# Lab 03 – Structured Programming with Java

## Task 01:

Write a java program that have this string “Hello! I am string in java. I have several function and I am very “Important ”# string_is_important” and split it

**Code:**

```
package Tasks;

public class task01 {
    public static void main(String[] args) {
        String line = "Hello! I am string in java. I have several function
and I am very “Important”. # string_is_important";

        System.out.println("Original String: " + line);

        System.out.println("-----Splitting Strings-----");

        System.out.println("Splitting at: " + line.substring(0, 6));
        System.out.println("After ! till Java: " + line.substring(7, 26) );
        System.out.println("After. till #: " + line.substring(28, 80));
        System.out.println("After @ till end: " + line.substring(81) );
    }
}
```

**Output:**

```
"C:\Program Files\Java\jdk-24\bin\java.exe" "-javaagent:C:\Program Files\Jet
Original String: Hello! I am string in java. I have several function and I a
-----Splitting Strings-----
Splitting at: Hello!
After ! till Java: I am string in java
After. till #: I have several function and I am very “Important”. #
After @ till end: string_is_important

Process finished with exit code 0
```

## Task 02:

Write a Java program that keeps a number from the user and displays the name of the weekday.

**Code:**

```
package Tasks;
import java.util.Scanner;

public class task02 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        System.out.print("Enter a number between 1 and 7: ");
        int n = sc.nextInt();

        switch (n){
            case 1:
                System.out.println("Monday");
                break;
            case 2:
                System.out.println("Tuesday");
                break;
            case 3:
                System.out.println("Wednesday");
                break;
            case 4:
                System.out.println("Thursday");
                break;
            case 5:
                System.out.println("Friday");
                break;
            case 6:
                System.out.println("Saturday");
                break;
            case 7:
                System.out.println("Sunday");
                break;
            default:
                System.out.println("Invalid input!");
        }
        sc.close();
    }
}
```

**Output:**

```
"C:\Program Files\Java\jdk-24\bin\java.exe" "-javaagent:C:\Program Files\Jet
Enter a number between 1 and 7: 9
Invalid input!

Process finished with exit code 0
```

## Task 03:

Write a Java program that takes the user to provide a single character from the alphabet. Print Vowel or Consonant, depending on the user input. If the user input is not a letter (between a and z or A and Z), or is a string of length > 1, print an error message.
Hint use builtin equal() function

**Code:**

```
package Tasks;
import java.util.Scanner;

public class task03 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        System.out.print("Enter a character: ");
        char ch = sc.next().charAt(0);

        // converting char into lowercase
        Character.toLowerCase(ch);

        if(ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u')
System.out.println("It is vowel");
        else System.out.println("It is a consonant.");

        sc.close();
    }
}
```

**Output:**

```
"C:\Program Files\Java\jdk-24\bin\java.exe" "-javaagent:C:\Program Files\Jet
Enter a character: ERTERG
It is a consonant.

Process finished with exit code 0
```

## Task 04:

Write a java program that gets input from a user into an array (six defined by user ) then find the max and min numbers found in array as well as the index at which they are found at. Then calculate the difference between two values and the difference between index as well. See screenshot for reference.
HINT: use java.lang.Math.abs package to print absolute value between index differences to avoid negative value.

### Code:

```
package Tasks;
import java.util.Scanner;

public class task04 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        int[] n = new int[6];

        for(int i = 0; i < 6; i++){
            System.out.print("Enter element no. " + (i+1) + ": ");
            n[i] = sc.nextInt();
        }

        int max = Integer.MIN_VALUE, min = Integer.MAX_VALUE;
        int minId = 0, maxId = 0;

        // finding max
        for(int i = 0; i < 6; i++){
            if(n[i] > max){
                max = n[i];
                maxId = i;
            }
        }

        // finding min
        for(int i = 0; i < 6; i++){
            if(n[i] < min){
                min = n[i];
                minId = i;
            }
        }

        System.out.println("Minimum value is: " + min + ". The index is: " +
minId);
        System.out.println("Maximum value is: " + max + ". The index is: " +
maxId);

        sc.close();
    }
}
```

**Output:**

```
"C:\Program Files\Java\jdk-24\bin\java.exe" "-javaagent:C:\Program Files\Jet
Enter element no. 1: 6
Enter element no. 2: 3
Enter element no. 3: 9
Enter element no. 4: 5
Enter element no. 5: 43
Enter element no. 6: 76
Minimum value is: 3. The index is: 1
Maximum value is: 76. The index is: 5

Process finished with exit code 0
```

## Task 05:

Write a Java program to replace each sub string of a given string that matches the given regular expression with the given replacement.
Sample string : "this is the sample exercise of OOP basics." Replace OOP within ICT.

**Code:**

```
package Tasks;

public class task05 {
    public static void main(String[] args) {
        String actual = new String("This is the the sample exercise of OOP
basics.");
        String replaced = actual.replaceAll("OOP", "ICT");

        System.out.println("Original: " + actual);
        System.out.println("Replaced: " + replaced);
    }
}
```

**Output:**

```
"C:\Program Files\Java\jdk-24\bin\java.exe" "-javaagent:C:\Program Files\Jet
Original: This is the the sample exercise of OOP basics.
Replaced: This is the the sample exercise of ICT basics.

Process finished with exit code 0
```