**Array Programs**

An array is a collection of similar types of elements stored in a contiguous memory location. The following section contains various programs on Arrays with examples like array operations, types of array, single-dimensional array, sort, and merging operations, mathematical functions on arrays, and array data structures. It also covers programs on insertion and deletions of elements in an array.

**import**java.util.Scanner;

**publicclass**Largest\_Number

{

**publicstaticvoid** main(String[]args)

{

**int** n, max;

Scanner s =**new**Scanner(System.in);

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

n =s.nextInt();

**int** a[]=**newint**[n];

System.out.println("Enter elements of array:");

**for**(**int** i =0; i < n; i++)

{

a[i]=s.nextInt();

}

max= a[0];

**for**(**int** i =0; i < n; i++)

{

**if**(max < a[i])

{

max= a[i];

}

}

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

}

}

Output:

$ javac Largest\_Number.java

$ javaLargest\_Number

Enter number of elements in the array:5

Enter elements of array:

4

2

3

6

1

Maximum value:6

# Java Program to Find the Second Largest and Smallest Elements in an Array

**import**java.util.Scanner;

**publicclass**SecondLargest\_Smallest

{

**publicstaticvoid** main(String[]args)

{

**int** n, temp;

Scanner s =**new**Scanner(System.in);

System.out.print("Enter no. of elements you want in array(Minimum 2):");

n =s.nextInt();

**int** a[]=**newint**[n];

System.out.println("Enter all the elements:");

**for**(**int** i =0; i < n; i++)

{

a[i]=s.nextInt();

}

**for**(**int** i =0; i < n; i++)

{

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

{

**if**(a[i]> a[j])

{

temp= a[i];

a[i]= a[j];

a[j]= temp;

}

}

}

System.out.println("Second Largest:"+a[n-2]);

System.out.println("Smallest:"+a[0]);

}

}

Output:

$ javac SecondLargest\_Smallest.java

$ javaSecondLargest\_Smallest

Enter no. of elements you want in array(Minimum 2):8

Enter all the elements:

2

5

1

7

8

6

9

3

Second Largest:8

Smallest:1

# Java Program to Insert an Element in an Array

**import**java.util.Scanner;

**publicclass**Insert\_Array

{

**publicstaticvoid** main(String[]args)

{

**int** n, pos, x;

Scanner s =**new**Scanner(System.in);

System.out.print("Enter no. of elements you want in array:");

n =s.nextInt();

**int** a[]=**newint**[n+1];

System.out.println("Enter all the elements:");

**for**(**int** i =0; i < n; i++)

{

a[i]=s.nextInt();

}

System.out.print("Enter the position where you want to insert element:");

pos=s.nextInt();

System.out.print("Enter the element you want to insert:");

x =s.nextInt();

**for**(**int** i =(n-1); i >=(pos-1); i--)

{

a[i+1]= a[i];

}

a[pos-1]= x;

System.out.print("After inserting:");

**for**(**int** i =0; i < n; i++)

{

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

}

System.out.print(a[n]);

}

}

Output:

$ javac Insert\_Array.java

$ javaInsert\_Array

Enter no. of elements you want in array:6

Enter all the elements:

2

4

6

9

4

5

Enter the position where you want to insert element:3

Enter the element you want to insert:7

After inserting:2,4,7,6,9,4,5

**Java Program to Delete an Element from an Array**

**import**java.util.Scanner;

**publicclass** Delete

{

**publicstaticvoid** main(String[]args)

{

**int** n, x, flag =1, loc=0;

Scanner s =**new**Scanner(System.in);

System.out.print("Enter no. of elements you want in array:");

n =s.nextInt();

**int** a[]=**newint**[n];

System.out.println("Enter all the elements:");

**for**(**int** i =0; i < n; i++)

{

a[i]=s.nextInt();

}

System.out.print("Enter the element you want to delete:");

x =s.nextInt();

**for**(**int** i =0; i < n; i++)

{

**if**(a[i]== x)

{

flag=1;

loc= i;

**break**;

}

**else**

{

flag=0;

}

}

**if**(flag ==1)

{

**for**(**int** i = loc+1; i < n; i++)

{

a[i-1]= a[i];

}

System.out.print("After Deleting:");

**for**(**int** i =0; i < n-2; i++)

{

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

}

System.out.print(a[n-2]);

}

**else**

{

System.out.println("Element not found");

}

}

}

Output:

$ javac Delete.java

$ java Delete

Enter no. of elements you want in array:5

Enter all the elements:

3

5

8

1

4

Enter the element you want to delete:5

After Deleting:3,8,1,4

**Program to Find Sum and Average of All Elements in an Array**

This is a Java Program to Calculate Sum & Average of an Array.

Enter size of array and then enter all the elements of that array. Now using for loop we calculate sum of elements of array and hence we divide it by number of elements in array to get average.

Here is the source code of the Java Program to Calculate Sum & Average of an Array. The Java program is successfully compiled and run on a Windows system. The program output is also shown below.

**import**java.util.Scanner;

**publicclass**Sum\_Average

{

**publicstaticvoid** main(String[]args)

{

**int** n, sum =0;

**float** average;

Scanner s =**new**Scanner(System.in);

System.out.print("Enter no. of elements you want in array:");

n =s.nextInt();

**int** a[]=**newint**[n];

System.out.println("Enter all the elements:");

**for**(**int** i =0; i < n ; i++)

{

a[i]=s.nextInt();

sum= sum + a[i];

}

System.out.println("Sum:"+sum);

average=(**float**)sum / n;

System.out.println("Average:"+average);

}

}

Output:

$ javac Sum\_Average.java

$ javaSum\_Average

Enter no. of elements you want in array:5

Enter all the elements:

4

7

6

9

3

Sum:29

Average:5.8

**Java Program to Search Key Elements in an Array**

This is a Java Program to Search Key Elements in an Array.

Enter the size of array and then enter all the elements of that array. Now enter the element you want to search for. With the help of for loop we can find out the location of the element easily.

**import**java.util.Scanner;

**publicclass**Search\_Element

{

**publicstaticvoid** main(String[]args)

{

**int** n, x, flag =0, i =0;

Scanner s =**new**Scanner(System.in);

System.out.print("Enter no. of elements you want in array:");

n =s.nextInt();

**int** a[]=**newint**[n];

System.out.println("Enter all the elements:");

**for**(i =0; i < n; i++)

{

a[i]=s.nextInt();

}

System.out.print("Enter the element you want to find:");

x =s.nextInt();

**for**(i =0; i < n; i++)

{

**if**(a[i]== x)

{

flag=1;

**break**;

}

**else**

{

flag=0;

}

}

**if**(flag ==1)

{

System.out.println("Element found at position:"+(i +1));

}

**else**

{

System.out.println("Element not found");

}

}

}

Output:

$ javac Search\_Element.java

$ javaSearch\_Element

Enter no. of elements you want in array:7

Enter all the elements:

2

4

1

5

7

6

9

Enter the element you want to find:5

Element found at position:4