1D Array Assignment

Assignment Questions

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1. **Write a program to print the sum of all the elements present on even indices in the given array.**

   Input 1: arr[] = {3,20,4,6,9}

   Output 1: 16

   Input 1: arr[] = {4,3,6,7,1}

   Output 1: 11

   Ans :

```
    Import java.util.*;
public class SumEvenPosition{
    public static void main(String[]args){
        int sum = 0 ;
        Scanner sc = new Scanner (System.in);
        System.out.println("Enter the number of element present in array");
        int n = sc.nextInt();

        int ar[] = new int [n];

        for (int i = 0 ; i<n ; i++){
            System.out.println("Enter the number present at the index " + i);
            ar[i] = sc.nextInt();
        }

        for (int i=0; i<n ; i+=2){
            int b =  ar [i];
            sum += b;
        }

        System.out.println("The sum of numbers present at even indexes is equal
to " + sum);
```

```
    }
}
```

Output :

For input 1 →

Enter the number of element present in array
5
Enter the number present at the index 0
3
Enter the number present at the index 1
20
Enter the number present at the index 2
4
Enter the number present at the index 3
6
Enter the number present at the index 4
9
The sum of numbers present at even indexes is equal to 16

For input 2 →

Enter the number of element present in array
5
Enter the number present at the index 0
4
Enter the number present at the index 1
3
Enter the number present at the index 2
6
Enter the number present at the index 3
7
Enter the number present at the index 4
1
The sum of numbers present at even indexes is equal to 11

2. **Write a program to traverse over the elements of the array using for each loop and print all even elements.**

   Input 1: arr[] = {34,21,54,65,43}
   Output 1: 34 54

Input 1: arr[] = {4,3,6,7,1}
Output 1: 4 6

Ans :

```
import java.util.*;
public class FindingEvenElements{
    public static void main(String[]args){
        int sum = 0;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the number of elements present in the array");
        int n = sc.nextInt();

        int ar [] = new int [n];

        for(int i = 0 ; i<n ; i++){
            System.out.println("Enter the number of element present at index " +
i);
            ar[i] = sc.nextInt();
        }

        System.out.println("The even element present in the array : ");

        for (int s : ar){
            if (s % 2 == 0){
                System.out.print( s + " ");
            }
        }

        System.out.println();
    }
}
```

Output :-

For the first input →

Enter the number of elements present in the array
5
Enter the number of element present at index 0
34
Enter the number of element present at index 1
21

Enter the number of element present at index 2
54
Enter the number of element present at index 3
65
Enter the number of element present at index 4
43
The even element present in the array :
34 54

For the second Input →

Enter the number of elements present in the array
5
Enter the number of element present at index 0
4
Enter the number of element present at index 1
3
Enter the number of element present at index 2
6
Enter the number of element present at index 3
7
Enter the number of element present at index 4
1
The even element present in the array :
4 6

3. **Write a program to calculate the maximum element in the array.**

Input 1: arr[ ] = {34,21,54,65,43}
Output 1: 65

Input 1: arr[ ] = {4,3,6,7,1}
Output 1: 7

Ans :

```
import java.util.*;
public class MaximumElement {
    public static void main(String[]args){
        int u = 0;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the number of elements present in the array");
        int n = sc.nextInt();
        int ar[] = new int [n];
```

```
        for(int i=0 ; i<n ; i++){
            System.out.println("Enter the number prensent at " + i );
            ar[i] = sc.nextInt();
        }

        for(int i = 0; i<ar.length ; i++){
            for (int j = 0 ; j< ar.length ; j++){
                if (ar[i] >= ar[j]){
                    u++;
                }
            }
            if (u==n){
                System.out.println("The maximum element present in an array is  :
" + ar[i]);
            }
            else {
                u=0;
            }
        }
    }
}
```

Output :-

For the first input →

Enter the number of elements present in the array
5
Enter the number present at 0
34
Enter the number present at 1
21
Enter the number present at 2
54
Enter the number present at 3
65
Enter the number present at 4
43
The maximum element present in an array is : 65

For the second input →

Enter the number of elements present in the array

5
Enter the number present at 0
4
Enter the number present at 1
3
Enter the number present at 2
6
Enter the number present at 3
7
Enter the number present at 4
1
The maximum element present in an array is : 7

4. Write a program to find out the second largest element in a given array.

Input 1: arr[] = {34,21,54,65,43}
Output 1: 54

Input 1: arr[] = {4,3,6,7,1}
Output 1: 6

Ans :

```
import java.util.*;
public class SecondLargestElement {
    public static void main(String[]args){
        int u = 0;
        Scanner sc = new Scanner (System.in);
        System.out.println("Enter the number of elements present in the array");
        int n = sc.nextInt();
        int ar[] = new int [n];
        for(int i = 0 ; i<ar.length ; i++){
            System.out.println("Enter the number present at index " + i);
            ar[i] = sc.nextInt();
        }

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

                if ( ar[i] >= ar[j]){
                    u++;
                }
```

```
            }

            if (u==n-1){
                System.out.println("The second largest element present in an
array is " + ar[i]);
            }
            else {
                u=0;
            }
        }
    }
}
```

Output :-

For the first input →

Enter the number of elements present in the array
5
Enter the number present at index 0
34
Enter the number present at index 1
21
Enter the number present at index 2
54
Enter the number present at index 3
65
Enter the number present at index 4
43
The second largest element present in an array is 54

For the second input →

Enter the number of elements present in the array
5
Enter the number present at index 0
4
Enter the number present at index 1
3
Enter the number present at index 2
6
Enter the number present at index 3
7
Enter the number present at index 4

1
The second largest element present in an array is 6

5. Given an array. Find the first peak element in the array. A peak element is an element that is greater than its just left and just right neighbor.

Input 1: arr[] = {1,3,2,6,5}
Output 1: 6

Input 2: arr[] = {14,7,3,2,6,5}
Output 1: 7

Ans :

```
import java.util.*;
public class FindingFirstPeakElement{
    public static void main (String[]args){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the number of elements present in an array");
        int n = sc.nextInt();

        int ar[] = new int [n];

        for (int i = 0 ; i<n ; i++){
            System.out.println("Enter the number present at index " + i );
            ar[i] = sc.nextInt();
        }

        for(int i=0 ; i<ar.length ; i++){
            if (i==0){
                if (ar[i] > ar[i+1]){
                    System.out.println("The first peak element is " + ar[i]);
                    break;
                }

            }
            else if (i==n-1){
                if(ar[i]>ar[i-1]){
                    System.out.println("The first peak element is " + ar[i]);
                    break;

                }
            }
```

```
            else{
                if(ar[i]>ar[i-1] && ar[i]>ar[i+1]){
                    System.out.println("The first peak element is " + ar[i]);
                    break;
                }
            }
        }
    }
}
```

Output :-

For the first input →

Enter the number of elements present in an array
5
Enter the number present at index 0
1
Enter the number present at index 1
3
Enter the number present at index 2
2
Enter the number present at index 3
6
Enter the number present at index 4
5
The first peak element is 3

For the second input →

Enter the number of elements present in an array
6
Enter the number present at index 0
14
Enter the number present at index 1
7
Enter the number present at index 2
3
Enter the number present at index 3
2
Enter the number present at index 4
6
Enter the number present at index 5
5
The first peak element is 14