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## Single Dimensional Array in Java

## **=> Types of Arrays :-**

### **1. Single Dimensional Array**

-> 1D Array

### **2. Multi-Dimensional Array**

-> 2D Array

-> 3D Array

-> 4D, 5D, 6D.... Array

-> Zic-Zac Array

### **3. Anonymous Array**

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## **=> Single Dimensional Array (for example 1D Array) :-**

-> In this type of array, there is only one row or one column

**-> Following points for each type of array :-**

**= Declaration :**

1. Array can be declared normally like simple variables but we have to provide square([]) braces

2. When we declare an array, we dont need to provide the size of an array

**= Creation :-**

1. When we create an array by using new keyword, we have to provide the size of an array

2. When we create an array by using new keyword, all the index position will be initialized by its default values

**=> We can declare and create an array within a single line**

### =Initialization :-

1. We can provide the values at particular index position

=> We can declare, create and initlize an array within single line

### = Retrieve :-

1. We can retrieve the value by using for loop

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## ⇒ Different cases for Declaration, Creation & Initialization of an array

### => Declaration :-

1. `int[] a,b;`     //a and b are both arrays
2. `int []a,b;`     //a and b both are arrays
3. `int a[],b;`     //correct, a is an array but b is simple variable
4. `int a,b[];`     //correct, a is normal variable but b is an array
5. `int a[], b[];`   //both a and b are array
6. `int []a, b[];`   //a and b are both arrays

### => Creation :-

1. `a=new int[5];`     //correct
2. `a=new int[];`     //error



3. `int[] a=new int[5];` //correct
4. `int a[]=new int[5];` //correct
5. `int []a=new [5]int;` //error
6. `int[] a=new int[0];` //it will successfully compile and run
7. `int[] a=new int[-3];` //it will compile but provides runtime exception i.e.  
`java.lang.NegativeArraySizeException`

### => Initialization :-

1. `int[] a=new int[3];`  
`a[3]=100;` //compile successfully but will throw runtime exception saying  
`ArrayIndexOutOfBoundsException`

2. If we dont initialize any proper index position value, then it will compile and run successfully

3. `a[-1]=100;`      `//compile successfully but will`  
provide runtime exception saying  
`ArrayIndexOutOfBoundsException`

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**-> Points to remember :-**

1. Array are Objects in java
2. Arrays are stored in "Heap Area"

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## **Interview Questions :-**

1. Difference between declaring, creating and initializing an array with and without using new keyword

-> When we create an array without using new keyword then default value will not be initialized in the array, all the values will be initlized automatically in the array





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