American University of Beirut
Department of Computer Science
CMPS 200 – Introduction to Programming
Lab 1: Jan 31 – Feb 4

Exercise 1. Setting up the Environment

- Download a JAVA IDE of your choice (e.g. IntelliJ IDEA, NetBeans, Eclipse, Visual Studio Code…).
- Create a folder for CMPS 200 where you will save all your assignments/labs/in-class program examples. Create one subfolder for each lab session.

Exercise 2. Testing the Environment

Test your environment by writing the first Hello World! program. Create a new java file, ***HelloWorld.java***. Copy the following code into the file (if you notice, the class name is the same as the file name):

```
public class HelloWorld
{
    public static void main(String [] args)
    {
        System.out.println("Hello there!");
        System.out.println();
    }
}
```

Exercise 3. Expressions:

What are the values displayed when printing the following expression in println statements? Try to write the answers down, then test them by writing the corresponding statements.

`49 / 5`		`10+100 / 10 * 5 - 20.5 / 5`	
`49.0 / 5`		`"CMPS" + 200 + 12 + "L"`	
`49.0 % 5`		`"CMPS" + (200 + 12) + "L"`	
`5.2 + 31 / 10`		`200 + 1 + "CMPS"`	

Exercise 4. Text

Implement a new program to print the following text (with the same layout):

```
Principal areas of study within "Computer Science" include:
        -AI
        -Databases
        -HCI
        -Vision and Graphics
        -Software Engineering
```

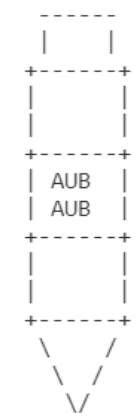
Exercise 5. Flow of Control

What will be printed after the following code executes? Write down your answer then check it by copying and running the code:

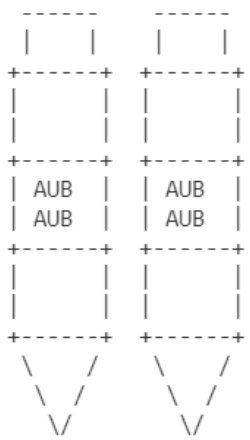
```
public class Output {
    public static void main(String [] args){
        method_1();
        method_2();
        method_3();
    }
    public static void method_1(){
        System.out.println("Greetings from method 1");
    }
    public static void method_2(){
        System.out.println("Greetings from method 2");
        method_1();
    }
    public static void method_3(){
        System.out.println("Greetings from method 3");
        method_1();
        method_2();
    }
}
```

Exercise 6. Drawing Figures with Methods:

A. Create a new class called Crayons. Your class should draw the following figure twice. Notice that the figure should be repeated vertically. Use methods whenever needed to remove redundancy and to structure your code:

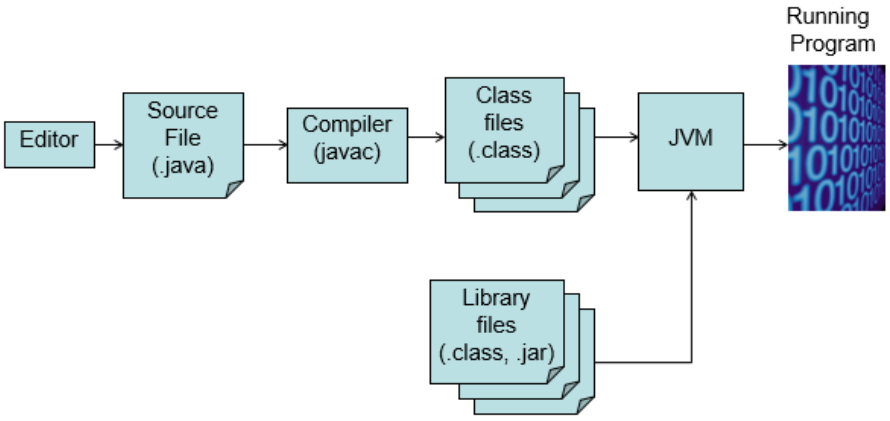


B. Create a copy of your program. Modify it in a way to draw the two figures horizontally as shown:



Exercise 7. Compiling using Command Line

The programming process is shown in the following diagram:



- With the help of your lab instructor, use the command line prompt to compile the last program you wrote ***(javac file.java)***. Notice how the ***.class*** file is generated after you execute the javac command.
- Now run your program using the command (***java file***)