**Chapter 10**

**Knowledge Goals**

* To learn what inheritance is and understand its benefits.
* To understand a UML diagram that includes several classes and interfaces.
* To learn what is inherited by a subclass.
* To understand the differences among the private, protected, and public access modifiers.
* To learn what overriding a method is.
* To understand the difference between method overriding and overloading methods.
* To learn what an abstract class is.
* To learn what an abstract method is.
* To understand the requirements of implementing a (non-abstract) class that inherits from an abstract class.
* To learn what polymorphism is and understand in what situation it applies.
* To understand that a class can inherit behavior from multiple sources.
* To learn what an interface is and understand what can members it can have.
* To learn how an interface can be used in order to make classes more reusable.
* To understand the requirements of implementing a class that inherits from one or more interfaces.

**Skill Goals**

*To be able to:*

* Define a class hierarchy.
* Code a subclass that inherits from a superclass.
* Call the constructor of a superclass from a subclass.
* Call a method of a superclass from a subclass.
* Override a method of a superclass in a subclass.
* Define and use protected members of a superclass in a subclass.
* Define an abstract class.
* Define and implement a (non-abstract) class that inherits from an abstract class.
* Define and implement a class that inherits from an interface.
* Define and implement a (non-abstract) class that inherits from an abstract class and one or more interfaces.
* Define and implement a set of classes and interfaces so that it promotes reusability.
* Create a UML diagram that includes several classes and interfaces.
* Write an application that uses polymorphism.