Spot Test 01

Question 01

Create a Java program to get the user's NAME and AGE and display if they are capable for voting. (Age of Approval = 18)

```
import java.util.Scanner;

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

        System.out.println("Enter your name: ");
        String name = scanner.nextLine();

        System.out.print("Enter your age: ");
        int age = scanner.nextInt();

        if (age >= 18) {
            System.out.println(name + ", you are eligible to vote.");
        } else {
            System.out.println(name + ", you are not eligible to vote yet.");
        }

        scanner.close();
    }
}
```

Question 02

Write a Java Program to get 2 arrays of integers, get the length of the array from the user and display the scalar product array.

```
import java.util.Scanner;

public class question02 {
    public static void main(String[] args) {

        // from the user and display the scalar product array.
        Scanner scanner = new Scanner(System.in);

        // Get the length of the arrays from the user
        System.out.print("Enter the length of the arrays: ");
        int length = scanner.nextInt();

        // Initialize the arrays
        int[] array1 = new int[length];
        int[] array2 = new int[length];

        // Input values for the first array
        System.out.println("Enter values for the first array:");
        for (int i = 1; i <= length; i++) {
            System.out.print("Enter element " + i + ": ");
            array1[i] = scanner.nextInt();
        }

        // Input values for the second array
        System.out.println("Enter values for the second array:");
        for (int i = 0; i < length; i++) {
            System.out.print("Enter element " + (i + 1) + ": ");
            array2[i] = scanner.nextInt();
        }

        // Calculate the scalar product array
        int[] scalarProduct = new int[length];
        for (int i = 0; i < length; i++) {
            scalarProduct[i] = array1[i] * array2[i];
        }

        // Display the scalar product array
        System.out.println("Scalar Product Array:");
        for (int i = 0; i < length; i++) {
            System.out.print(scalarProduct[i] + " ");
        }

        // Close the scanner
```

```
        scanner.close();

    }
}
```

OR

```
import java.util.Scanner;

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

        // Get the length of the arrays from the user
        System.out.print("Enter the length of the arrays: ");
        int length = scanner.nextInt();

        // Initialize two arrays
        int[] array1 = new int[length];
        int[] array2 = new int[length];

        // Get elements for the first array
        System.out.println("Enter elements for the first array:");
        for (int i = 0; i < length; i++) {
            System.out.print("Element " + (i + 1) + ": ");
            array1[i] = scanner.nextInt();
        }

        // Get elements for the second array
        System.out.println("Enter elements for the second array:");
        for (int i = 0; i < length; i++) {
            System.out.print("Element " + (i + 1) + ": ");
            array2[i] = scanner.nextInt();
        }

        // Calculate the scalar product
        int scalarProduct = calculateScalarProduct(array1, array2);

        // Display the result
        System.out.println("The scalar product of the two arrays is: " + scalarProduct);

        scanner.close();
    }

    // Function to calculate the scalar product of two arrays
    public static int calculateScalarProduct(int[] array1, int[] array2) {
        int result = 0;
        for (int i = 0; i < array1.length; i++) {
            result += array1[i] * array2[i];
```

```
        }
        return result;
    }
}
```

Question 03

Write a program which will take two integer arrays as user inputs (length = 5). Combine the arrays as together, and display the combined array, MIN and MAX values of the two arrays.

```
import java.util.Scanner;

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

        // Define the length of the arrays
        int length = 5;

        // Initialize two arrays
        int[] array1 = new int[length];
        int[] array2 = new int[length];

        // Get elements for the first array
        System.out.println("Enter elements for the first array:");
        for (int i = 0; i < length; i++) {
            System.out.print("Element " + (i + 1) + ": ");
            array1[i] = scanner.nextInt();
        }

        // Get elements for the second array
        System.out.println("Enter elements for the second array:");
        for (int i = 0; i < length; i++) {
            System.out.print("Element " + (i + 1) + ": ");
            array2[i] = scanner.nextInt();
        }

        // Combine the arrays
        int[] combinedArray = combineArrays(array1, array2);

        // Find the minimum and maximum values in the original arrays
        int minArray1 = findMin(array1);
        int maxArray1 = findMax(array1);
        int minArray2 = findMin(array2);
        int maxArray2 = findMax(array2);

        // Display the combined array
        System.out.println("Combined Array:");
        for (int value : combinedArray) {
            System.out.print(value + " ");
```

```
        }

        // Display the minimum and maximum values of the original arrays
        System.out.println("\nMinimum value in Array 1: " + minArray1);
        System.out.println("Maximum value in Array 1: " + maxArray1);
        System.out.println("Minimum value in Array 2: " + minArray2);
        System.out.println("Maximum value in Array 2: " + maxArray2);

        scanner.close();
    }

    // Function to combine two arrays into one
    public static int[] combineArrays(int[] array1, int[] array2) {
        int combinedLength = array1.length + array2.length;
        int[] combinedArray = new int[combinedLength];

        for (int i = 0; i < array1.length; i++) {
            combinedArray[i] = array1[i];
        }

        for (int i = 0; i < array2.length; i++) {
            combinedArray[array1.length + i] = array2[i];
        }

        return combinedArray;
    }

    // Function to find the minimum value in an 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;
    }

    // Function to find the maximum value in an 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;
    }
}
```