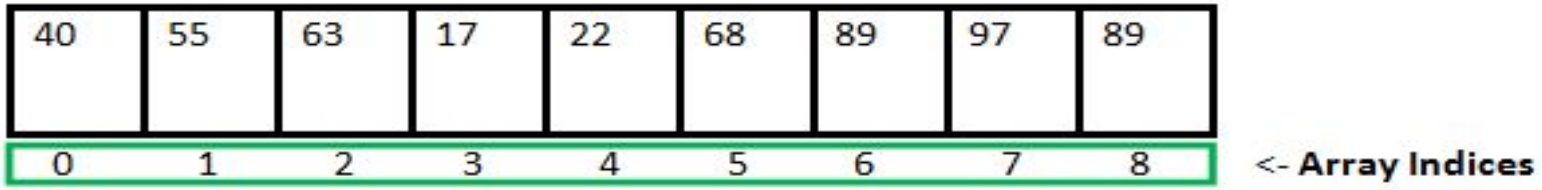
# Arrays In Java

# Arrays

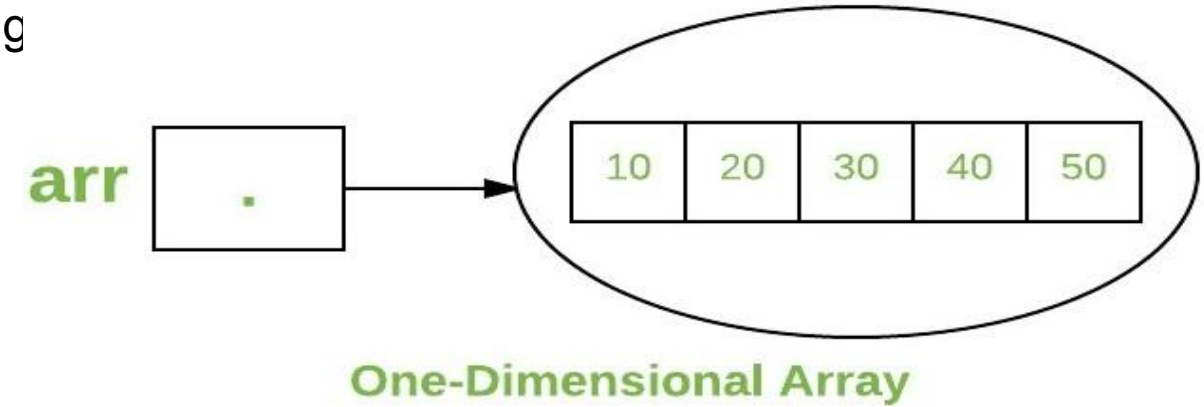
- An array is a like-typed variables that are referred to by a common name
- Array of any type can be created and can have one or more dimensions.
- Array always starts from the index 0 (zero).
- Internally arrays are like objects.
- Arrayname.length gives size of the array (not the number of elements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




**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 acces the value outside the rang



# 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 acces the value outside the range of the array.

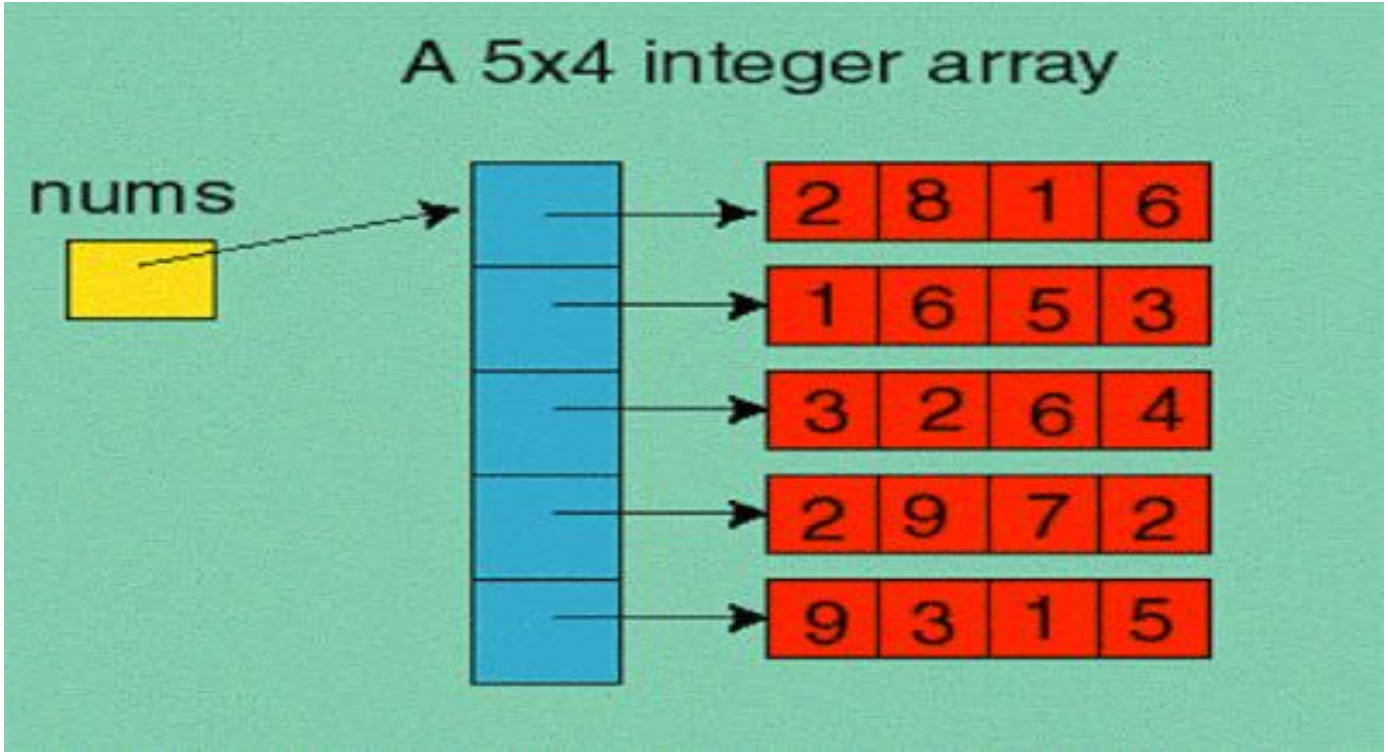
# Arrays : Two Dimensional

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 in 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}
                    };
```