

King Saud University
College of Computer & Information Science
CSC111 – Lab03
IO, Variables, Expressions
All Sections

Lab Exercise 1

Write a program that prompts the user to enter two points (x1, y1) and (x2, y2) and displays their distance between them. The formula for computing the distance is $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$.

Note that you can use `Math.pow(a, 0.5)` to compute \sqrt{a} .

Here is a sample run:

```
Enter x1 and y1: 1.5 -3.4 ↵
```

```
Enter x2 and y2: 4 5 ↵
```

```
The distance between the two points is 8.764131445842194
```

Lab Exercise 2

Write a program that reads an integer between 0 and 1000 and adds all the digits in the integer. For example, if an integer is 932, the sum of all its digits is 14.

Hint: Use the % operator to extract digits, and use the / operator to remove the extracted digit. For instance, $932 \% 10 = 2$ and $932 / 10 = 93$.

Here is a sample run:

```
Enter an integer between 0 and 1000: 999 ↵  
The sum of all digits in 999 is 27
```

Solution Exercise 1

- 1- Create a new project in eclipse and name it **lab03**
- 2- Create a new class and name it **Distance**. Make sure you choose the `public static void main` option.
- 3- Write the program as following (you can ignore comments):

```
import java.util.Scanner;

public class Distance {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        // Enter the first point with two double values
        System.out.print("Enter x1 and y1: ");
        double x1 = input.nextDouble();
        double y1 = input.nextDouble();

        // Enter the second point with two double values
        System.out.print("Enter x2 and y2: ");
        double x2 = input.nextDouble();
        double y2 = input.nextDouble();

        // Compute the distance
        double distance = Math.pow((x1 - x2) * (x1 - x2) +
            (y1 - y2) * (y1 - y2), 0.5);

        System.out.println("The distance between the two points is " + distance);
    }
}
```

Solution Exercise 2

- 1- Use the same project **lab03** that you created before
- 2- Create a new class and name it **SumDigits**. Make sure you choose the `public static void main` option.
- 3- Write the program as following (you can ignore comments):

```
// Summarize all digits in an integer < 1000
public class SumDigits {
    // Main method
    public static void main(String[] args) {
        java.util.Scanner input = new java.util.Scanner(System.in);
        // Read a number
        System.out.print("Enter an integer between 0 and 1000: ");
        int number = input.nextInt();

        // Find all digits in number
        int lastDigit = number % 10;
        int remainingNumber = number / 10;
        int secondLastDigit = remainingNumber % 10;
        remainingNumber = remainingNumber / 10;
        int thirdLastDigit = remainingNumber % 10;

        // Obtain the sum of all digits
        int sum = lastDigit + secondLastDigit + thirdLastDigit;

        // Display results
        System.out.println("The sum of all digits in " + number
            + " is " + sum);
    }
}
```

Done...