

# برنامه نویسی شیء گرا

## 1 *Creating and managing classes and objects*

Understanding classification

The purpose of encapsulation

Defining and using a class

Implementing encapsulation by using methods

What are properties?

- Using properties

- Read-only properties

- Write-only properties

- Property accessibility

Understanding the property restrictions

Generating automatic properties

Initializing objects by using properties

Controlling accessibility

- Working with constructors

- Overloading constructors

Understanding static methods and data

- Creating a shared field

- Creating a static field by using the const keyword

- Understanding static classes

## 2 *Creating value types with enumerations and structures*

Working with enumerations

- Declaring an enumeration
- Using an enumeration
- Choosing enumeration literal values
- Choosing an enumeration's underlying type

Working with structures

- Declaring a structure
- Understanding structure and class differences
- Declaring structure variables
- Understanding structure initialization

### *3 Working with inheritance*

What is inheritance?

Using inheritance

- The System.Object class revisited
- Calling base class constructors
- Assigning classes
- Declaring new methods
- Declaring virtual methods
- Declaring override methods
- Understanding protected access

Understanding extension methods

### *4 Creating interfaces and defining abstract classes*

Understanding interfaces

- Defining an interface
- Implementing an interface

- Referencing a class through its interface
- Working with multiple interfaces
- Explicitly implementing an interface
- Interface restrictions
- Defining and using interfaces
- Declaring interface properties
  - Replacing methods with properties

Abstract classes

- Abstract methods
- Implementing and using an abstract class

Sealed classes

- Sealed methods

## *5 Using garbage collection and resource management*

The life and times of an object

- Writing destructors
- Why use the garbage collector?
- How does the garbage collector work?
- Recommendations

Resource management

- Disposal methods
- Exception-safe disposal
- The using statement and the IDisposable interface
- Calling the Dispose method from a destructor

Implementing exception-safe disposal

## 6 Using indexers

What is an indexer?

An example that doesn't use indexers

The same example using indexers

Understanding indexer accessors

Comparing indexers and arrays

Indexers in interfaces

Using indexers in a Windows application