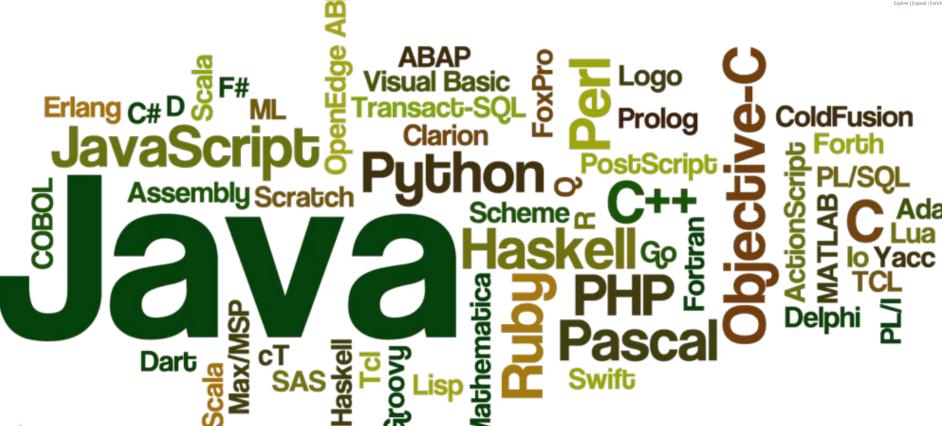


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2D ARRAY IN JAVA



## **2D -ARRAY**



- An array of more than one dimension is known as a multi-dimensional array
- Two of the most common examples of multi-dimensional arrays are two and three-dimensional array, known as 2D and 3D array, anything above is rare
- Two dimensional array is the simplest form of a multidimensional array
- A two dimensional array can be seen as an array of one dimensional array for easier understanding



## **DECLARATION**, INITIALIZATION



## **DECLARATION:**

```
datatype[][] arrayname = new datatype[x][y];
For example: int[][] arr = new int[10][20];
```

## **INITIALIZATION:**

```
array_name[row_index][column_index] = value;
For example: arr[0][0] = 1;
```



## **ACCESSING 2D ARRAY**



# **Syntax:**

```
x[rowindex][columnindex]
```

# For example

```
int[][] arr = new int[10][20];
arr[0][0] = 1;
int[][] arr = new int[10][20];
arr[0][0] = 1;
```



#### MATRIX MULTIPLICATION USING 2D ARRAY



```
class Main {
    public static void main(String
args[]) {
         int m, n, p, q, sum = 0,
c, d, k;
         Scanner in = new
Scanner(System.in);
         System.out.println("Enter
the number of rows and columns of
first matrix");
         m = in .nextInt();
         n = in .nextInt();
         int first[][] = new
int[m][n];
         System.out.println("Enter
elements of first matrix");
```

```
for (c = 0; c < m; c++)
              for (d = 0; d < n;
d++)
                   first[c][d] = in
.nextInt();
         System.out.println("Enter
the number of rows and columns of
second matrix");
         p = in .nextInt();
         q = in .nextInt();
         if (n != p)
System.out.println("The matrices
can't be multiplied with each
other.");
```

#### MATRIX MULTIPLICATION USING 2D ARRAY



```
else {
                                                              for (k = 0;
              int second[][] = new
int[p][q];
                                      k < p; k++) {
              int multiply[][] =
                                                                   sum =
new int[m][q];
                                      sum + first[c][k] * second[k][d];
System.out.println("Enter elements
of second matrix");
                                      multiply[c][d] = sum;
              for (c = 0; c < p;
                                                              sum = 0;
C++)
                   for (d = 0; d <
q; d++)
second[c][d] = in .nextInt();
                                      System.out.println("Product of the
              for (c = 0; c < m;
                                      matrices:");
C++) {
                   for (d = 0; d <
q; d++)
```

### **HOW TO PRINT AN ARRAY IN JAVA WITHOUT USING LOOP**



For this, we will use toString() method of Arrays class in the util package of Java.
 This method helps us to get the String representation of the array

This string can be easily printed with the help of print() or println() method



## LOGIC



```
import java.io.*;
import java.util.*;
class Main {
    public static void main(String[] args)
    {
    // Get the array
int arr[] = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 };
    // Print the array
System.out.println("Array: "+ Arrays.toString(arr));
    }
}
```



