1.a: Write a class *HelloWorld*.java. Class shall contain a *main*-method (see note from earlier). Inside the *main* method, the program should first let the user enter a text string with their name. (*hint*: Use a Scanner object for this - remember to import the required class). Then change the print to user to use the name. Examples of printing:

```
> Hello! What's your name?
> Trude
> Hi Trude! Welcome to IN1010.
```

```java
import java.util.Scanner;

class HelloWorld{
    public static void main(String[] args) {
        System.out.println("Hello! What is your name?");

        Scanner sc = new Scanner(System.In);
        String name = sc.nextLine();

        System.out.println("Hi" + name + "Welcome to IN1010.");
    }
}
```

2: The following program is written in Python. Rewrite the program using Java syntax (note that all methods in this case should be public):

```python
class Person:
       def __init__(self, age, name):
              self._alder = age
              self._name = name

       def write(self):
              print(self._name, self._age)

      def birthday(self):
           self._ age + = 1
```

```java
class Person {
    private int age;
    private String names;

    public Person(Int Age, String name) {
        this.age = age;
        this.name = name;
    }

    public void write() {
        System.out.println(this.name + "" + this.age);
    }

    public void birthday() {
        this.age + = 1;
    }
}
```

3.a: Write a class *Motorcycle.java*. The class should contain the following instance variables:

- private int *mileage*
- private String *registration number*
- private int *production number*

The class should also include a constructor that will enter the registration number. The instance variable *mileage* should start with the value 0.

```java
class Motorcycle {
    private int mileage;
    private String registration number;
    private int production number;
    private static int count = 0;

    public Motorcycle (String regnr) {
        this.mileage = 0;
        registration number = regnr;

        this.production number = counter;
        counter++;
    }
}
```

In addition, the class should include a private static int *counter*, starting with the value 0. This you must use in the constructor, so that each new Motorcycle object gets a unique *production number*.	

3.b: Write a method public int *getMileage*. The method does not accept any parameters, but should return the number of kilometers the motorcycle has run. Then write a similar method public int *getProductNumber*.	`public int get Mileage() {`
	`  return mileage;`
	`  }`
	
	`public int getProductNumber() {`
	`  return production number;`
	`  }`

3.c: Write a method for public void *drive* that accepts a parameter int *numberKilometers*. The method should add the number of *Kilometers* to the instance variable int *mileage*.	`public void drive(int numberKilometers)`
	`{`
	`  mileage + = the number of kilometers;`
	`  }`

3.d:
Write a class *MotorcycleProgram.java*. The class should include a *main* method. Create an object of the class *Motorcycle* inside the *main* method with a registration number.
 	
Then write a while loop that should run 5 times. For each loop through the loop, call on the motorcycle object's *drive* method with 10 as a parameter.
	`class MotorcycleProgram {`
	`  public static void main(String[] args) {`
	`  Motorcycle m1 = new Motorcycle("AB1234");`
	
	`  int t = 0;`
	`  while (t < 5) {`
	`  m1.drive(10);`
	`  t++;`
	`  }`
	`  }`
	`}`

3.e: If we called on the Motorcycle object *getMileage* method now, what result do we get?	`System.out.println(m1.getMileage()); // 50`

3.f: We are thinking of creating two more Motorcycle objects. What production numbers do they want?	`Motorcycle m2 = new Motorcycle("HELLO1");`
	`  Motorcycle m3 = new Motorcycle("22TUUT");`
	`  System.out.println("m2:" + m2.getProductNumber()); // 1`
	`  System.out.println("m3:" + m3.getProductNumber()); // 2`

4.a: What errors are in the following class?	

`class Boat {`
`  private String regNr;`
`  private int kilometer;`
 	
`  public Boats (String regNr) {`
`  this.regNr = regNr;`
`  this.mileage = 0;`
`  }`
 	
`  // Prints info about the boat`
`  public void writeBoat() {`
`  print(regNr);`
`  print(mileage);`
`  }`
`}`
	Incorrect constructor name
	
	// Incorrect name (mileage / kilometer)
	
	// Must be System.out.println ()

4.b: Given the following variables:
`int a = 3;`
`String b = "4";`
`double c = 10.2;`
 	
Are the following code snippets legal? If so, what is printed?	

`System.out.println(a + 5);`	8
`System.out.println(a + b);`	34
`int sum = a + b;` `System.out.println(sum);`	No, Cannot insert String into int
`int sum = a + c;` `System.out.println(sum);`	No, lose precision. Use (int) to cast