Tutorial 1

4COSC010C Software Development II

Note: Use the material from the lecture if you need. If you find any problem or have a question, ask your tutor. If you do not have enough time during the session, it is recommended that you finish the exercises at home. Challenges are optional, although recommended.
***You are required to use a text-editor for this tutorial. NO IDEs are allowed.**

Exercise 1: Java Program Basics

1. Write a Java program called "**MyFirstJava**". Implement the main method. Print your name and age to the console. Compile and run the program on command prompt.

2. Write a program (use any name you like) and create a variable called runningTotal. Assign 0 to variable "runningTotal". Then, add numbers 5, 8, 2, 3 (one at a time) to "runningTotal" variable. Print the variable value after each time a number is being added. Compile and run the program. You should get the below output.
   Variable value is: 0
   Variable value is: 5
   Variable value is: 13
   Variable value is: 15
   Variable value is: 18

3. Write a program called **"MarkAverage"** that creates 3 variables which stores exam marks and calculates their mean (average) and outputs the result.

Exercise 2: Handling Input and Output

Modify your previous "**MyFirstJava**". Program to ask the user to introduce a name (using the keyboard) and print "Hello" followed by the name inserted by the user.

You can follow these steps:

1. Import the Scanner class from java.util. Add the following line at the top of your code (before `public class HelloWorld`):

```
import java.util.*;
```

2. In your main, create an input object using the class Scanner (we will learn later in the module what objects and classes are):

```
Scanner input = new Scanner(System.in);
```

3. Print a message asking the user to input a name:

```
System.out.println("Please insert your name:");
```

4. Read the user input, and save it to a variable String (we will see in the next lecture why we need to declare the variable using the word String):

```
String name = input.next();
```

5. Print a message saying “Hello” and the name entered:

```
System.out.println("Hello " + name);
```

6. At the end, your program should look like this:

```
import java.util.*;

public class HelloWorld {
  public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.println("Please insert your name:");
        String name = input.next();
        System.out.println("Hello " + name);
    }
}
```

7. Run the program and try different inputs. In the output console, you should see something like this when you enter the name “John”:

```
Please insert your name:
John
   Hello John
```

Exercise 3: Find the bugs.

The following program has **bugs(errors)** Some are compile-time/formatting and some are run-time errors. The expected output is: **“`Hello John Brown.`”.** Can you find them?

```
public class HelloWorld
     public static void main(String[] args) {
          String name = "John"
          String name = "Brown";
          System.out.println("Hello " + name +"" + name + "");
     }
}
```

Exercise 4. Menu.

Write a program in Java that prints the following menu in the console:

```
********
* MENU *
********
```

Exercise 5. Challenging Questions

1. Write a program in Java that asks the user to insert a name and a surname and prints the initials (first letter of the name + first letter of the surname). Example: John Brown should print "JB).

Hint: Use the String function str.substring(0,1) to get the first letter of a String (substitute str by the name of your String variable).

2. Write a program that changes metres into centimetres. When the program is running, it should allow you to enter the number in metres and then the program should print out the number in centimetres. (Use appropriate Variable types according to your understanding)

3. Write a program that will read in a Centigrade temperature and then display the Fahrenheit temperature using the formula.

   F = (9.0/5)*C + 32

4. A company employs Manual, Skilled and Management people. Manual earn £500 per week, Skilled earn £700 per week and Management earn £800 per week.

   Write a program that reads how many manual, skilled and management people there are in a company and then print out the wage bill.

   The program should additionally print out the approximate tax to pay which is 20% of the total wage bill.