

Introduction to Object Oriented Programming using Microsoft Visual Studio 2008 (MS6367)

Duration: 3 days

Description

This three-day instructor led course will enable attendees to start designing and developing object-oriented applications using Visual Studio 2008. Attendees will learn object-oriented concepts including classes, methods, properties, inheritance, and interfaces. They also learn how to identify opportunities to use these concepts in design, and how to implement these object-oriented concepts using Visual Studio 2008.

Audience

The target audience for this course is lower-intermediate level programmers who have a minimum of three months programming experience in a professional environment and want to learn how to use Visual Basic or C# to develop well-conceived and implemented object-oriented programming applications.

Prerequisites

- An understanding of the problem-solving techniques that apply to software development
- An understanding of the principles of software development and lifecycle
- Concepts of event-driven programming
- Concepts of object-oriented programming creating use-case diagrams designing and building a user interface
- A basic understanding scripting techniques
- A fundamental understanding of the .NET Framework
- Hands-on experience using a version of Visual Studio .NET to achieve the following:
 - Declaring and initializing typed variables using the Camel case naming convention
 - Using arithmetic, relational, and logical operators in code statements
 - Using branching and looping statements to control code execution
 - Identifying syntax and logic errors
 - Accessing and managing data from a data source

Topics

GETTING STARTED WITH OBJECT-ORIENTED PROGRAMMING

This module provides fundamental knowledge required before getting started with object-oriented development. It also reviews Visual Studio 2008 features.

Lessons

- Introduction to Object-Oriented Programming
- Creating Projects in Visual Studio 2008
- Coding in Visual Studio 2008

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- Productivity Features in Visual Studio 2008
- Selecting Project Type based on Business Scenario
- Debugging Visual Studio Applications

Lab: Getting Started with Object-Oriented Development in Visual Studio 2008

- Selecting Project Type based on Business Scenario
- Creating the Solution and Projects
- Adding Code to the Solution
- Adding Comments to the Solution
- Using the Debugger Interface to Debug the Solution
- Adding a Test Project

IMPLEMENTING CLASSES, PROPERTIES AND METHODS

This module explains classes and their importance in the basic structure of an object-oriented application. It also adds properties and methods to implement the internal functionality of a class.

Lessons

- Creating Classes
- Implementing Properties within a Class
- Implementing Methods within a Class
- Using Classes, Properties and Methods

Lab: Implementing Classes with Properties and Methods in Visual Studio 2008

- Creating a Class Structure
- Adding Properties to a Class Structure
- Adding Methods to a Class Structure

- Instantiating and Using a Class within an Application
- Implementing a Shared Method

IMPLEMENTING INHERITANCE, ABSTRACTION, AND POLYMORPHISM

This module explains how to implement inheritance, abstraction and polymorphism to reduce code duplication. It also describes how to create structures that emphasize code reusability.

Lessons

- Introduction to Inheritance and Abstraction
- Implementing Inheritance and Abstraction
- Introduction to Polymorphism
- Implementing a Polymorphic Structure

Lab: Implementing Inheritance and Abstraction

- Implementing Inheritance within the Class Structures
- Implementing Abstraction within the Class Structures
- Implementing Polymorphism within the Lab Application
- Manage the relationship between a base class and a derived class.

IMPLEMENTING INTERFACES

This module explains how to implement interfaces to establish common relationships between classes, reduce code dependencies, and facilitate code standardization.

Lessons

- Introduction to Interfaces
- Implementing a Custom Interface

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Lab: Implementing Interfaces

- Defining a Custom Interface
- Implementing a Custom Interface
- Implementing a System Defined Interface
- Implementing Polymorphism Using Interfaces

DESIGNING OBJECT-ORIENTED STRUCTURES

This module explains the process of creating an object-oriented structure design from a business problem. It also describes how to create object-oriented structures based on their knowledge of classes, properties, methods, inheritance, and interfaces. And last, the students will review and refine their designs.

Lessons

- Establishing Classes from Business Requirements
- Adding Inheritance to the Design
- Adding Interfaces to the Design
- Adding Interfaces to the Class Diagram
- Reviewing and Refining the Design

Lab: Designing Object-Oriented Structures

- Creating a Draft Class Diagram from the Business Scenario
- Adding Properties and Methods to the Class Diagram
- Adding Inheritance to the Class Diagram
- Adding Interfaces to the Class Diagram
- Refining the Design

IMPLEMENTING DELEGATES, EVENTS, AND EXCEPTIONS

This module explains how to create and use

delegates, events and exceptions to establish interclass communications.

Lessons

- Introduction to Delegates
- Implementing Delegates
- Introduction to Events
- Implementing Events
- Introduction to Exceptions
- Implementing Exceptions

Lab: Implementing Delegates, Events

- Implementing a Delegate
- Implementing a Custom Event
- Implementing an Event Handler for System Events

Lab: Implementing Exceptions

- Implement Custom Exceptions
- Managing System Exceptions

DESIGNING OBJECT COLLABORATION

This module explains how to design collaborations between classes by using methods, events, exceptions and delegates. It also introduces sequence diagrams as a way of documenting and planning class interactions.

Lessons

- Introduction to Class Interactions
- Adding Interactions to a Design
- Evaluating the Design
- Introduction to Patterns

Lab: Designing Object-Oriented Collaboration

- Design Interactions Using Methods
- Design Interactions Using Events, Delegates, and Exceptions
- Evaluating and Refining the Design
- Evaluating a Pattern

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DEPLOYING COMPONENTS AND CLASS LIBRARIES

This module explains how to create and maintain updatable units of software by deploying components and class libraries. It also describes how to maintain an application without redeploying the entire application.

Lessons

- Introduction to Components and Class Libraries
- Deploying a Component/Class Library
- Best Practices for Deploying a Component/Class Library

Lab: Deploying Components and Class Libraries

- Creating a Component/Class Library
- Deploying the Application
- Updating the Component/Class Library
- Deploying an Updated Component/Class Library