Array

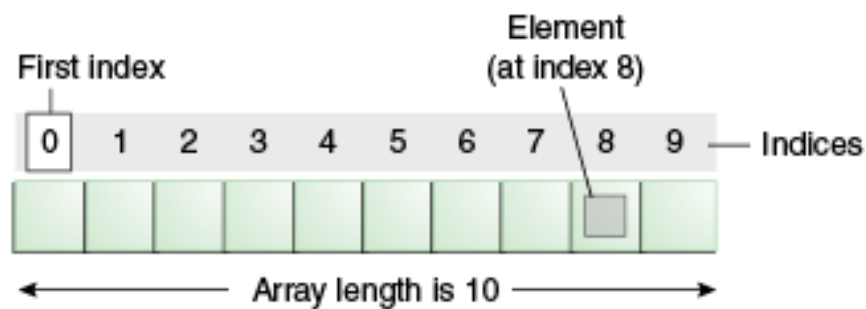**=======**

1. **Java array** is an object which contains elements of a similar data type.
2. The elements of an array are stored in a contiguous memory location.
3. It is a data structure where we store similar elements.
4. We can store only a fixed set of elements in a Java array.
5. Arrays in Java are index-based, the first element of the array is stored at the 0th index, the 2nd element is stored on the 1st index and so on.
6. The length of the array is assigned when the array is created.

E.x   int a [ ] = new int [10];


```java
package testJava;

import java.util.Arrays;

public class dclass
{
      public static void main(String[] args)
      {
            int[] a = new int[4];   // array declaration

            a[0] = 10;                       // 1st way to store the values in array
            a[1] = 20;
            a[2] = 30;
            a[3] = 40;

            int[] b = new int[] { 10, 20, 30, 40 }; // 2nd way to store the values in array

            System.out.println(b.length);// to know the length of the array

            for (int i = 0; i < 4; i++)        // 1st way to Retrieve the data from array
            {
                  System.out.println(a[i]);
            }
System.out.println(Arrays.toString(b)); // 2nd way to Retrieve the data from array
      }
}
```

Features of array

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1. A java array variable can be declared like other variables with [ ] after the data type.
2. The variables in the array are ordered and each has an index beginning from 0.
3. Arrays are the objects and hence they occupy memory in the "heap area".
4. Arrays are always created at run time.
5. The length of an array can be found by using member "length".
6. The elements of an array are stored in consecutive memory locations.

Advantages of array

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1. Arrays are used to store multiple data items of the same data type by using only a single name.
2. We can access any element randomly by using indexes provided by array.

Disadvantages of array

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1. **Fixed size**
   a. We need to mention the size of the array , thus they have fixed size, when array is created size cannot be changed.
2. **Memory wastage**
   a. If we created an array of length 100 but only 10 elements are inserted then 90 are empty and thus memory wastage.
3. **Strongly typed**
   a. It can store only one data type at a time.
4. Array does not have add or remove methods.
5. Performance is low.