

Object-Oriented Programming in VB.NET

Course No.

9420

Description

.NET is a revolutionary advance in programming technology that greatly simplifies application development. Microsoft's popular Visual Basic programming language has been upgraded to take advantage of the new .NET features. Visual Basic .NET, or simply VB.NET, has become a full object-oriented programming language with capabilities comparable to C++, Java, and Microsoft's new language C#.

This course is a practical introduction to programming in VB.NET and the use of services provided by .NET. It emphasizes the VB.NET language and how to build VB.NET applications from an object-oriented perspective. Previous knowledge of Visual Basic is not essential.

One of the strengths of Visual Basic, and the reason it has enjoyed such widespread use, is the ease in which Windows application can be developed. Microsoft has revamped the way that Windows applications are built under .NET. Windows Forms, used by .NET languages, represents a class library that brings uniformity to the components of a Windows application. The course includes substantial coverage of using Windows Forms in VB.NET.

The course consists of three parts. The first part covers the fundamentals of Microsoft's VB.NET programming language. It begins with a very brief chapter "what you need to know about .NET", which gets you up and running in the .NET environment with a minimum of fuss. The next chapter introduces Visual Studio .NET. The last five chapters cover the VB.NET language essentials. The second part discusses object-oriented programming in VB.NET. It contains three chapters that focus on developing classes using VB.NET and then extending them via Visual Basic .NET's inheritance capabilities. Interface-based programming is also introduced.

The third part introduces the Windows Forms class library. Programmers familiar with previous versions of VB will notice that this significantly changes the programming model, yet also introduces flexibility not previously available. The three chapters in this module evolve from building simple dialog applications, to the use of menus, status bars, and toolbars. It concludes with an introduction to database-driven GUI applications.

Prerequisites

The student should have some programming experience.

Objectives

- Gain an understanding of the .NET architecture
- Gain a working knowledge of the Visual Basic programming language
- Learn how to build object-oriented applications using Visual Basic.NET
- Learn how to implement Windows desktop applications using Windows Forms

Duration

5 days

Format

Lecture and hands-on workshops

System Requirements

Course exercises require Microsoft .NET and Microsoft Visual Studio.NET on Windows 2000.

A good minimal hardware profile for this course would have a Pentium 500MHz or equivalent CPU, 256 Meg of RAM and at least 500 megabytes of free disk space for tools installation and courseware.



Table of Contents

Part 1. VB.NET Programming Fundamentals

1. Introduction to .NET and VB.NET

- What is Microsoft .NET
- .NET Framework Overview
- Common Language Runtime
- Your First VB.NET Program

2. Visual Studio.NET

- Overview of Visual Studio.NET
- Creating Console Applications
- Debugging Applications

3. Fundamentals of VB.NET

- Program Structure
- Namespaces
- Data Types
- Variables
- Conversions
- Operators and Expressions
- Console I/O

4. Control Structures

- If Statement
- Select Case Statement
- Do/Loop Statement
- For/Next Statement

5. Procedures

- Subroutines
- Functions
- Pass-by-value Versus Pass-by-reference
- Access modifiers
- Overloading
- Optional Parameters

6. Advanced Data Types

- Arrays
- Enumerations
- Structures

7. Exception Handling

- Error Detection
- Exception Handling

Part 2. Object-Oriented Programming

8. Object-Oriented Programming

- Object Oriented Concepts
- Defining Classes
- Methods and Properties
- Shared Data and Methods
- Constructors

9. Inheritance

- Inheritance
- Controlling Base Class Construction
- Access Control
- Polymorphism
- Events
- Abstract and Not Inheritable Classes
- Type Conversion in Inheritance

10. Interfaces

- Interface Fundamentals
- Programming with Interfaces
- Using Interfaces at Runtime
- Resolving Ambiguities

Part 3. Introduction to Windows Programming

11. Windows Forms—I

- Building a Windows Application
- Under the Hood of a Windows Application
- Common Controls

12. Windows Forms—II

- Dialog Boxes
- Menus
- Status Bars
- Toolbars

13. Interacting with Databases Using Windows Forms

- ADO.NET
- Building Commands and Adapters with Wizards
- Dataset
- Binding a Control to a Dataset

