

1. What do you mean by an Array?

Answer: An array is a container object that holds a fixed number of values of a single type. The length of an array is established when the array is created. After creation, its length is fixed.

Array in Java is index-based, the first element of the array is stored at the 0th index, 2nd element is stored on 1st index and so on.

Advantages:

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

Disadvantages:

- **Size Limit:** We can store only the 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 which grows automatically.

2. How to create an array?

Answer: We can create an array with the help of following way-

- `int[] arr = new int[size];`
- `int[] a;`
- `int a[];`
- `int []a;`
- `int a[] = {10, 20, 30, 40, 50};`
- `char[] c = {'J', 'A', 'V', 'A'};`
- `String str[] = {"Rajan", "Rahul", "Ram"} ;`

3. Can we change the size of an array at run time?

Answer: No, we can not change the size of the array at run time.

4. Can you declare an array without assigning the size of an Array?

Answer: Yes, we can declare an array without size but before using in needs to be initialized.

5. What is the default value of array?

Answer: Java will assign the default value 0 to each element of the array in the case of an int array. Similarly, in the case of a Boolean array, it will be false, in the case of a String array the default value is null in java, in the case of a User-Defined type the default value is null in java, and in the case of a char array, the default value is Unicode (\u0000).

6. What is a 1D array with an example?

Answer: A one-dimensional array in Java is a collection of similar types of elements stored at contiguous memory locations. The data is stored in a continuous manner, which makes operations like search, delete, insert etc., much easier. Arrays can be one-dimensional or multi-dimensional.

Syntax:

```
datatype[] arrayRefVariable;
```

or

```
datatype arrayRefVariable[];
```

7. Write a program on a 2D array?

Answer: 2D/Multidimensional Arrays:

Multidimensional arrays are arrays of arrays with each element of the array holding the reference of other arrays. These are also known as Jagged Arrays. A multidimensional array is created by appending one set of square brackets ([]) per dimension.

Syntax:

```
datatype[][] arrayrefvariable;
```

or

```
datatype arrayrefvariable[][];
```

Program:

```
import java.util.Scanner;
```

```
public class TwoDArray {
```

```
    public static void main(String[] args) {
```

```
        Scanner sc = new Scanner(System.in);
```

```
System.out.print("Enter the size of the rows: ");  
int row = sc.nextInt();
```

```
System.out.print("Entre the size of the column: ");  
int column = sc.nextInt();
```

```
int arr[][] = new int[row][column];
```

```
System.out.println("Enter the Values");
```

```
for(int i = 0; i<arr.length; i++){  
    for(int j = 0; j<arr[i].length; j++){  
        arr[i][j] = sc.nextInt();  
    }  
    System.out.println();  
}
```

```
for(int i = 0; i<arr.length; i++){  
    for(int j = 0; j<arr[i].length; j++){  
        System.out.print(arr[i][j]+" ");  
    }  
    System.out.println();  
}
```

```
}
```

```
}
```