Lab Session 1 : Basic Java

Exercise 1: Install Java Development Environment

- Download and Install Java JDK:

    http://www.oracle.com/technetwork/java/javase/downloads/

- Download and install Editor/IDE:

    Notepad++: https://notepad-plus-plus.org/

- Compile and run the "HelloWorld" program. The following is the Java source code:

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

Exercise 2: Write a Java program that prints the text "Hello World" ten times.

Exercise 3: Write a Java program that reads 3 command-line arguments and prints them to the screen in reverse order. These three command-line arguments present your personal information, including your full name, your student ID and your email address.

Exercise 4: Write a Java program that reads an integer command-line argument n and prints a "random" integer between 0 and n-1. Use Math.random() and Integer.parseInt() functions.

Exercise 5: Write a Java program that prints to the screen the following 19 lines:

    9 bottles of beer we are going to drink, 9 bottles of beer.

    Now try to drink one, drink one,

    8 bottles of beer we are going to drink, 8 bottles of beer.

    Now try to drink one, drink one,

    ...

    1 bottle of beer we are going to drink, 1 bottle of beer.

    Now try to drink one, drink one,

    Oh no, no bottles of beer to drink now.

Exercise 6: Write a Java program to solve the following linear equation:

$$ax + b = 0$$

where the coefficients a, b are the real numbers from command-line argument. The program should print to the screen to the root/roots of the linear equation.

Exercise 7: Write a Java program to solve the following quadratic equation:

$$ax^2 + bx + c = 0$$

where the coefficients a, b, c are the real numbers from command-line argument**.** The program should print to the screen to the root/roots of the quadratic equation.

Exercise 8: Write a Java program to calculate a leap year. The positive integer number n is read from command-line argument. The program will print to the screen the message "n is a leap year" if n is divisible by 4 and not divisible by 100, or n is divisible by 400. Otherwise, print to the screen the message "n is not a leap year". Use operator % to check the remainder.

Exercise 9: Write a Java program that reads a sequence of n real numbers from command-line argument, and prints to the screen their mean (average value) and sample standard deviation (square root of the sum of the squares of their differences from the average, divided by n−1).