Hierarchical Inheritance in C# - Multiple Real-World Examples

# Example 1: Vehicle System

A base class Vehicle is inherited by Car and Bike.

Code Example:

class Vehicle  
{  
 public void Start() => Console.WriteLine("Vehicle started.");  
}  
  
class Car : Vehicle  
{  
 public void Drive() => Console.WriteLine("Car is driving.");  
}  
  
class Bike : Vehicle  
{  
 public void Ride() => Console.WriteLine("Bike is riding.");  
}  
  
// Usage  
Car car = new Car();  
car.Start();  
car.Drive();  
  
Bike bike = new Bike();  
bike.Start();  
bike.Ride();

# Example 2: Animal Classification

A base class Animal is inherited by Dog and Cat.

Code Example:

class Animal  
{  
 public void Eat() => Console.WriteLine("Animal is eating.");  
}  
  
class Dog : Animal  
{  
 public void Bark() => Console.WriteLine("Dog is barking.");  
}  
  
class Cat : Animal  
{  
 public void Meow() => Console.WriteLine("Cat is meowing.");  
}  
  
// Usage  
Dog dog = new Dog();  
dog.Eat();  
dog.Bark();  
  
Cat cat = new Cat();  
cat.Eat();  
cat.Meow();

# Example 3: Employee Types

A base class Employee is inherited by Manager and Developer.

Code Example:

class Employee  
{  
 public string Name;  
 public void Work() => Console.WriteLine($"{Name} is working.");  
}  
  
class Manager : Employee  
{  
 public void ConductMeeting() => Console.WriteLine($"{Name} is conducting a meeting.");  
}  
  
class Developer : Employee  
{  
 public void WriteCode() => Console.WriteLine($"{Name} is writing code.");  
}  
  
// Usage  
Manager mgr = new Manager { Name = "Alice" };  
mgr.Work();  
mgr.ConductMeeting();  
  
Developer dev = new Developer { Name = "Bob" };  
dev.Work();  
dev.WriteCode();

# Example 4: Shape Hierarchy

A base class Shape is inherited by Circle and Rectangle.

Code Example:

class Shape  
{  
 public void Display() => Console.WriteLine("Displaying shape.");  
}  
  
class Circle : Shape  
{  
 public void DrawCircle() => Console.WriteLine("Drawing a circle.");  
}  
  
class Rectangle : Shape  
{  
 public void DrawRectangle() => Console.WriteLine("Drawing a rectangle.");  
}  
  
// Usage  
Circle circle = new Circle();  
circle.Display();  
circle.DrawCircle();  
  
Rectangle rectangle = new Rectangle();  
rectangle.Display();  
rectangle.DrawRectangle();