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

Ans:

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

Output 1: 16

Program:

```
package ArraysEx;

   public class SumOfEven2 {
      public static void main(String[] args) {
         int sum = 0;
         int arr[] = {3, 20, 4, 6, 9};
         for(int i = 0; i<arr.length; ){
            sum +=arr[i];
            i += 2;
         }
         System.out.println("Sum of even indices: "+sum);
      }
   }
```

Input 2: arr[] = {4,3,6,7,1}

Output 2: 11

Program:

```
package ArraysEx;

   public class SumOfEven2 {
      public static void main(String[] args) {
         int sum = 0;
         int arr[] = {4,3,6,7,1};
         for(int i = 0; i<arr.length; ){
            sum +=arr[i];
            i += 2;
```

```
        }
        System.out.println("Sum of even indices: "+sum);
    }
}
```

Approach:

- We have traversed the array using a for loop and kept a sum variable that will be incremented by the value of elements of the array.
- At last, upon complete traversal of the array we will print the sum.
- Here the only twist is that since we are concerned about the even indices, we will start the iterator from 0 and will increment it by 2 every time.

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

Ans:

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

```
package Arrays;
public class ForeachTraversing {
    public static void main(String[] args) {
        int arr[] = {34, 21, 54, 65, 43};
        for (int a : arr){
            if(a%2 == 0){
                System.out.println(a);
            }
        }
    }
}
```

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

```
package Arrays;

public class ForeachTraversing {
   public static void main(String[] args) {
      int arr[] = {4, 3, 6, 7, 1};
      for (int a : arr){
         if(a%2 == 0){
            System.out.println(a);
         }
      }
   }
}
```

Approach:

- We will traverse the array and will keep a check that if any ith element is even, we will print it else will move on to the next index.

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

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

Output 1: 65

Program:

```
public class MaxValue {
   public static void main(String[] args) {
      int arr[] = {34, 21, 54, 65, 43};
      int max = arr[0];
      for(int i = 0; i<arr.length; i++){
         if(arr[i]>max){
            max = arr[i];
         }
      }
      System.out.println(max);
   }
}
```

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

Output 1: 7

Program:

```
public class MaxValue {
   public static void main(String[] args) {
      int arr[] = {34, 21, 54, 65, 43};
      int max = arr[0];
     for(int i = 0; i<arr.length; i++){
        if(arr[i]>max){
           max = arr[i];
        }
      }
       System.out.println(max);
   }
}
```

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

Ans:

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

Program:

```
package ArraysEx;

import java.util.Arrays;

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

      int a[] = {34,21,54,65,43};
      int l = a.length;
      Arrays.sort(a);
      System.out.println("Second largest number is: "+a[l-2]);
   }
}
```

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

```
package ArraysEx;

import java.util.Arrays;

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

      int a[] = {34,21,54,65,43};
      int l = a.length;
      Arrays.sort(a);
      System.out.println("Second largest number is: "+a[l-2]);
   }
}
```

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 neighbour.**

Ans:

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

```
package DSA.oneDArray;

public class PeakElement {
   public static void main(String[] args) {
      int[] arr = {1,3,2,6,5};
      for (int i = 1; i < arr.length - 1; i++) {
         if (arr[i - 1] < arr[i] && arr[i] > arr[i + 1]) {
            System.out.print(arr[i]);
            break;
         }
      }
```

```
    }
}
```

Input 2: arr[] = {1 4,7,3,2,6,5}
Output 1: 7

```
package DSA.oneDArray;

public class PeakElement {
    public static void main(String[] args) {
        int[] arr = {1,4,7,3,2,6,5};
        for (int i = 1; i < arr.length - 1; i++) {
            if (arr[i - 1] < arr[i] && arr[i] > arr[i + 1]) {
                System.out.print(arr[i]);
                break;
            }
        }
    }
}
```