Object Oriented Programming Using Visual C# 2012-Level 2

Course ISI-1340 - Five Days - Instructor-led - Hands on

Introduction

This course is the second in a series of two courses, which are appropriate for those who are new to programming C. It is also appropriate if you have programming experience with another language like Java, C++, or COBOL.

Students will gain confidence in handling business requirements and a solid grounding in database programming.

At Course Completion

After completing this course, students will be able to understand all the new language features that make C# such as outstanding development tool:

Confidence in handling business requirements

- Learn how to validate data, handle numeric, date and string data, work with loops, arrays and collections, code methods and event handlers, handle exceptions and work with text, binary and XML data.

A solid grounding in database programming

- Use C# tools for rapid application development, like the data sources feature and data handling controls. Introductions to ADO.NET coding and to LINQ, a feature that lets you query almost any data source, not just databases, using the C# language.

Business requirements

- Work with complete, non-trivial applications that illustrate what you need to know on the job.

Prerequisites

Before attending this course, students should have attended Course 1339, Introduction to Object Oriented Programming Using C# 2012, or have equivalent knowledge and skills.

Student Materials

The student kit includes a workbook and other necessary materials for this class.

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Course Outline

Module 1: How to work with indexers, delegates, events and operators

Module 1 covers the skills that you need whenever you create a C# class. Now, this module shows you advanced techniques like how to create indexers, throw argument exceptions, define delegates, raise events, and overload operators.

- An introduction to the ProductList class
- How to work with indexers
- How to work with delegates and events
- How to overload operators
- An enhanced version of the Product Maintenance application

Module 2: How to work with inheritance

This module shows you how inheritance is used throughout the .NET classes and how you can use inheritance in your own C# classes. When you're done, you'll know how to create base and subclasses, how polymorphism works, and how to use casting with inheritance.

- An introduction to inheritance
- An inheritance version of the Product Maintenance application
- Object types and casting
- How to work with abstract and sealed classes

Module 3: How to work with interfaces and generics

Although a C# class can inherit only one class, it can implement one or more interfaces. So in this module, you'll learn how to create and implement a C# interface. You'll also learn how to use generics so you can code your own collections that work like the typed collections from the .NET Framework presented in chapter 8. Along the way, you'll learn how to work with the generic interfaces that are used with generic collections.

- How to work with interfaces
- How to work with generics

Module 4: How to organize and document your classes

This module shows you how to organize the classes you create and document them using XML. It also shows you how to store your classes in class libraries so that other programmers can easily access them.

- How to organize your classes
- How to document your classes
- How to create and use class libraries

Database Programming

Module 5: An introduction to database programming

Database processing is an integral part of C# business applications. In this course is the first in a 5-module section on database programming. It starts out by introducing you to database design and SQL queries, in case you're fairly new to either of those subjects. Then, it gives you the conceptual background that you need for learning how to develop database applications in the modules that follow.

- An introduction to client/server systems
- An introduction to relational databases
- How to use SQL to work with a relational database
- An introduction to ADO.NET

Module 6: How to work with data sources and datasets

Visual Studio has some powerful tools for rapid application development and prototyping of database applications. In this module, you'll get started with database programming by learning how to use the data sources feature to create applications that let you view and maintain the database data.

- How to create a data source
- How to use a data source
- How to handle data errors
- How to use the Dataset Designer

Module 7: How to work with bound controls and parameterized queries

This module builds on what was presented in module 14 to show you how to work with bound controls, use parameterized queries, customize the generated toolbars, and work with a DataGridView control in a database application.

- How to work with bound text boxes and combo boxes
- How to work with parameterized queries
- How to work with the ToolStrip control
- An Enhanced Customer Maintenance application
- How to work with a DataGridView control
- A Customer Invoice Display application

Module 8: How to use ADO.NET to write your own data access code

Modules 18 and 19 show you how to use data sources to develop database applications. When you do that, Visual Studio generates the ADO.NET objects you need. Now, this module shows you how to create and work with ADO.NET objects through code. That lets you separate the data access code from the presentation code by placing the ADO.NET code in database classes, which are often reusable from one application to another.

- How to work with connections and commands
- How to create and work with parameters

- How to execute commands
- A Customer Maintenance application that uses commands

Module 9: How to work with files and data streams

Although databases are commonly used in C# applications, you may also need to access data that's stored in a text file or a binary file. This module shows you how to read and write both types of files.

- An introduction to System.IO classes
- How to work with text files
- How to work with binary files

Other Skills for C# Developers

Module 10: How to work with XML files

To start, this module presents the basics of XML and shows you how to use the Visual Studio XML Editor for working with XML. Then, it shows you how to use C# with the XmlWriter and XmlReader classes to store XML documents in a file and to read XML documents from a file.

- An introduction to XML
- How to work with the XML Editor
- How to work with XML

Module 11: How to Use LINQ

In this module, you'll learn the basic skills for using LINQ. A feature that lets you query a data source using constructs that are built into the C# language. That way, you can use the same language to access a variety of data sources, from databases to arrays to XML files.

- Basic concepts for working with LINQ
- How to code a LINQ query
- A Customer Invoice application that uses generic lists
- A Customer Invoice application that uses a typed dataset

Module 12: How to enhance the user interface

This module shows you how to add another level of professionalism to your C# Windows applications by developing single-document interfaces or multiple-document interfaces that include menus, toolbars, and help information.

- Two types of user interfaces
- How to develop SDI applications
- How to add menus to a form
- How to develop MDI applications
- How to add toolbars to a form
- How to add help information

Module 13: How to deploy an application

As you develop a C# application, you'll need to deploy it to a target system in order to test it thoroughly. And, of course, once the application is finished, you'll need to deploy it to users' systems. So this module shows you three ways you can deploy applications from a network or web server using Visual Studio.

- An introduction to deploying Windows applications
- How to use XCopy
- How to use ClickOnce
- How to create and use a Setup program
- How to deploy database applications

Enhancement, deployment and Window 8

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- Two types of user interfaces
- How to develop SDI applications
- How to add menus to a form
- How to develop MDI applications
- How to add toolbars to a form
- How to add help information

Module 15: How to deploy an application

As you develop a C# application, you'll need to deploy it to a target system in order to test it thoroughly. And, of course, once the application is finished, you'll need to deploy it to users' systems. So this chapter shows you three ways you can deploy applications from a network or web server using Visual Studio.

- An introduction to deploying Window applications
- How to us XCopy
- How to use ClickOnce
- How to create and use a Setup program
- How to deploy database applications

Module 16: An Introduction to Windows 8 Programming

Once you know the C# language and how to use Visual Studio, you have a number of options. One is learning how to create Windows 8 apps that can run on a tablet and interact with the user via a touch screen. This chapter shows you what's involved in Windows 8 programming...from design to coding to submitting the finished app to the Windows Store...so you can decide whether you want to follow that path

- Windows 8 design concepts

- The Financial Calculations application for Windows 8
- Visual Studio features for developing Windows Store apps