

COMP2120 - Fall 2020

Lab 3 Activities

Activity 1.

We started creating a Java class for *Car*. In this lab we are going to complete it in the following steps:

- 1- First create the Car class with some required instance variables, such make, model, year, price, speed, maxSpeed, isOn, isMoving, and any other properties you like to add.
- 2- Provide couple of constructors for initializing different set of important properties, such as make, model, year, and price. Make sure that you do not repeat initialization of instance variables in every constructor, and instead call one constructor from another one when needed to prevent code repetition.
- 3- Provide required accessor (getter) and mutator (setter) methods. Especially, accelerate, decelerate, turnOn, turnoff, stop, etc.
- 4- Test the class by creating a tested class. Inside the tester class, create couple of Car's instance objects and change their statuses by calling corresponding methods, and compare the actual and expected outputs.
- 5- Provide standard Java documentation for the Car class and create the html for the documentation.
- 6- Modify the Car class by adding properties, fuel efficiency, measured in liters/km, and a certain amount of fuel in the gas tank. Provide a constructor to initialize a specific fuel efficiency and also the initial fuel level as 0. Supply a method *drive* that simulates driving the car for a certain distance, reducing the amount of gasoline in the fuel tank. Also, supply methods *getGasInTank*, returning the current amount of gasoline in the fuel tank, and *addGas*, to add gasoline to the fuel tank.

You may assume that the drive method is never called with a distance that consumes more than the available gas. After implementation the class, test it again in the *CarTester* class that tests all the new methods.

Activity 2.

What would be the outputs of the following code snippet?

```
String s = "Hello";
System.out.println(s.toUpperCase());
String t = s;
System.out.println(t);
```

What do we learn from this example about the String class and its methods?