Juniorprogrammierer.de

Java 8: Object orientation I

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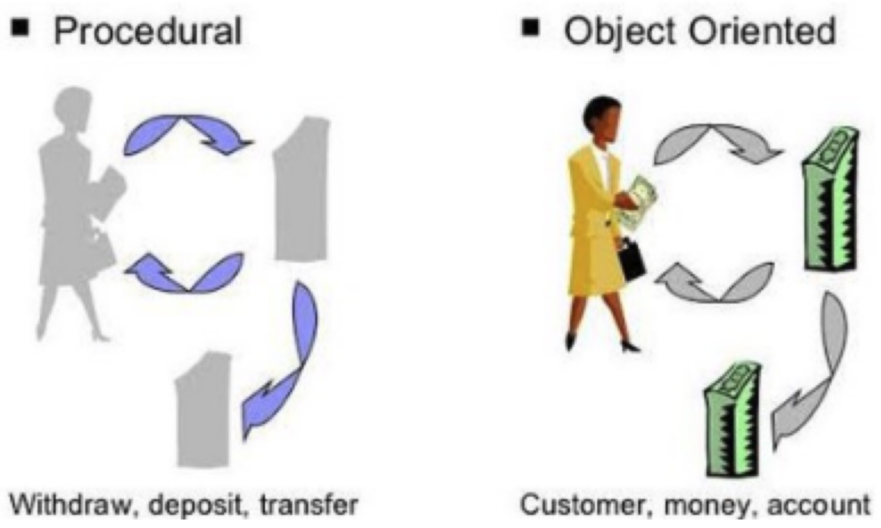
Agenda

- Procedural vs object orientation
- What is object orientation?
- How to call an object?
- Class attributes?
- Exercises

Procedural vs object-oriented

- Java, Ruby... => object-oriented, Golang, Rust => procedural ➔ **You should know both**



https://www.quora.com/Is-C-a-procedural-programming-language

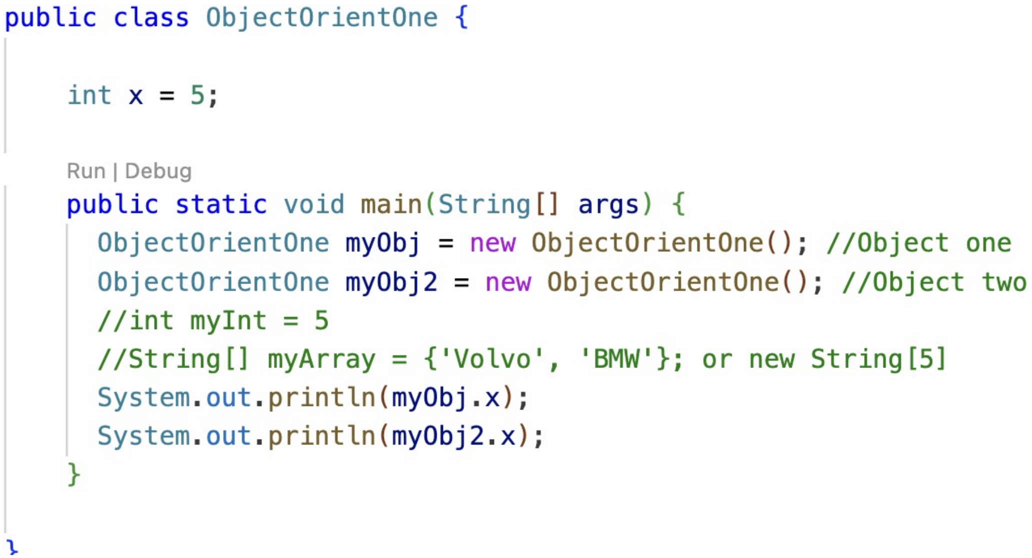
What is object orientation?

- Classes and objects are the main aspects in object orientation
- The class is a template an object is created from
- The created object contains then all attributes of the origin class

Class	Object
Car	Volvo
	Opel
Fruit	Apple
	Banana

How to call an object?

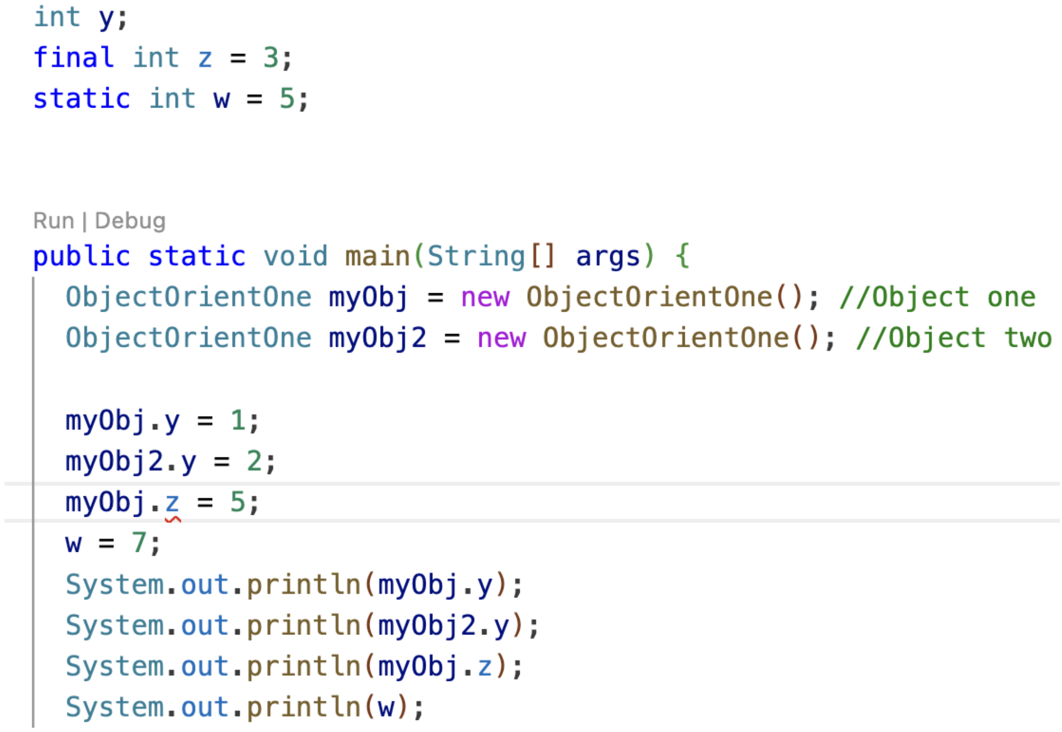
- Calling procedure:
    - Classname objectname = new Classname()
- You can call an object multible times see myObj and myObj2



```
public class ObjectOrientOne {

    int x = 5;

    public static void main(String[] args) {
      ObjectOrientOne myObj  = new ObjectOrientOne(); //Object one
      ObjectOrientOne myObj2 = new ObjectOrientOne(); //Object two
      //int myInt = 5
      //String[] myArray = {'Volvo', 'BMW'}; or new String[5]
      System.out.println(myObj.x);
      System.out.println(myObj2.x);
    }

}
```

Class attributes

- Class attributes are the variables (and methods) of a class (here int x, int y and final int z)
- You can change the the values per object as long as there are not final
- For static class attributes you don't need to initiate a object



```
int y;
final int z = 3;
static int w = 5;


public static void main(String[] args) {
    ObjectOrientOne myObj = new ObjectOrientOne(); //Object one
    ObjectOrientOne myObj2 = new ObjectOrientOne(); //Object two

    myObj.y = 1;
    myObj2.y = 2;
    myObj.z = 5;
    w = 7;
    System.out.println(myObj.y);
    System.out.println(myObj2.y);
    System.out.println(myObj.z);
    System.out.println(w);
```

Exercise create class animal (low difficulty)

- Create above class
- It has his own public static void main method
- The class has 3 attributes
  - Integer for age
  - Integer for weight
  - A not changeable String which is prefilled with “Living thing”
- Create a method without returning value which is printing all 3 of those attributes, call it “describe”
- Create a method without returning value to age an animal by 1 year, call it “add1Year”
- Create a method with returning value int and importing int parameter “newWeight”. The method is returning the difference betw. Old and new Weight (animals never loose weight). And it is setting the new Weight on int weight
- Next for the main method
  - Create two animal objects
  - Set for both the animals the class attributes
  - Print all attributes out
  - Let the animals age by 1 year
  - Print out the difference in their new weight
  - Print again all attributes out
- Now add “`final static String animalScream = "ahhh";` ” `and call it`