1. Write a program in C to store elements in an array and print them.  
   Test Data :  
   Input 10 elements in the array :  
   element - 0 : 1  
   element - 1 : 1  
   element - 2 : 2  
   .......  
   Expected Output :  
   Elements in array are: 1 1 2 3 4 5 6 7 8 9
2. import java.util.\*;
3. public class Sample
4. {
5. public static void main(String[] args) {
6. Scanner in = new Scanner(System.in);
7. int[] arr = new int[10];
8. for(int i = 0;i < 10;i++)
9. {
10. System.out.print("Enter element  "+(i+1) +" : ");
11. arr[i] = in.nextInt();
12. }
13. System.out.println("Array elements are  :");
14. for(int i = 0;i < 10;i++)
15. {
16. System.out.println("Element "+(i+1) +" = "+arr[i]);
17. }
18. }
19. }

**2.** Write a program in C to read n number of values in an array and display them in reverse order.  
Test Data :  
Input the number of elements to store in the array :3  
Input 3 number of elements in the array :  
element - 0 : 2  
element - 1 : 5  
element - 2 : 7  
Expected Output :  
The values store into the array are :  
2 5 7  
The values store into the array in reverse are :  
7 5 2

import java.util.\*;

public class Sample

{

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.print("Enter number of elements : ");

        int n = in.nextInt();

        int[] arr = new int[n];

        for(int i = 0;i < n;i++)

        {

            System.out.print("Enter element  "+(i+1) +" : ");

            arr[i] = in.nextInt();

        }

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

        reverse(arr);

        System.out.println("Reversed Array : "+Arrays.toString(arr));

    }

    static void reverse(int[] arr)

    {

        int start = 0;

        int end = arr.length-1;

        while(start < end)

        {

            swap(arr,start,end);

            start++;

            end--;

        }

    }

    static void swap(int[] arr,int index1,int index2)

    {

        int temp = arr[index1];

        arr[index1] = arr[index2];

        arr[index2] = temp;

    }

}

**3.** Write a program in C to find the sum of all elements of the array.  
Test Data :  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array :  
element - 0 : 2  
element - 1 : 5  
element - 2 : 8  
Expected Output :  
Sum of all elements stored in the array is : 15

Method 1

import java.util.\*;

public class Sample

{

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.print("Enter number of elements : ");

        int n = in.nextInt();

        int[] arr = new int[n];

        for(int i = 0;i < n;i++)

        {

            System.out.print("Enter element  "+(i+1) +" : ");

            arr[i] = in.nextInt();

        }

       Sum(arr,n);

    }

    static void Sum(int[] arr,int n)

    {

        int sum = 0;

        for(int i = 0;i < n;i++)

        {

            sum = sum+arr[i];

        }

        System.out.println("Summation of elements are : "+sum);

    }

}

Method 2

import java.util.\*;

public class Sample

{

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.print("Enter number of elements : ");

        int n = in.nextInt();

        int[] arr = new int[n];

        for(int i = 0;i < n;i++)

        {

            System.out.print("Enter element  "+(i+1) +" : ");

            arr[i] = in.nextInt();

        }

        int sum = 0;

        for(int i = 0;i < n;i++)

        {

            sum = sum+arr[i];

        }

        System.out.println("Summation of elements are : "+sum);

    }

}

**4.** Write a program in C to copy the elements of one array into another array.  
Test Data :  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array :  
element - 0 : 15  
element - 1 : 10  
element - 2 : 12  
Expected Output :  
The elements stored in the first array are :  
15 10 12  
The elements copied into the second array are :  
15 10 12

Method 1

import java.util.\*;

public class Sample

{

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.print("Enter number of elements : ");

        int n = in.nextInt();

        int[] arr = new int[n];

        for(int i = 0;i < n;i++)

        {

            System.out.print("Enter element  "+(i+1) +" : ");

            arr[i] = in.nextInt();

        }

        System.out.println("The elements stored in the first array are : "+Arrays.toString(arr));

        int[] arr1 = new int[n];

        for(int i = 0;i < n;i++)

        {

            arr1[i]=arr[i];

        }

        System.out.println("The elements copied into the second array are : "+Arrays.toString(arr1));

    }

Method 2

import java.util.\*;

public class Sample

{

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.print("Enter number of elements : ");

        int n = in.nextInt();

        int[] arr = new int[n];

        for(int i = 0;i < n;i++)

        {

            System.out.print("Enter element  "+(i+1) +" : ");

            arr[i] = in.nextInt();

        }

        System.out.println("The elements stored in the first array are : "+Arrays.toString(arr));

        copy(arr,n);

    }

    static void copy(int[] arr, int n)

    {

        int[] arr1 = new int[n];

        for(int i = 0;i < n;i++)

        {

            arr1[i]=arr[i];

        }

        System.out.println("The elements copied into the second array are : "+Arrays.toString(arr1));

    }

}

**5.** Write a program in C to count the total number of duplicate elements in an array.  
Test Data :  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array :  
element - 0 : 5  
element - 1 : 1  
element - 2 : 1  
Expected Output :  
Total number of duplicate elements found in the array is : 1

import java.util.\*;

public class Sample

{

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.print("Enter number of elements : ");

        int n = in.nextInt();

        int[] arr = new int[n];

        for(int i = 0;i < n;i++)

        {

            System.out.print("Enter element  "+(i+1) +" : ");

            arr[i] = in.nextInt();

        }

        System.out.println("The elements stored in the array are : "+Arrays.toString(arr));

        duplicate(arr,n);

    }

    static void duplicate(int[] arr, int n)

    {

        int count = 0;

        for(int i = 0;i < n;i++)

        {

            for(int j = i+1; j < n;j++)

            {

                if(arr[i]==arr[j])

                {

                    count++;

                    break;

                }

            }

        }

        System.out.println("Total number of duplicate elements found in the array is : " +count);

    }

}

**6.** Write a program in C to print all unique elements in an array.  
Test Data :  
Print all unique elements of an array:  
------------------------------------------  
Input the number of elements to be stored in the array: 4  
Input 4 elements in the array :  
element - 0 : 3  
element - 1 : 2  
element - 2 : 2  
element - 3 : 5  
Expected Output :  
The unique elements found in the array are:  
3 5

import java.util.\*;

public class Sample

{

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.print("Enter number of elements : ");

        int n = in.nextInt();

        int[] arr = new int[n];

        for(int i = 0;i < n;i++)

        {

            System.out.print("Enter element  "+(i+1) +" : ");

            arr[i] = in.nextInt();

        }

        System.out.println("The elements stored in the array are : "+Arrays.toString(arr));

        unique(arr,n);

    }

    static void unique(int[] arr, int n)

    {

        for(int i = 0;i<n;i++)

        {

            int count = 0;

            for(int j = 0;j<n;j++)

            {

                if(arr[i]==arr[j])

                {

                    count++;

                }

            }

            if(count == 1)//because a[i] = a[j] is comparing itself

            {

                System.out.println("Unique element : " +arr[i]);

            }

        }

    }

}

**7.** Write a program in C to merge two arrays of the same size sorted in descending order.  
Test Data :  
Input the number of elements to be stored in the first array :3  
Input 3 elements in the array :  
element - 0 : 1  
element - 1 : 2  
element - 2 : 3  
Input the number of elements to be stored in the second array :3  
Input 3 elements in the array :  
element - 0 : 1  
element - 1 : 2  
element - 2 : 3  
Expected Output :  
The merged array in descending order is :  
3 3 2 2 1 1

import java.util.\*;

public class Sample

{

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.print("Input the number of elements to be stored in the first array : ");

        int n = in.nextInt();

        int[] arr1 = new int[n];

        for(int i = 0;i < n;i++)

        {

            System.out.print("Enter element  "+(i+1) +" : ");

            arr1[i] = in.nextInt();

        }

        System.out.println("The elements stored in the first array are : "+Arrays.toString(arr1));

        System.out.print("Input the number of elements to be stored in the second array : ");

        int m = in.nextInt();

        int[] arr2 = new int[m];

        for(int i = 0;i < m;i++)

        {

            System.out.print("Enter element  "+(i+1) +" : ");

            arr2[i] = in.nextInt();

        }

        System.out.println("The elements stored in the second array are : "+Arrays.toString(arr2));

        int sum = m + n;

        int[] arr3 = new int[sum];

        for(int i = 0;i<n;i++)

        {

            arr3[i] = arr1[i];

        }

        for(int j = 0;j<m;j++)

        {

            arr3[j+n] = arr2[j];

        }

        System.out.println("The elements stored in the third array are : "+Arrays.toString(arr3));

        for(int i = 0;i<arr3.length;i++)

        {

            for(int j = 0;j<arr3.length;j++)

            {

                if(arr3[i]>arr3[j])

                {

                    int temp = arr3[i];

                    arr3[i] = arr3[j];

                    arr3[j] = temp;

                }

            }

        }

        System.out.println("The merged array in decending order is : "+Arrays.toString(arr3));

    }

}

**8.** Write a program in C to count the frequency of each element of an array.  
Test Data :  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array :  
element - 0 : 25  
element - 1 : 12  
element - 2 : 43  
Expected Output :  
The frequency of all elements of an array :  
25 occurs 1 times  
12 occurs 1 times  
43 occurs 1 times

import java.util.\*;

public class Sample

{

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.print("Input the number of elements to be stored in the  array : ");

        int n = in.nextInt();

        int[] arr = new int[n];

        for(int i = 0;i < n;i++)

        {

            System.out.print("Enter element  "+(i+1) +" : ");

            arr[i] = in.nextInt();

        }

        System.out.println("The elements stored in the  array are : "+Arrays.toString(arr));

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

        {

            int count = 1;

            for(int j = i+1;j<arr.length;j++)

            {

                if(arr[i] == arr[j])

                {

                    count++;

                }

            }

            System.out.println(" "+arr[i] +" occurs " +count +" times");

        }

    }

}

**9.** Write a program in C to find the maximum and minimum elements in an array.  
Test Data :  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array :  
element - 0 : 45  
element - 1 : 25  
element - 2 : 21  
Expected Output :  
Maximum element is : 45  
Minimum element is : 21

import java.util.\*;

public class Sample

{

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.print("Input the number of elements to be stored in the  array : ");

        int n = in.nextInt();

        int[] arr = new int[n];

        for(int i = 0;i < n;i++)

        {

            System.out.print("Enter element  "+(i+1) +" : ");

            arr[i] = in.nextInt();

        }

        System.out.println("The elements stored in the  array are : "+Arrays.toString(arr));

        int max = arr[0] , min = arr[0];

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

        {

            if(arr[i] >= max)

            {

                max = arr[i];

            }

            if(arr[i] <= min)

            {

                min = arr[i];

            }

        }

        System.out.println("Maximum : "+max);

        System.out.println("Minimum : "+min);

    }

}

**10.** Write a program in C to separate odd and even integers into separate arrays.  
Test Data :  
Input the number of elements to be stored in the array :5  
Input 5 elements in the array :  
element - 0 : 25  
element - 1 : 47  
element - 2 : 42  
element - 3 : 56  
element - 4 : 32  
Expected Output :  
The Even elements are :  
42 56 32  
The Odd elements are :  
25 47

import java.util.\*;

public class Sample

{

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.print("Input the number of elements to be stored in the  array : ");

        int n = in.nextInt();

        int[] arr = new int[n];

        for(int i = 0;i < n;i++)

        {

            System.out.print("Enter element  "+(i+1) +" : ");

            arr[i] = in.nextInt();

        }

        System.out.println("The elements stored in the  array are : "+Arrays.toString(arr));

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

       {

            if(arr[i]%2 == 0)

            {

                System.out.println("Even element : "+arr[i]);

            }

            else{

                System.out.println("Odd element : "+arr[i]);

            }

       }

    }

}