**Java Array**

Normally, array is a collection of similar type of elements that have contiguous memory location.

**Java array** is an object the contains elements of similar data type. It is a data structure where we store similar elements. We can store only fixed set of elements in a java array.

Array in java is index based, first element of the array is stored at 0 index.



**Advantage of Java Array**

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

**Disadvantage of Java Array**

* **Size Limit:** We can store only 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.

**Types of Array in java**

There are two types of array.

* Single Dimensional Array
* Multidimensional Array

**Single Dimensional Array in java**

**Syntax to Declare an Array in java**

1. dataType[] arr;
2. dataType arr[];

**Instantiation of an Array in java**

**Example of single dimensional java array**

1. class Testarray{
2. public static void main(String args[]){
4. int a[]=new int[5];//declaration and instantiation
5. a[0]=10;//initialization
6. a[1]=20;
7. a[2]=70;
8. a[3]=40;
9. a[4]=50;
11. //printing array
12. for(int i=0;i<a.length;i++)//length is the property of array
13. System.out.println(a[i]);
15. }}

Output: 10

20

70

40

50

**Declaration, Instantiation and Initialization of Java Array**

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

1. int a[]={33,3,4,5};//declaration, instantiation and initialization

Let's see the simple example to print this array.

1. class Testarray1{
2. public static void main(String args[]){
4. int a[]={33,3,4,5};//declaration, instantiation and initialization
6. //printing array
7. for(int i=0;i<a.length;i++)//length is the property of array
8. System.out.println(a[i]);
10. }}

Output:33

3

4

5

**Multidimensional array in java**

In such case, data is stored in row and column based index (also known as matrix form).

**Syntax to Declare Multidimensional Array in java**

1. dataType[][] arrayRefVar; (or)
2. dataType arrayRefVar[][]; (or)
3. dataType []arrayRefVar[];

**Example to instantiate Multidimensional Array in java**

1. int[][] arr=new int[3][3];//3 row and 3 column

**Example of Multidimensional java array**

1. class Testarray3{
2. public static void main(String args[]){
4. //declaring and initializing 2D array
5. int arr[][]={{1,2,3},{2,4,5},{4,4,5}};
7. //printing 2D array
8. for(int i=0;i<3;i++){
9. for(int j=0;j<3;j++){
10. System.out.print(arr[i][j]+" ");
11. }
12. System.out.println();
13. }
15. }}

Output:1 2 3

2 4 5

4 4 5