

Reg no: 20BCE2893

## Questions:

1. Write a Java program to sort an array of positive integers of an given array, in the sorted array the value of the first element should be maximum, second value should be minimum value, third should be second maximum, fourth second be second minimum and so on.
2. Write a Java program to separate even and odd numbers of an given array of integers. Put all even numbers first, and then odd numbers.
3. Write a Java program to remove the duplicate elements of a given array and return the new length of the array.
4. Write a Java program to find the sum of the two elements of a given array which is equal to a given integer.
5. Display the sum of rows in a matrix
6. Display the transpose of a matrix

## Qno.1

## Code:

```
import java.util.*;

public class Rearrange {

    static int[] rearrange(int[] arr, int n) {
        int temp[] = new int[n];

        int small = 0, large = n - 1;
        boolean flag = true;

        for (int i = 0; i < n; i++) {
            if (flag)
                temp[i] = arr[large--];
            else
                temp[i] = arr[small++];

            flag = !flag;
        }

        return temp;
    }
}
```

```

public static void main(String[] args) {
    int num;
    Scanner scan = new Scanner(System.in);
    System.out.print("Enter no. of element in ascending array:");
    num = scan.nextInt();
    int arr[] = new int[num];
    System.out.println("Enter the elements of the array: ");
    for (int i = 0; i < arr.length; i++) {
        arr[i] = scan.nextInt();

    }
    int result[];

    System.out.println("Original Array ");
    System.out.println(Arrays.toString(arr));

    result = rearrange(arr, arr.length);

    System.out.println("New Array ");
    System.out.println(Arrays.toString(result));

}
}

```

Output:

```
Enter no. of element in ascending array:10
Enter the elements of the array:
10
20
30
40
50
60
70
80
90
100
Original Array
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
New Array
[100, 10, 90, 20, 80, 30, 70, 40, 60, 50]
PS D:\VIT\class room\3rd Sem\JAVA\lab> █
```

Qno2:

Code:

```
import java.util.Scanner;

public class OddEven {
    static void rearrangeEvenAndOdd(int arr[], int n) {
        int j = -1, temp;
        for (int i = 0; i < n; i++) {
            if (arr[i] % 2 == 0) {
                j++;
                temp = arr[i];
                arr[i] = arr[j];
                arr[j] = temp;
            }
        }
    }

    public static void main(String args[]) {
        int num;
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter no. of element in ascending array:");
        num = scan.nextInt();
    }
}
```

```

int arr[] = new int[num];
System.out.println("Enter the elements of the array: ");
for (int i = 0; i < arr.length; i++) {
    arr[i] = scan.nextInt();

}
int n = arr.length;

rearrangeEvenAndOdd(arr, n);

for (int i = 0; i < n; i++)
    System.out.print(arr[i] + " ");
}
}

```

Output:

```

PS D:\VIT\class room\3rd Sem\JAVA\lab\3rd day problems> cd ..
Enter no. of element in ascending array:4
Enter the elements of the array:
10
5
2
7
10 2 5 7
PS D:\VIT\class room\3rd Sem\JAVA\lab\3rd day problems>

```

Qno3:

Code

```

import java.util.Scanner;

public class RemovedD {

```

```

public static int removeDuplicateElements(int arr[], int n) {
    if (n == 0 || n == 1) {
        return n;
    }
    int[] temp = new int[n];
    int j = 0;
    for (int i = 0; i < n - 1; i++) {
        if (arr[i] != arr[i + 1]) {
            temp[j++] = arr[i];
        }
    }
    temp[j++] = arr[n - 1];
    // Changing original array
    for (int i = 0; i < j; i++) {
        arr[i] = temp[i];
    }
    return j;
}

public static void main(String[] args) {
    int num;
    Scanner scan = new Scanner(System.in);
    System.out.print("Enter no. of element in ascending array:");
    num = scan.nextInt();
    int arr[] = new int[num];
    System.out.println("Enter the elements of the array: ");
    for (int i = 0; i < arr.length; i++) {
        arr[i] = scan.nextInt();
    }
    int length = arr.length;
    length = removeDuplicateElements(arr, length);
    System.out.println("printing array elements after removing: ");
    for (int i = 0; i < length; i++)
        System.out.print(arr[i] + " ");
}
}

```

Qno5:

Code

```
import java.util.*;

public class SumRows {
    public static void main(String[] args) {
        int rows, cols, sumRow;
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter no. of rows:");
        rows = scan.nextInt();
        System.out.print("Enter no. of columns:");
        cols = scan.nextInt();
        int arr[][] = new int[rows][cols];
        System.out.println("Enter the elements of the array: ");
        for (int i = 0; i < rows; i++) {
            System.out.println("Enter the elements of" + i + " th row: ");
            for (int j = 0; j < cols; j++) {
                arr[i][j] = scan.nextInt();
            }
        }
        // Calculates sum of each row of given matrix
        for (int i = 0; i < rows; i++) {
            sumRow = 0;
            for (int j = 0; j < cols; j++) {
                sumRow = sumRow + arr[i][j];
            }
            System.out.println("Sum of " + (i + 1) + " row: " + sumRow);
        }
    }
}
```

Qno6:

Code:

```
import java.util.*;
```

```

public class Transpose {
    public static void main(String[] args) {
        int rows, cols, sumRow;
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter no. of rows:");
        rows = scan.nextInt();
        System.out.print("Enter no. of columns:");
        cols = scan.nextInt();
        int arr[][] = new int[rows][cols];
        int transpose[][] = new int[rows][cols];
        System.out.println("Enter the elements of the array: ");
        for (int i = 0; i < rows; i++) {
            System.out.println("Enter the elements of " + (i + 1) + " th row: ");
            for (int j = 0; j < cols; j++) {
                arr[i][j] = scan.nextInt();
            }
        }
        // Calculates sum of each row of given matrix
        for (int i = 0; i < rows; i++) {
            for (int j = 0; j < cols; j++) {
                transpose[i][j] = arr[j][i];
            }
        }
        System.out.println("Printing Matrix without transpose:");
        for (int i = 0; i < rows; i++) {
            for (int j = 0; j < cols; j++) {
                System.out.print(arr[i][j] + " ");
            }
            System.out.println();// new line
        }
        System.out.println("Printing Matrix After Transpose:");
        for (int i = 0; i < rows; i++) {
            for (int j = 0; j < cols; j++) {
                System.out.print(transpose[i][j] + " ");
            }
            System.out.println();// new line
        }
    }
}

```