

Arrays In Java

Arrays

- An array is a like-typed variables that are referred to by a common name
- Array of any type can be created and can have one or more dimensions.
- Array always starts from the index 0 (zero).
- Internally arrays are like objects.
- Arrayname.length gives size of the array (not the number of elements present in the array)

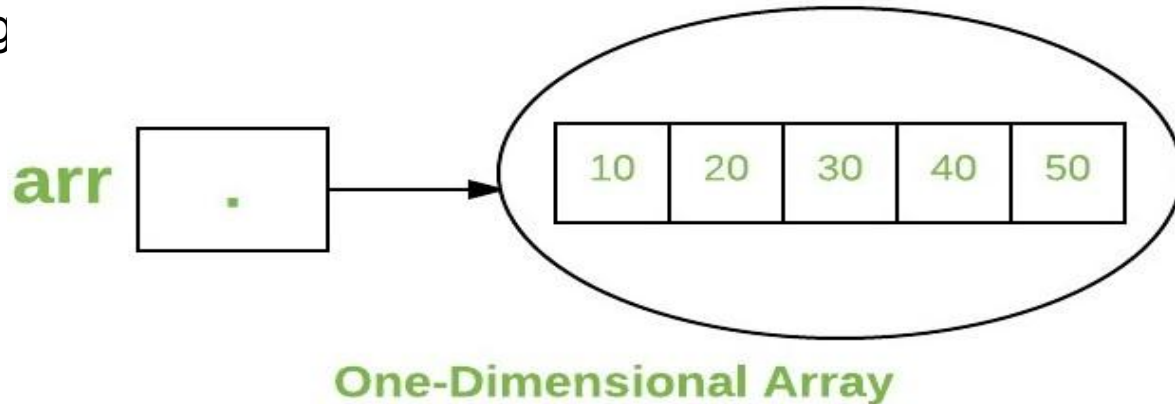
40	55	63	17	22	68	89	97	89
0	1	2	3	4	5	6	7	8

<- Array Indices

Array Length = 9
First Index = 0
Last Index = 8

Arrays : One Dimensional

- `type var-name[] = new type [size]`
 - Ex. `int arr[] = new int [5];`
- Arrays can be initialized when it is declared.
 - Ex. `int arr[] = {10,20,30,40,50}`
- If we don't assign values, array elements contain default values.
- Java shows run time error if any attempt is made to access the value outside the range



Arrays : Two Dimensional

- `type var-name[] [] = new type [rowsize] [colsize]`
 - Ex. `int arr[] [] = new int [3] [5];`
- Arrays can be initialized when it is declared.
 - Ex. `int arr[] [] = {
 {1,2,3,4,5},
 {5,6,7,8,9},
 {10,11,12,13,14}
 };`
- Java shows run time error if any attempt is made to access the value outside the range of the array.

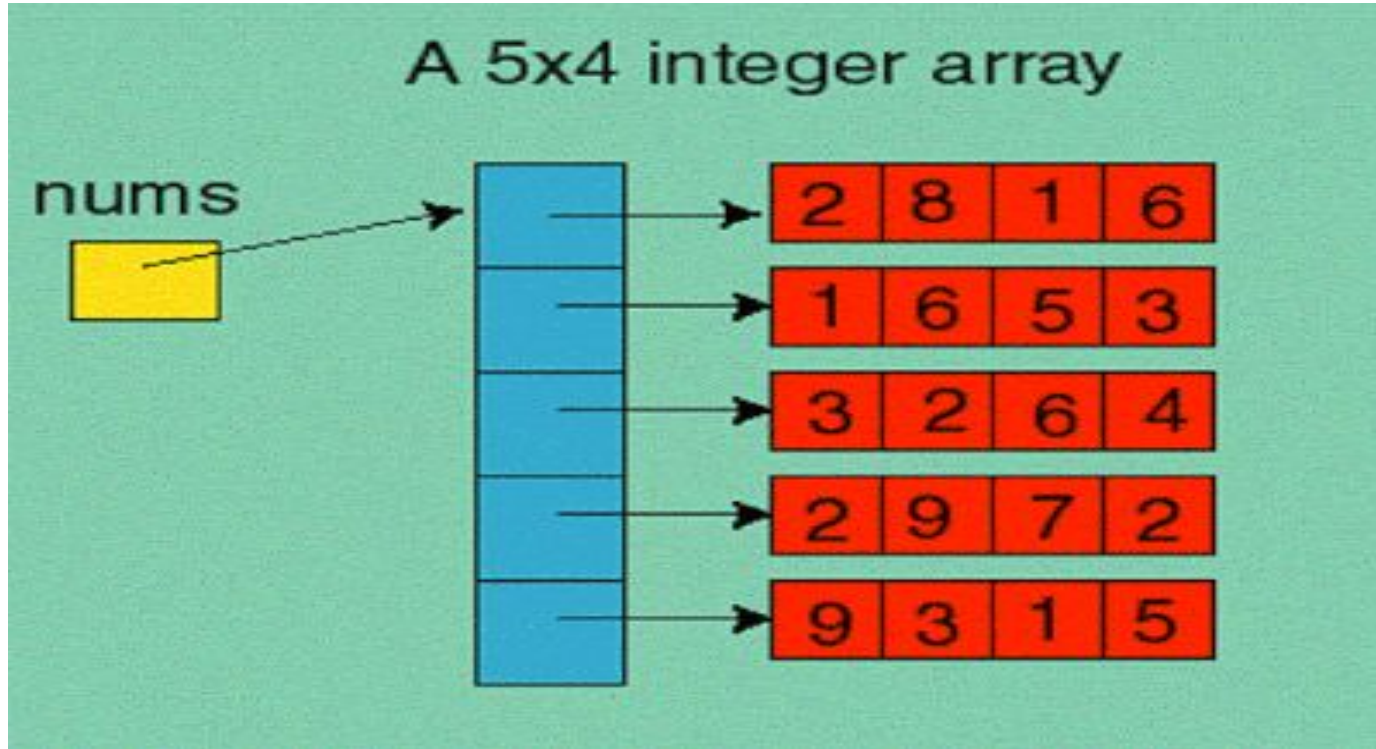
Arrays : Two Dimensional

```
int nums [ ] [ ] = new int [5] [4]
```

nums

	0	1	2	3
0	2	8	1	6
1	1	6	5	3
2	3	2	6	4
3	2	9	7	2
4	9	3	1	5

Arrays : Two Dimensional



Arrays : Alternative Array Declaration Syntax

1. `int a [] = new int [5];`

`int [] a = new int [5];`

2. `int arr[] [] = new int [5][4];`

`Int [] [] arr = new int [5][4];`

3. `int [] nums1, nums2, nums3; // Creates three array variables or references`

4. `int nums1[], nums2 [], nums3 []; // Creates three array references`

Arrays : Jagged Arrays

- A jagged array is an array that contains a group of arrays within it. It is also called 'irregular multidimensional arrays'.
- Jagged arrays are useful when dealing with group of arrays of different sizes.
- ```
int x [] [] = new int [2] []
x [0] = new int [2]; // memory for first array
x [1] = new int[3]; // memory for second array
```



# Arrays : Jagged Arrays

```
int numArr [] [] = {
 {1,2,3},
 {4,5,6,7},
 {8,9}
};
```

