**Problem Statement – 1**

/\*

Write a Java program to find the maximum and minimum value of an array.

Definition of Done:

DoD 1:  The program should ask the user to enter the elements of the array.

DoD 2: The program should display the maximum and minimum elements of the array.

\*/

import java.util.Scanner;

/\*\*

 \* practical\_3\_problem\_statement\_1

 \*/

public class practical\_3\_problem\_statement\_1 {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.print("\nEnter the Number of Elemnts You Wish to Enter: ");

        int n = sc.nextInt();

        int[] arr = new int[n]; // Defining an Array of Size n

        for (int i = 0; i < n; i++) {

            System.out.print("Enter the Value of Element" + i + " of Array: ");

            arr[i] = sc.nextInt();

        }

        int min = arr[0];

        for (int i = 0; i < n; i++) {

            if (arr[0] > arr[i]) {

                min = arr[i];

            }

        }

        int max = arr[0];

        for (int i = 0; i < n; i++) {

            if (arr[0] < arr[i]) {

                max = arr[i];

            }

        }

        System.out.println("\nThe Maximum Element in the Array: " + max);

        System.out.println("The Minimum Element in the Array: " + min);

    }

}

**Output:**

Text, email

Description automatically generated

**Problem Statement - 2**

/\*

Write a Java program to find the index of an array element in an array of size 10. The program should not use any function other than main ( ) functions.

Definition of Done:

DoD 1: The program should ask the user to enter the elements of the array.

DoD 2: The program should ask the user to enter a number to search.

DoD 3: The program should display the elements of the array entered.

DoD 4: The program should display the index of the number if the item is present or display -1 of the element is not present.

\*/

import java.util.Scanner;

/\*\*

 \* practical\_3\_problem\_statement\_2

 \*/

public class practical\_3\_problem\_statement\_2 {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        int n = 10;

        int[] arr = new int[n];

        System.out.println("\n\n");

        for (int i = 0; i < n; i++) {

            System.out.print("Enter the Value of Element " + (i + 1) + " of Array: ");

            arr[i] = sc.nextInt();

        }

        System.out.print("\nElements of the Array are: ");

        for (int i = 0; i < n; i++) {

            System.out.print(arr[i] + " ");

        }

        System.out.print("\n\nEnter the Number You Want to Search: ");

        int num = sc.nextInt();

        for (int i = 0; i < n; i++) {

            if (arr[i] == num) {

                System.out.println("The Index of the Element Entered in the Array: " + i);

                System.out.println();

            }

        }

    }

}

**Output:**

Text

Description automatically generated

**Problem Statement - 3**

/\*

Write a Java Program to count even and odd numbers in an array.

Definition of Done

DoD 1: The program should ask the user to enter the elements of the array.

DoD 2: Even elements will be stored in EvenArray[] and odd elements will be stored in oddArray[].

DoD 3: Display all three arrays along with their length.

\*/

import java.util.Scanner;

/\*\*

 \* practical\_3\_problem\_statement\_3

 \*/

public class practical\_3\_problem\_statement\_3 {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.print("\nEnter the Number of Elements You Want to Enter: ");

        int n = sc.nextInt();

        int[] arr = new int[n];

        System.out.println("\n");

        for (int i = 0; i < n; i++) {

            System.out.print("Enter the Value of Element " + (i + 1) + " of Array: ");

            arr[i] = sc.nextInt();

        }

        System.out.print("\nElements of the Array are: ");

        for (int i = 0; i < n; i++) {

            System.out.print(arr[i] + " ");

        }

        System.out.print("\nLength of the Array is: " + arr.length);

        int count\_even = 0;

        int count\_odd = 0;

        for (int i = 0; i < n; i++) {

            if (arr[i] % 2 == 0) {

                count\_even++;

            } else {

                count\_odd++;

            }

        }

        int[] EvenArray = new int[count\_even];

        int[] OddArray = new int[count\_odd];

        int counter\_even = 0;

        int counter\_odd = 0;

        for (int i = 0; i < n; i++) {

            if (arr[i] % 2 == 0) {

                EvenArray[counter\_even] = arr[i];

                counter\_even++;

            } else {

                OddArray[counter\_odd] = arr[i];

                counter\_odd++;

            }

        }

        System.out.print("\n\nElements of the Even Array are: ");

        for (int i = 0; i < EvenArray.length; i++) {

            System.out.print(EvenArray[i] + " ");

        }

        System.out.print("\nLength of the Array is: " + EvenArray.length);

        System.out.print("\n\nElements of the Odd Array are: ");

        for (int i = 0; i < OddArray.length; i++) {

            System.out.print(OddArray[i] + " ");

        }

        System.out.print("\nLength of the Array is: " + OddArray.length);

    }

}

**Output:**

Text, letter

Description automatically generated

**Problem Statement – 4**

/\*

Write a Java program to read numbers in an integer array of size 5 and display the following (using functions for each functionality):

i) Sum of all the elements

ii) Sum of alternate elements in the array.

Definition of Done:

DoD 1: The program should ask the user to enter the elements of the array.

DoD 2: The program should display a menu with the above choices and ask the user to choose one of the choices.

\*/

import java.util.Scanner;

/\*\*

 \* practical\_3\_problem\_statement\_4

 \*/

public class practical\_3\_problem\_statement\_4 {

    static int Sum\_Array\_Elements(int arr[]) {

        int sum = 0;

        for (int i = 0; i < arr.length; i++) {

            sum += arr[i];

        }

        return sum;

    }

    static int Sum\_Array\_Alternate\_Elements(int arr[]) {

        int sum = 0;

        for (int i = 0; i < arr.length; i++) {

            if (i % 2 == 0) {

                sum += arr[i];

            }

        }

        return sum;

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        int n = 5;

        int[] arr = new int[n];

        System.out.println("\n\n");

        for (int i = 0; i < n; i++) {

            System.out.print("Enter the Value of Element " + (i + 1) + " of Array: ");

            arr[i] = sc.nextInt();

        }

        System.out.print("\nElements of the Array are: ");

        for (int i = 0; i < n; i++) {

            System.out.print(arr[i] + " ");

        }

        System.out.println("\n");

        while (true) {

            System.out.println("\n");

            System.out.println("""

                    Enter 1 To Print Sum of All Elements of Array.

                    Enter 2 To Print Sum of Alternate Elements of Array.

                    Enter 3 To Exit the Program.

                    """);

            System.out.print("Enter Your Choice: ");

            int user\_choice = sc.nextInt();

            if (user\_choice == 1) {

                System.out.println("The Sum of the Elements of The Array are: " + Sum\_Array\_Elements(arr));

            }

            else if(user\_choice == 2){

                System.out.println("The Sum of the Alternate Elemnts of the Array are: " + Sum\_Array\_Alternate\_Elements(arr));

            }

            else if(user\_choice == 3){

                System.out.println("Exiting.... ");

                break;

            }

            else{

                System.out.println("Invalid Input!");

                System.out.println("Try Again");

            }

        }

    }

}

**Output:**

Text

Description automatically generatedGraphical user interface, text, application, email

Description automatically generated