

**Experiment No. 04**  
**Experiment Name: Array And String**

*Course title: Programming Language II(Java) Lab*  
*Course code:*  
*Spring 2025*

**Date of Submission:**



**Submitted to-**

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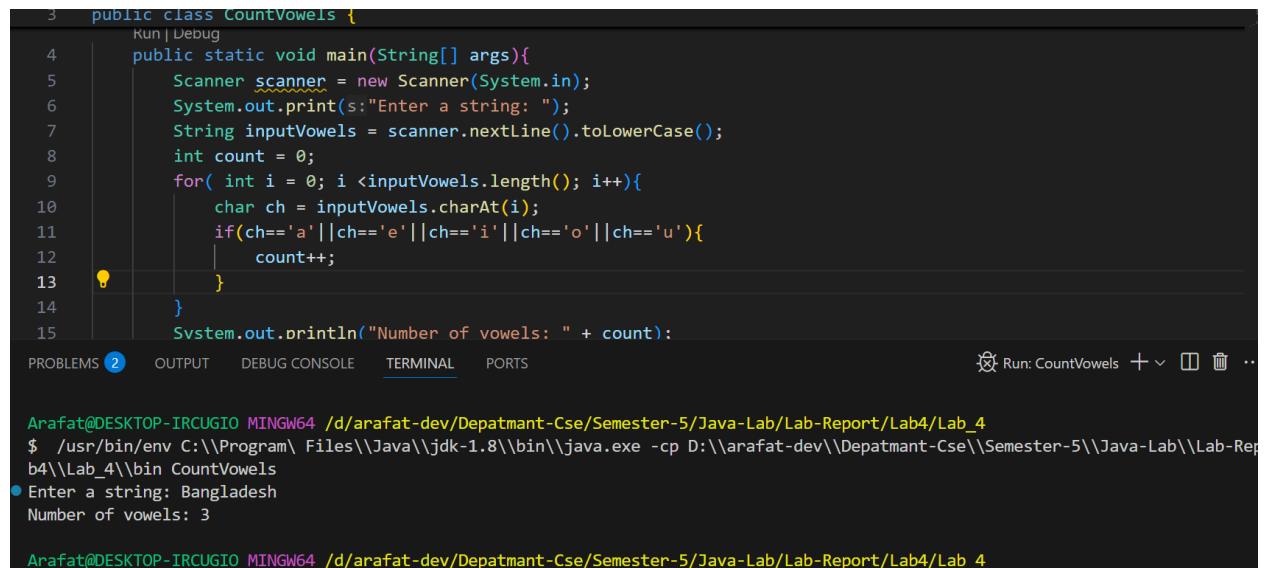
**Hw 1:** Write a Java program that accepts a string from the user and counts how many vowels (a, e, i, o, u) are present in the given string.

Code:

```
import java.util.Scanner;

public class CountVowels {
    public static void main(String[] args){
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a string: ");
        String inputVowels = scanner.nextLine().toLowerCase();
        int count = 0;
        for( int i = 0; i < inputVowels.length(); i++){
            char ch = inputVowels.charAt(i);
            if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u'){
                count++;
            }
        }
        System.out.println("Number of vowels: " + count);
    }
}
```

Screenshot:

The screenshot shows an IDE window with a Java file named CountVowels.java. The code is identical to the one provided in the previous block. Below the code editor, the 'TERMINAL' tab is active, showing the command prompt output. The user has entered 'Bangladesh' as the string, and the program has correctly counted 3 vowels. The terminal output is as follows:

```
Arafat@DESKTOP-IRCUGIO MINGW64 /d/arafat-dev/Depatmant-Cse/Semester-5/Java-Lab/Lab-Report/Lab4/Lab_4
$ /usr/bin/env C:\Program Files\Java\jdk-1.8\bin\java.exe -cp D:\arafat-dev\Depatmant-Cse\Semester-5\Java-Lab\Lab-Report\Lab4\Lab_4\bin CountVowels
Enter a string: Bangladesh
Number of vowels: 3
Arafat@DESKTOP-IRCUGIO MINGW64 /d/arafat-dev/Depatmant-Cse/Semester-5/Java-Lab/Lab-Report/Lab4/Lab_4
```

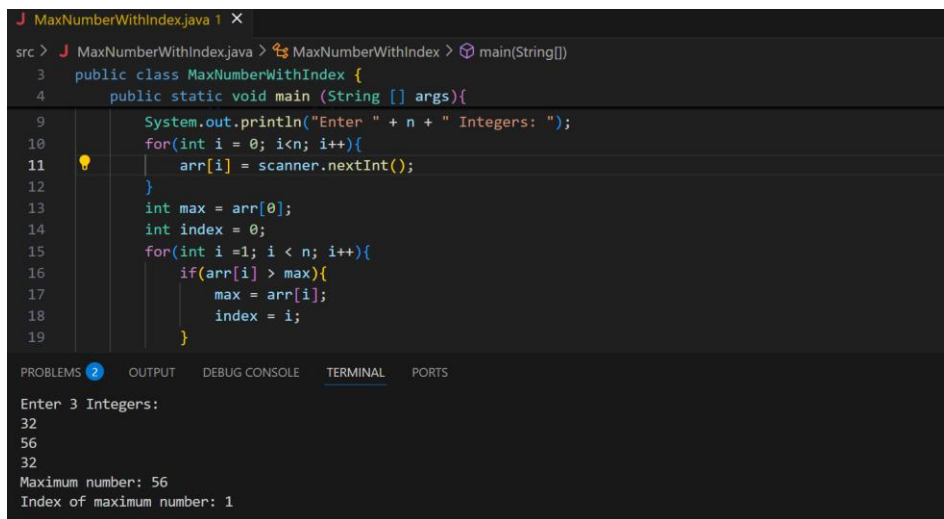
**Hw 2:** Write a Java program that accepts an array of integers from the user and prints the maximum number with its index.

Code:

```
import java.util.Scanner;

public class MaxNumberWithIndex {
    public static void main (String [] args){
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter The Number of element: ");
        int n = scanner.nextInt();
        int arr[] = new int[n];
        System.out.println("Enter " + n + " Integers: ");
        for(int i = 0; i<n; i++){
            arr[i] = scanner.nextInt();
        }
        int max = arr[0];
        int index = 0;
        for(int i =1; i < n; i++){
            if(arr[i] > max){
                max = arr[i];
                index = i;
            }
        }
        System.out.println("Maximum number: " + max);
        System.out.println("Index of maximum number: " + index);
    }
}
```

Screenshot:



The screenshot shows an IDE window titled 'J MaxNumberWithIndex.java 1'. The code editor displays the same Java code as in the previous block. Below the code editor, the 'TERMINAL' tab is active, showing the program's execution. The output is as follows:

```
src > J MaxNumberWithIndex.java > MaxNumberWithIndex > main(String[])
3 public class MaxNumberWithIndex {
4     public static void main (String [] args){
9         System.out.println("Enter " + n + " Integers: ");
10        for(int i = 0; i<n; i++){
11            arr[i] = scanner.nextInt();
12        }
13        int max = arr[0];
14        int index = 0;
15        for(int i =1; i < n; i++){
16            if(arr[i] > max){
17                max = arr[i];
18                index = i;
19            }

```

Enter 3 Integers:  
32  
56  
32  
Maximum number: 56  
Index of maximum number: 1

**Hw 3:** Write a Java program that accepts a string from the user and checks if it is a palindrome (reads the same forward and backward, ignoring case).

Code:

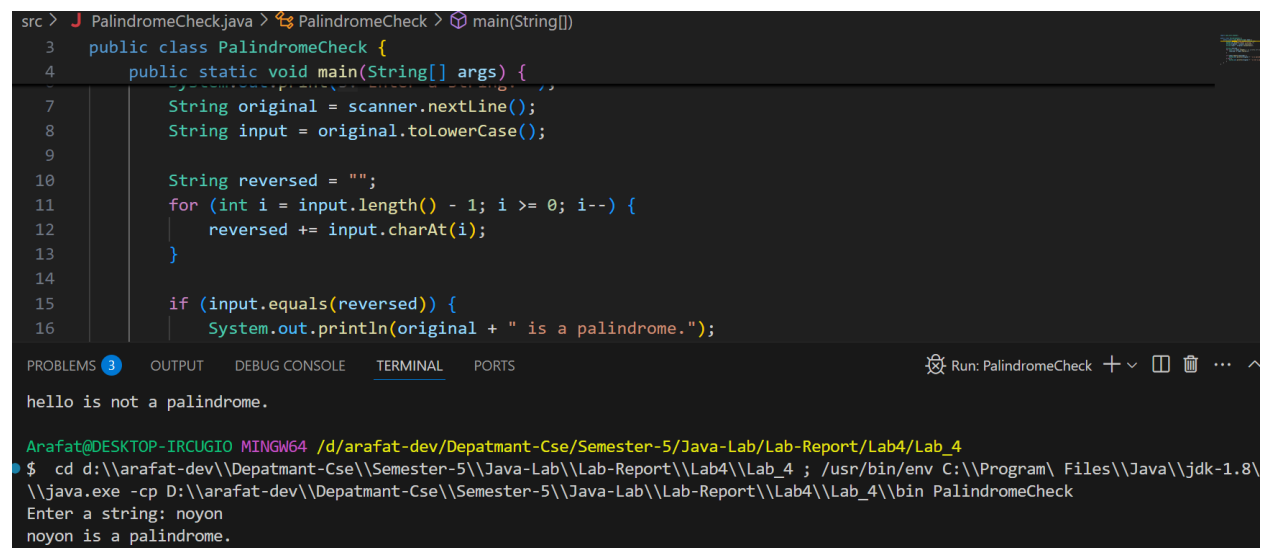
```
import java.util.Scanner;

public class PalindromeCheck {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a string: ");
        String original = scanner.nextLine();
        String input = original.toLowerCase();

        String reversed = "";
        for (int i = input.length() - 1; i >= 0; i--) {
            reversed += input.charAt(i);
        }

        if (input.equals(reversed)) {
            System.out.println(original + " is a palindrome.");
        } else {
            System.out.println(original + " is not a palindrome.");
        }
    }
}
```

**Screenshot:**



```
src > PalindromeCheck.java > PalindromeCheck > main(String[])
3 public class PalindromeCheck {
4     public static void main(String[] args) {
7         String original = scanner.nextLine();
8         String input = original.toLowerCase();
9
10        String reversed = "";
11        for (int i = input.length() - 1; i >= 0; i--) {
12            reversed += input.charAt(i);
13        }
14
15        if (input.equals(reversed)) {
16            System.out.println(original + " is a palindrome.");
17        } else {
18            System.out.println(original + " is not a palindrome.");
19        }
20    }
21 }

PROBLEMS 3 OUTPUT DEBUG CONSOLE TERMINAL PORTS
Run: PalindromeCheck + - [ ] ... ^

hello is not a palindrome.

Anafat@DESKTOP-IRCUGIO MINGW64 /d/arafat-dev/Depatmant-Cse/Semester-5/Java-Lab/Lab-Report/Lab4/Lab_4
$ cd d:\\arafat-dev\\Depatmant-Cse\\Semester-5\\Java-Lab\\Lab-Report\\Lab4\\Lab_4 ; /usr/bin/env C:\\Program Files\\Java\\jdk-1.8\\
\\java.exe -cp D:\\arafat-dev\\Depatmant-Cse\\Semester-5\\Java-Lab\\Lab-Report\\Lab4\\Lab_4\\bin PalindromeCheck
Enter a string: noyon
noyon is a palindrome.
```