Lab: Inheritance

Problems for exercises and homework for the ["C# OOP" course @ SoftUni"]().

You can check your solutions here: https://judge.softuni.bg/Contests/1499/Inheritance-Lab

Part I: Inheritance

1. Single Inheritance

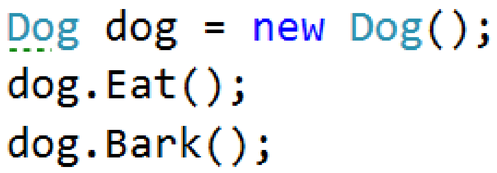
NOTE: You need a public **StartUp** class with the namespace **Farm**.

Create two classes named **Animal** and **Dog**.

Animal with a single public method **Eat()** that prints: **"eating…"**

Dog with a single public method **Bark()** that prints: **"barking…"**

Dog should inherit from **Animal**.



```
Dog dog = new Dog();
dog.Eat();
dog.Bark();
```

Hints

Use the **: operator** to build a hierarchy

2. Multiple Inheritance

NOTE: You need a public **StartUp** class with the namespace **Farm**.

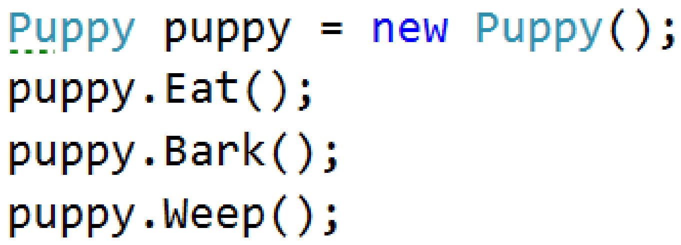
Create three classes named **Animal**, **Dog** and **Puppy**.

Animal with a single public method **Eat()** that prints: **"eating…"**

Dog with a single public method **Bark()** that prints: **"barking…"**

Puppy with a single public method **Weep()** that prints: **"weeping…"**

Dog should inherit from **Animal**. **Puppy** should inherit from **Dog**.



```
Puppy puppy = new Puppy();
puppy.Eat();
puppy.Bark();
puppy.Weep();
```

3. Hierarchical Inheritance

NOTE: You need a public **StartUp** class with the namespace **Farm**.

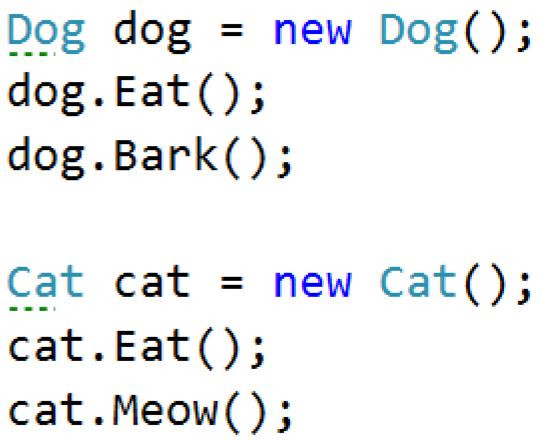
Create three classes named **Animal**, **Dog** and **Cat**.

Animal with a single public method **Eat()** that prints: **"eating…"**

Dog with a single public method **Bark()** that prints: **"barking…"**

Cat with a single public method **Meow()** that prints: **"meowing…"**

Dog and **Cat** should inherit from **Animal**.



```
Dog dog = new Dog();
dog.Eat();
dog.Bark();

Cat cat = new Cat();
cat.Eat();
cat.Meow();
```

Part II: Reusing Classes

4. Random List

NOTE: You need a public **StartUp** class with the namespace **CustomRandomList**.

Create a **RandomList** class that has all the functionality of **List<string>**.

Add additional function that **returns** and **removes** a random element from the list.

- Public method: **RandomString(): string**

5. Stack of Strings

NOTE: You need a public **StartUp** class with the namespace **CustomStack**.

Create a class **StackOfStrings** which extends **Stack** and can store only strings and has the following functionality:

- Public method: **IsEmpty(): bool**
- Public method: **AddRange(): Stack<string>**