

Module 5: Object-Oriented Programming in Visual Basic .NET

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This course is based on the prerelease version (Beta 2) of Microsoft® Visual Studio® .NET Enterprise Edition. Content in the final release of the course may be different from the content included in this prerelease version. All labs in the course are to be completed with the Beta 2 version of Visual Studio .NET Enterprise Edition.

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Instructor Notes

Presentation:
90 Minutes

Labs:
105 Minutes

This module provides students with the knowledge required to create object-oriented applications that use many of the new features of Microsoft® Visual Basic® .NET, such as inheritance, overloading, shared members, and event handling.

In the first lab, students will create part of the **Customer** class for the Cargo system that they designed in Lab 4.1, Creating Diagrams from Use Cases. They will define the properties, methods, and constructors, based on those shown in Lab 4.1. Finally, they will write the code in a form to test the **Customer** class.

In the second lab, students will create a base class called **Package** and a derived class called **SpecialPackage**. The classes contain some pre-written code, including the properties. Students will add methods to both classes and create the inheritance relationship. They will then complete a pre-written form to test their classes.

After completing this module, students will be able to:

- Define classes.
- Instantiate and use objects in client code.
- Create classes that use inheritance.
- Define interfaces and use polymorphism.
- Create shared members.
- Create class events and handle them from a client application.

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Materials and Preparation

This section provides the materials and preparation tasks that you need to teach this module.

Required Materials

To teach this module, you need the following materials:

- Microsoft PowerPoint® file 2373A_05.ppt
- Module 5, “Object-Oriented Programming in Visual Basic .NET”
- Lab 5.1, Creating the Customer Class
- Lab 5.2, Inheriting the Package Class

Preparation Tasks

To prepare for this module, you should:

- Read all of the materials for this module.
- Read the instructor notes and the margin notes for the module.
- Practice the demonstrations.
- Complete the labs.

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Demonstrations

This section provides demonstration procedures that will not fit in the margin notes or are not appropriate for the student notes.

Creating Classes

↳ To examine the **Employee** class

1. Open the `Classes.sln` solution in the *install folder*\DemoCode\Mod05\Classes folder.
2. View the code for the **Employee** class and point out the private variables, the properties, and the multiple constructors. Specifically point out the **EmployeeId** read-only property.

↳ To test the **New Employee** code

1. Run the project.
2. Enter values for the **First Name** and the **Last Name**.
3. Click the **New Employee** button on the form. The code will enter break mode at the preset breakpoint.
4. Step through the code, and explain each line as you go. Include the **Dispose** method but not the **Finalize** method. Point out that, in a real situation, the **Dispose** method would be used for saving data and closing a database connection.

↳ To test the **Existing Employee** code

1. Enter a positive integer value for the **Id** (any number will work), and then click the **Existing** button.
2. Point out that this time the constructor takes the **intEmpId** as a parameter, so it can load the data from a database immediately.
3. Step through the code until the object has been instantiated, and then press F5 to allow the remaining code to run.

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