneous calculations on a form by using multithreading.

Unit 6: Enhancing the Presentation of Windows Forms Applications

This unit describes several of the features that can be used when creating professional-looking applications. Students will learn how to build a Windows Form that has the appearance of Microsoft Office Outlook and how to configure a customized master/detail DataGridView control. In addition, this unit explains how to incorporate the PropertyGrid component and application settings features that enable users to edit and save their preferences.

Lessons

- Enhancing Application User Interfaces
- Customizing the DataGridView Control
- Application Settings and the PropertyGrid Control

Lab 6: Enhancing the Presentation of Windows Forms Applications

- Exercise 1. Programming the DataGridView Control
- Exercise 2. Viewing and Persisting Application Settings by Using the PropertyGrid Control
- Exercise 3. Implementing a User Interface in the Style of Outlook by Using RAD Features

After completing this unit, students will be able to:

- Describe several key features involved in enhancing an application user interface.
- Describe how to customize the DataGridView control.
- Explain the concepts of Windows Forms application settings and the PropertyGrid control.
- Program the DataGridView control.
- View and persist application settings by using the PropertyGrid control.
- Implement a user interface in the style of Outlook by using rapid application development (RAD) features.

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