

OPMS 2018 - Exercise 3

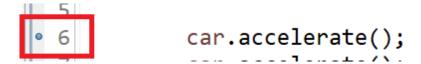
Task 1

- 1. Create a class Car
- 2. In this class, add a variable private int speed = 100
- 3. Add the method public int getSpeed() which returns the speed.
- 4. Add the method public void accelerate () which reduces the speed by 15.
- 5. Add the method public void decelerate () which increases the speed by 20.
- 6. Create a class CarTest with a main method.
- 7. In this main method, create a Car using Car car = new Car()
- 8. Call car.accelerate() 2 times
- 9. Call car.break() 3 times

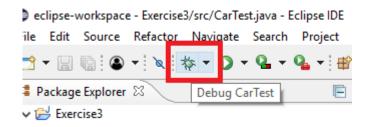
10.	Call	System.	out.	printi	ln(car.	.getS	peed	())

What is the result?						
Answer:						

11. Add a breakpoint at the first car.accelerate() **Hint**: Double-click the line number to do so.



12. Start the debugger



13. Step over both accelerate () commands and inspect your Car object in the debugger.



What is the car's current speed in the debugger? Answer:

Task 2

- 1. Create a class Robot
- 2. Add the method public void speak () which prints "beep beep" to the console.
- 3. Create a class VacuumRobot which extends Robot
- 4. Create a class TestRobot with a main method and test the following.
 - a. Robot robot1 = new Robot();
 robot1.speak();
 What is the result?
 b. VacuumRobot robot 2 = new VacuumRobot();
 robot2.speak();
 What is the result?
- 5. Create a class HumaniodRobot which extends Robot
- 6. Add a variable private String name
- 7. Create a constructor public HumaniodRobot () which sets the name to "C3PO" Hint: Use this.name = "C3PO";
- 8. Add a method public void speak () which prints to the console: "Hello! My name is" +name
- 9. In the TestRobot main method, add

```
HumanoidRobot robot3 = new HumanoidRobot();
robot3.speak();
```

What is the result?

- 10. Go back to the HumanoidRobot class and add another constructor: public HumanoidRobot (String name) which sets the robot's name to the value
- 11. In the TestRobot main method, add the following:

```
HumaniodRobot robot4 = new HumaniodRobot("WALL-E");
robot4.speak();
```

What is the result?

Task 3

- 1. Create a class Bottle
- 2. Create a class PlasticBottle which extends Bottle
- 3. Create a class GlassBottle which extends Bottle
- 4. Create a class Recycler and
 - a. Add a method public void insert (GlassBottle bottle) which prints to the console "I don't accept glass bottles"
 - b. Add a second method exactly like the first one, but add PlasticBottle instead of GlassBottle. This method prints "Thank you!"
- 5. Create a class TestRecycler and do the following
 - a. Create a new Recycler recycler = new Recycler()
 - b. Create a new GlassBottle and name it bottle1
 - c. Create another new GlassBottle and name it bottle2
 - d. Create a new PlasticBottle and name it bottle3
 - e. Call

```
recycler.insert(bottle1);
recycler.insert(bottle2);
recycler.insert(bottle3);
```

What is the result?