Array

- An array is a fixed-size sequential collection of elements of the same type. An array is used to store a collection of data.
- **Declaration-**

```
dataType[] arrayRefVar;   // preferred way.

          or

dataType arrayRefVar[];  //  works but not preferred way.
```

- **Creating Arrays-**

```
arrayRefVar = new dataType[arraySize];
```

The above statement does two things:

- It creates an array using new dataType[arraySize];
- It assigns the reference of the newly created array to the variable arrayRefVar.

- Declaring an array variable, creating an array, and assigning the reference of the array to the variable can be combined in one statement, as shown below:

```
dataType[] arrayRefVar = new dataType[arraySize];
```

- Alternatively you can create arrays as follows:

```
dataType[] arrayRefVar = {value0, value1, ..., valuek};
```

- The array elements are accessed through the **index**. Array indices are 0-based; that is, they start from 0 to **arrayRefVar.length-1**.

- **Example:**

```
public class TestArray
{
   public static void main(String[] args)
    {
      int[] myArray = {1,2,3,4,5};

      // Print all the array elements
      for (int i = 0; i < myArray.length; i++)
        System.out.println(myArray[i] + " ");
     }

}
```

- **Array & function-**
  - We can pass an entire array in a function as follows-

```
import java.io.*;
class array_function
{

      void get_data(int n)   throws IOException
       {
          int [] myArray=new int[n];
          InputStreamReader isr=new InputStreamReader(System.in);
       BufferedReader br=new BufferedReader(isr);
          System.out.println("Now enter array elements one by one");

             for(int i=0;i<n;i++)
             myArray[i]=Integer.parseInt(br.readLine()); //read array

             display(myArray);      //pass the entire array in a function
        }

static void display(int [] myArray)   // this is how to receive an array
         {
            System.out.println("You have entered");

             for(int i=0;i<myArray.length;i++)
             System.out.println(myArray[i]);

            System.out.println("Now your array in reversed order is");

  myArray=reverse(myArray);      //call a function that returns an array

            for(int i=0;i<myArray.length;i++)
             System.out.println(myArray[i]);
         }

     static int[] reverse(int [] myArray)
     {
       int i,j,l=myArray.length;
       int[] newArray=new int[l];      // create a new array

       for(i=0,j=l-1;i<l;i++,j--)      // store it in reverse order
       newArray[i]=myArray[j];

       return newArray;                // return the new array
     }


      public static void main(String args[]) throws IOException
     {
       array_function obj=new array_function();
       obj.get_data(5);
     }

}
```