JOBSHEET 1
Programming Language (Java Development Kit / JDK Installation)

1. Objective

- Students understand program concepts and programming languages
- Students are able to install Java programming tools
- Students understand the basic structure of Java
- Students are able to do compiler and debugging

2. Laboratory

2.1 Experiment 1: Installing the Java Development Kit/JDK

Time : 150 minutes

1. Download JDK by opening the following link http://www.oracle.com/technetwork/java/javase/downloads/index.html
2. Double click on the downloaded installation file and follow the instructions for the installation process
3. The next step is **setting the PATH** (specifically for the **Windows** operating system), so that the java command can be recognized
4. PATH settings are done by opening **Control Panel → System → Advanced System Settings → Environment Variable**. Then look for the **PATH** variable, if it doesn't exist then create the **PATH** variable
5. The next step is to fill in the **PATH** variable, if the **PATH** variable already exists, **don't delete** the existing value but add **C:\Program Files\Java\jdk\bin**, as a separator between values, **use the character semicolon ;**

   Note: The location of the added JDK value is adjusted to the folder where Java is installed, in the example above the JDK is installed in C:\Program Files
6. Open a Command Prompt (**Windows + R**, then type **cmd**). After the Command Prompt window opens, type the **javac** command. If the command is recognized, the Windows operating environment supports Java programs, but if it is not recognized, check the **PATH** setting because there may be an error when entering the bin directory location in the **PATH** variable

Questions

1. Explain the use of entering the location of the Java bin folder into the PATH!
2. Explain the use of the **javac** command when entering the command prompt!

2.2 Experiment 2: Basic Structure of Java

Time : 120 minutes

1. Install a text editor such as **Sublime**, **Notepad++, or Atom** (**choose one only**)
2. Open the text editor that was installed in the first step, then create a new file and save it with the name **MyFirstJavaStudent'sAttendanceNumber.java** **(Use each attendance number).**
3. Write the following program code (the following program code is the basic structure of java). **Replace 00 with the number of your attendance list.**

```
public class MyFirstJava00 {
    public static void main(String[] args) {

    }
}
```

Explanation:

- ***public*** *is a keyword in Java that indicates that an object, method, or attribute can be accessed from another class*
- ***class*** *is a keyword in Java that is used to create a class*
- ***static*** *is a keyword to create a method that does not need to be instantiated first*
- ***void*** *is a keyword to make a method return no value or is empty*
- ***The class name and file name must be the same***

4. Save the program code, click File → Save
5. Open Command Prompt and go to the location of the folder where **MyFirstJava.java** file is stored. To move to a directory, you can use the **cd** command (type **cd**). For example, the MyFirstJava.java file is stored at E:\ kerja/polinema/daspro/2022/int class/program, then an example of using the cd command is as follows:

Note: Please change the command according to the location where you saved MyFirstJava.java file

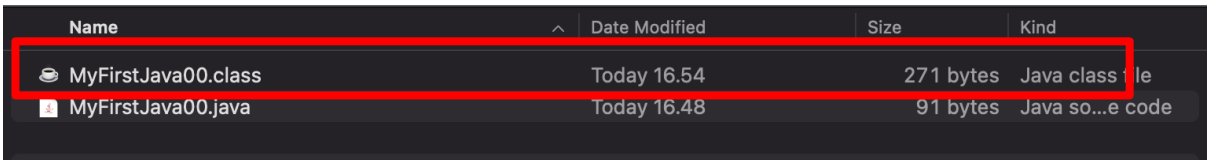
```
Microsoft Windows [Version 10.0.19044.1889]
(c) Microsoft Corporation. All rights reserved.

C:\Users\ALZAM>E:

E:\>cd kerja/polinema/daspro/2022/int class/program
```

Directory where MyFirstJava.java files are stored

6. After you have entered the folder where **MyFirstJava00.java** file is stored, the next step is to **compile** it by typing **javac FileName.java**, so you have to type **javac MyFirstJava00.java**

```
E:\KERJA\POLINEMA\DASPRO\2022\Int Class\Program>javac MyFirstJava00.java
```

7. If the compilation process is successful and there are no errors, there will be a new file named **MyFirstJava.class**. To check it, open it and check the folder where you saved **MyFirstJava.java** file



8. After you have **MyFirstJava00.class** file, then to run the compiled program, type **java ClassName** in the Command Prompt, so you have to type **java MyFirstJava00** (**without .class**)

```
E:\KERJA\POLINEMA\DASPRO\2022\Int Class\Program>javac MyFirstJava00.java

E:\KERJA\POLINEMA\DASPRO\2022\Int Class\Program>java MyFirstJava00
```

9. In the experiment that you have done, there is no output displayed on the command prompt screen, because the program code that is written is only the basic structure of the Java program.
10. Make modifications to **MyFirstJava00.java** file by adding the following code:

```
1   puclic class MyFirstJava00{
2       public static void main (String[]args) {
3           System.out.println("my name is XXXX");
4       }
5   }
```

Note: replace xxxx with your name

11. Save the file, click File → Save
12. Compile again as in step 6
13. If there is no error, then do step 8
14. Observe the output of the program code that you created! Is it the same as the following picture?

Questions!

1. Explain the function of **javac MyFirstJava00.java** command in the experiment!
2. Explain the function of **java MyFirstJava00** command in the experiment!
3. Add the program code **System.out.println("I am a Student of Informatics Engineering Program");** on line 6, then run the program and explain how the output is!

```
1   public class MyFirstJava00{
2       public static void main (String[]args) {
3
4           System.out.println("my name is XXXX");
5
6           System.out.println("I am a Student of Informatics Engineering Program");
7
8       }
9   }
```

4. Change the command **System.out.println** to **System.out.print** on lines 5 and 6, then run the program again!
5. What is the difference between **System.out.println ("..........");** and **System.out.print ("............");**. Please explain!
6. Change the command on line 6 to be like this:

```
6           System.out.println("\nI am a Student of Informatics Engineering Program");
```

7. Explain the function of the command **\n** on line 6!
8. On line 6, add the **//** character so that the line becomes

```
6           //System.out.println("\nI am a Student of Informatics Engineering Program");
```

9. Run the program and see what happens!
10. Explain the function of the character **//** on line 6!

3. Assignment

Time : 30 minutes

Create a java program with the following output, then run the program that you created!

```
----------------------------------------
Biodata of Information Technology Department students
----------------------------------------
Name            : *Write your name*
NIM             : *Write your student ID number*
Address         : *Write your address*
Phone           : *Write your phone*
Hobby           : *Write your hobby*
```