FULL STACK DEVELOPMENT

WORKSHEET – 7

1- Write a Java program for counting the digits present in a number.

Ans: import java.util.Scanner;

```
public class DigitCounter {
    public static void main(String[] args) {
        // Create a scanner object to read input from the user
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter a number
        System.out.print("Enter a number: ");
        int number = scanner.nextInt();

        // Initialize a variable to keep the count of digits
        int digitCount = 0;

        // If the number is negative, make it positive
        number = Math.abs(number);

        // Count the digits in the number
        do {
            digitCount++;
            number /= 10;
        } while (number > 0);

        // Display the result
```

```java
        System.out.println("Number of digits: " + digitCount);

        // Close the scanner
        scanner.close();
    }
}
```

2- Find length of String without using any inbuilt method in java?

Ans: import java.util.Scanner;

```java
public class StringLength {
    public static void main(String[] args) {
        // Create a scanner object to read input from the user
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter a string
        System.out.print("Enter a string: ");
        String inputString = scanner.nextLine();

        // Initialize a counter to 0
        int length = 0;

        // Loop through the string until the null character is reached
        for (int i = 0; i < inputString.toCharArray().length; i++) {
            length++;
        }
```

```java
        // Display the result
        System.out.println("Length of the string: " + length);


        // Close the scanner
        scanner.close();

    }

}
```

3- Write a program to print all permutations of String in java?

Ans: public class StringPermutations {

```java

    // Method to print all permutations of a string
    public static void printPermutations(String str, String ans) {
        // If the input string is empty, print the accumulated answer string
        if (str.length() == 0) {
            System.out.println(ans);
            return;
        }

        // Iterate over the string and recursively generate permutations
        for (int i = 0; i < str.length(); i++) {
            // Take the ith character from str
            char ch = str.charAt(i);

            // Remaining string after removing the ith character
            String remainingString = str.substring(0, i) + str.substring(i + 1);
```

```java
        // Recur for the remaining string
        printPermutations(remainingString, ans + ch);
    }
}


public static void main(String[] args) {
    // Example string to find permutations of
    String str = "ABC";


    // Print all permutations of the string
    printPermutations(str, "");
    }
}
```

4-Write java Program to Find Smallest and Largest Element in an Array.

Ans: import java.util.Scanner;

```java
public class SmallestLargestInArray {
    public static void main(String[] args) {
        // Create a scanner object to read input from the user
        Scanner scanner = new Scanner(System.in);


        // Prompt the user to enter the number of elements in the array
        System.out.print("Enter the number of elements in the array: ");
        int n = scanner.nextInt();
```

```java
// Create an array to hold the elements
int[] array = new int[n];

// Read elements into the array
System.out.println("Enter the elements of the array:");
for (int i = 0; i < n; i++) {
    array[i] = scanner.nextInt();
}

// Initialize the smallest and largest elements with the first element of the array
int smallest = array[0];
int largest = array[0];

// Loop through the array to find the smallest and largest elements
for (int i = 1; i < n; i++) {
    if (array[i] < smallest) {
        smallest = array[i];
    }
    if (array[i] > largest) {
        largest = array[i];
    }
}

// Display the result
System.out.println("Smallest element in the array: " + smallest);
System.out.println("Largest element in the array: " + largest);
```

```java
            // Close the scanner
            scanner.close();
        }
    }
```

5- Write a Java Program to Print Right Triangle Star Pattern

Ans: import java.util.Scanner;

```java
public class RightTriangleStarPattern {
    public static void main(String[] args) {
        // Create a scanner object to read input from the user
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter the number of rows for the triangle
        System.out.print("Enter the number of rows: ");
        int rows = scanner.nextInt();

        // Outer loop to handle the number of rows
        for (int i = 1; i <= rows; i++) {
            // Inner loop to handle the number of columns
            // The number of columns in each row is equal to the row number
            for (int j = 1; j <= i; j++) {
                System.out.print("* ");
            }
            // Move to the next line after printing each row
            System.out.println();
```

```
        }

        // Close the scanner
        scanner.close();
    }
}
```