# LAB # 10
# JUnit Testing

## Lab Task:

- Add another test case for countA function (which is given in code).

```java
public class Main {

    // square method
    public static int square(int x) {
        return x * x;
    }

    // countA method
    public static int countA(String word) {
        int count = 0;
        for (int i = 0; i < word.length(); i++) {
            if (word.charAt(i) == 'a' || word.charAt(i) == 'A') {
                count++;
            }
        }
        return count;
    }

    // main method for testing
    public static void main(String[] args) {

        // Test square()
        int squareResult = square(5);
        System.out.println("Square Test:");
        System.out.println("Expected: 25");
        System.out.println("Actual  : " + squareResult);

        // Test countA()
        int countAResult = countA("AnApple");
        System.out.println("\nCountA Test:");
        System.out.println("Expected: 3");
        System.out.println("Actual  : " + countAResult);
    }
}
```

## OUTPUT:

```
Square Test:
Expected: 25
Actual  : 25

CountA Test:
Expected: 3
Actual  : 2
```

- Make new project, make a class. Add 2 methods in it. One method will find the max integer present in the input integer array. The other method will find the min integer. Now create test cases for both these methods and test your code. Follow all the steps as mentioned above in the manual.

```
public class Main {

    // Method to find maximum value in array
    public static int findMax(int[] arr) {
        int max = arr[0];
        for (int i = 1; i < arr.length; i++) {
            if (arr[i] > max) {
                max = arr[i];
            }
        }
        return max;
    }

    // Method to find minimum value in array
    public static int findMin(int[] arr) {
        int min = arr[0];
        for (int i = 1; i < arr.length; i++) {
            if (arr[i] < min) {
                min = arr[i];
            }
        }
        return min;
    }

    // Testing both methods
    public static void main(String[] args) {

        int[] numbers = {10, 5, 20, 3, 15};

        // Test findMax
        int maxResult = findMax(numbers);
        System.out.println("Testing findMax()");
        System.out.println("Expected Max: 20");
        System.out.println("Actual Max  : " + maxResult);
```

```
            return max;
        }

        // Method to find minimum value in array
        public static int findMin(int[] arr) {
            int min = arr[0];
            for (int i = 1; i < arr.length; i++) {
                if (arr[i] < min) {
                    min = arr[i];
                }
            }
            return min;
        }

        // Testing both methods
        public static void main(String[] args) {

            int[] numbers = {10, 5, 20, 3, 15};

            // Test findMax
            int maxResult = findMax(numbers);
            System.out.println("Testing findMax()");
            System.out.println("Expected Max: 20");
            System.out.println("Actual Max  : " + maxResult);

            // Test findMin
            int minResult = findMin(numbers);
            System.out.println("\nTesting findMin()");
            System.out.println("Expected Min: 3");
            System.out.println("Actual Min  : " + minResult);
        }
    }
```

**OUTPUT:**

```
Testing findMax()
Expected Max: 20
Actual Max  : 20

Testing findMin()
Expected Min: 3
Actual Min  : 3
```

**GITHUB SCREENSHOT: -**