Contents

Warm-up Exercises

Questions

1. Explain what a constructor is and what it does.
2. Consider a fragment of longer C# code, see below.

```
public void SetNumber(int tempNumber)
{ name = tempNumber; } // store the account name
```

1. Which of the following statements is *false*?

☐ the method returns no value
☐ `name` is a local instance variable
☐ the parameter `tempNumber` is of `string` type
☐ the method can be used outside of the class it is defined in

1. C# is an object oriented language that has roots in:

☐ C
☐ C++
☐ Java
☐ All above.

1. Fill in the blanks: "A class asserts that every object created using it should have _____ (i.e., 'data') and _____ (i.e., 'operations')."

☐ attributes, methods
☐ methods, attributes
☐ methods, properties
☐ properties, attributes

1. Give two examples of access modifiers.
2. What is the purpose of the keyword **`new`**?
3. What does the keyword **`return`** do?
4. What does it mean to say that instance variables have a default initial value? How is that different from the variables we have been manipulating in the `Main` method?

Problems

1. You are going to design a class named `Triangle`. A triangle only has three angles, but knowing the value of only two angles is sufficient to determine the value of the third, since they always add up to 180°. Hence, it is sufficient to have only two `double` attributes, `angle1` and `angle2`. We want to define several methods:

- a no-arg constructor that sets the value of `angle1` to 60.0 and the value of `angle2` to 60.0,
- another constructor that takes two arguments, and assigns to `angle1` the value of the first argument, and to `angle2` the value of the second argument,
- getters for `angle1` and `angle2`,
- a method that computes and returns the value of the third angle, that we name `ComputeAngle3`,
- a method that rotates the triangle: the value of the first angle should become the value of the second angle, and the value of the second angle should become the value of the third angle.

1. Write the UML diagram for the `Triangle` class.
2. Write the full, compilable implementation of the `Triangle` class.