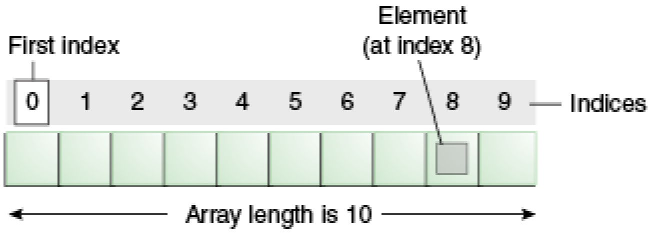
Array-

Array is a collection of similar type of elements which has contiguous memory location.

Java array is an object which contains elements of a similar data type.

We can store only a fixed set of elements in a Java array.

Array in Java is index-based, the first element of the array is stored at the 0th index, and 2nd element is stored on 1st index and so on.



Advantages

- Code Optimization: It makes the code optimized, we can retrieve or sort the data efficiently.
- Random access: We can get any data located at an index position.

Disadvantages

- Size Limit: We can store only the fixed size of elements in the array. It doesn't grow its size at runtime. To solve this problem, collection framework is used in Java which grows automatically.

There are two types of array as-

- Single Dimensional Array
- Multidimensional Array

Syntax to Declare an Array in Java

1. dataType[] arr; (or)
2. dataType []arr; (or)

3. dataType arr[];

Instantiation of an Array in Java

1. arrayRefVar=new datatype[size];

Example of Java Array

Let's see the simple example of java array, where we are going to declare, instantiate, initialize and traverse an array.

```
//Java Program to illustrate how to declare, instantiate, initialize
//and traverse the Java array.

class Testarray{
public static void main(String args[]){
int a[]=new int[5];//declaration and instantiation
a[0]=10;//initialization
a[1]=20;
a[2]=30;
a[3]=40;
a[4]=50;
//traversing array
for(int i=0;i<a.length;i++)//length is the property of array
System.out.println(a[i]);
}}
```

Output-

```
10
20
30
40
50
```

We can declare, instantiate and initialize the java array together by:

```
int a[]={10,20,30};//declaration, instantiation and initialization
```

```
//Java Program to illustrate the use of declaration, instantiation
//and initialization of Java array in a single line
class Testarray1{
```

```
public static void main(String args[]){
int a[]={10,20,30};//declaration, instantiation and initialization
//printing array
for(int i=0;i<a.length;i++)//length is the property of array
System.out.println(a[i]);
}}
```

Output-

```
10
20
30
```

For-each Loop for Java Array

We can also print the Java array using for-each loop. The Java for-each loop prints the array elements one by one. It holds an array element in a variable, then executes the body of the loop.

The syntax of the for-each loop is given below:

```
for(data_type variable:array){
//body of the loop
}
```

Let us see the example of print the elements of Java array using the for-each loop.

```
//Java Program to print the array elements using for-each loop
class Testarray1{
public static void main(String args[]){
int arr[]={10,20,30,40};
//printing array using for-each loop
for(int i:arr)
System.out.println(i);
}}
```

Output-

```
10
20
30
40
```