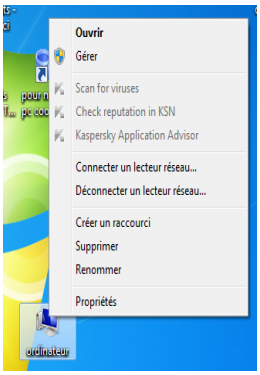
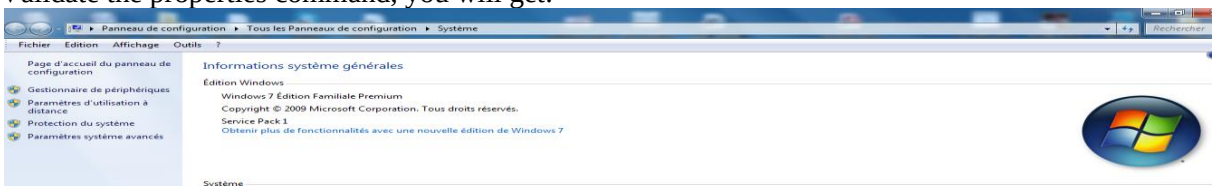
LAB1
(Setting up the programming environment and writing my first JAVA program)

I. Installation of JSE (Java Standard Edition)

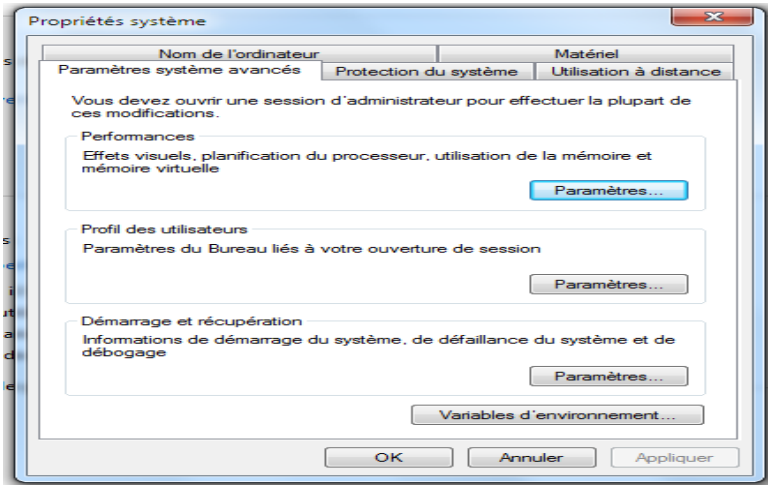
1. Download the compressed format of JDK (Java Development Kit) 64bit/32bit according to the 64bit/32bit operating system of the machine. After decompression, they are respectively named as follows: **jdk-8u25-windows-x64.exe** or **jdk-8u40-windows-i586.exe**.
2. Run the executable to install the JDK by following the installation wizard.
3. Proceed with the following configuration: If you perform a default installation, copy the following path: **C:\Program Files\Java\jdk1.8.0_25\bin** This depends on your installation path during the JDK installation.
4. Follow the steps below to complete the configuration:
   a. Right-click on the Computer icon, you will get:



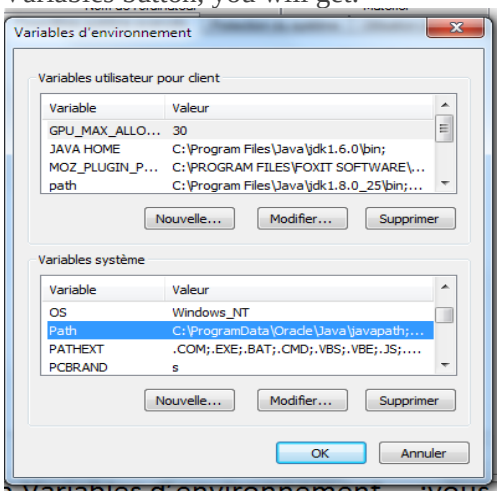
Validate the properties command, you will get:



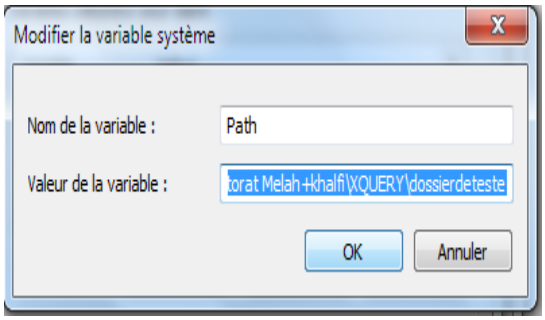
Validate the advanced system settings command, you will get:



Validate the Environment Variables button, you will get:



Validate the Edit button as indicated in the previous figure by selecting the Path variable, you will get:



Go to the Variable value section. At the end of the path, add the character ';' then paste the path: **C:\Program Files\Java\jdk1.8.0_25\bin**

II. Writing my first program that displays the message "Hello World"

Follow the steps below:

1. Launch Notepad
2. Write the following code: **public class** My_first_program {**public static void** main(String[] args) {System.**out**.println("Hello World");}}
3. Save the file in the root C: under the name My_first_program.java
4. Launch the command line CMD
5. Go to the following location: C:\>
6. Start the compilation with javac: C:\> javac My_first_program.java
7. Run your bytecode: C:\>java My_first_program

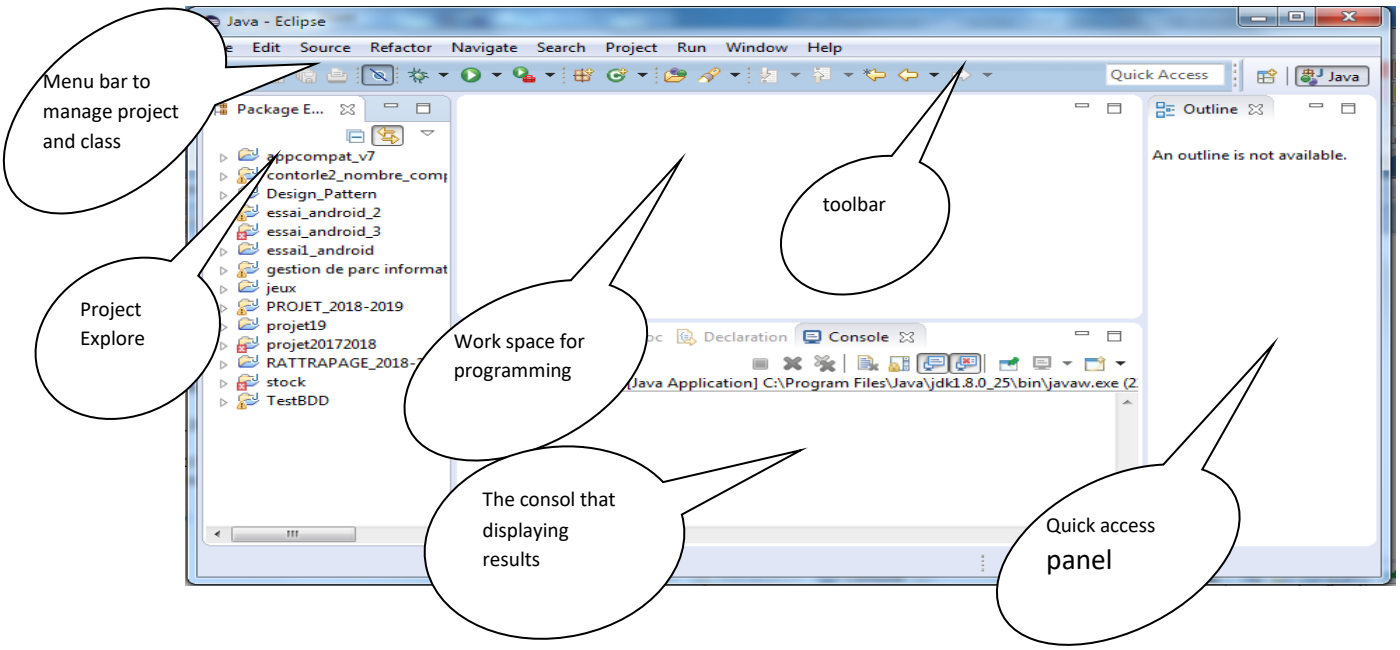
After execution, the program will display the message “Hello World” on the console as follows:

C:\>Hello World

LAB2

(Java programming with an IDE, case of Eclipse)

I. Download Eclipse 64bit/32bit according to your machine's operating system and copy it to the hard drive.
II. Launch Eclipse, you will see the following screen:



II.1 Create a new project named LAB2
Answer : Go to the menu bar -> New Project then assign the name LAB2 and validate with the OK button

II.2 Create a class with the main() method named My_first_program
Answer: Right-click on the project name "LAB2" then validate new class -> associate the name "My_first_program" to your class
II.3 Insert the instruction that allows displaying your name and surname on the console on two separate lines.

Answer:

```
Class My_first_program{ public static void main (String args[]){
System.out.println("Insert your name");
System.out.println("Insert your surname");}}
```

II.4 Execute the project
Answer: Click on the run button
II.5 Compare the two programming modes: Notepad / Eclipse IDE

LAB3

(Introduction to Java)

II. Launch Eclipse IDE
II.1 Create a project named LAB3
TP Statement: Create a class named Equation_2D that allows solving a second-degree equation, with the results displayed on the console.
Answer:

```
Import java.util.Scanner;
Class Equation_2D{
public static void main (String args[]){
float a,b,c,delta,x1,x2;
Scanner sc=new Scanner(System.in);
a=sc.nextFloat(); // to read from the console
b=.....c=..../same instruction
delta =b*b-4*a*c;
..... To be completed
```

LAB4

(Introduction to Java)

II. Launch Eclipse IDE
II.1 Create a project named LAB4
TP Statement: Create a class named ARRAY that allows creating an array of 10 real numbers and displays the maximum, minimum, and average of the array elements on the console.
Answer

```
Import java.util.Scanner;
Class ARRAY {
public static void main (String args[]){
float [] t=new float [10];
Scanner sc=new Scanner(System.in);
Float x;
for (int i=0; i<t.length;i++){x=sc.nextFloat();t[i]=x;}// reading the array
..... To be completed
```

LAB5

(Classes and Objects)

II. Launch Eclipse IDE

TP Statement: A Rectangle is defined by a length and a width, and we can calculate its surface and perimeter.

II.1 Create a project named LAB5 that defines the Rectangle class with its members length, width, and the two methods allowing to calculate the surface and perimeter of a rectangle.

II.2 Create a test class named Test_LAB5 that contains the main method.

II.3 Instantiate the Rectangle class by creating several rectangle objects.

II.4 Execute the project for several cases of length and width.

Answer

```
Import java.util.Scanner;
class Rectangle {
int length, width;
Rectangle (){length=5;width=3;}// constructor with fixed values
Rectangle (int l,int w){length=l;width=w;}
public int surface(){return length*width;}
public int perimeter(){return (length+width)*2;}
}
class Test_LAB5{
public static void main (String args[]){
Rectangle r1=new Rectangle();
Rectangle r2=new Rectangle(10,10);
r1.surface();r2.perimeter();
..... To be completed and display the results on the console
}
```