

A C T I V I T Y

Guess the country names.

.2□+Ⓐ+  =
_____↑

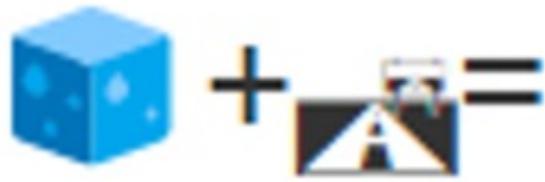
Turkey

$$\begin{array}{r} \text{XX} \\ + \text{A} \\ \hline \end{array}$$

In China



China



I

L

Ice + Land = Iceland
Iceland

Iceland

$$0 + \text{man} =$$



$$0 + \text{man} = \underline{\text{0 man}}$$

Oman

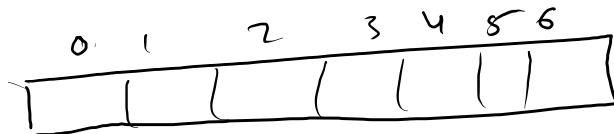


↳ Qatar

Qatar

Arrays

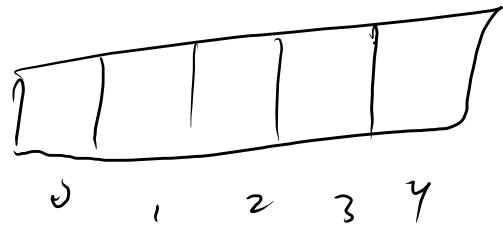
in 1D



arr.length

$$\text{int } \underline{\text{arr}[2]} = \text{new int [5]}$$

int arr

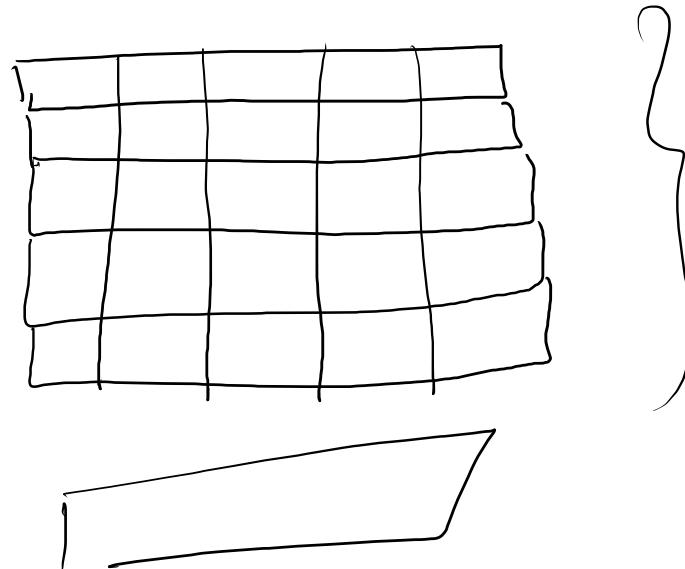
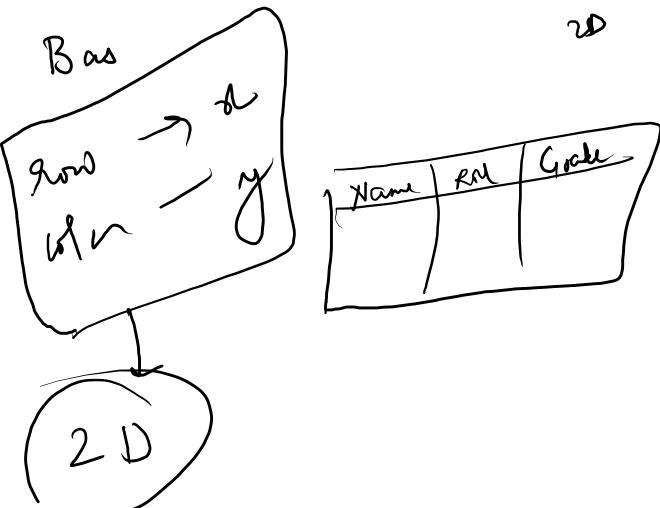


2 D arrays

↳ Combination of 1 D
collections



2D



Syntax of 2D array :-

datatype array-name [] [] = new datatype [row-size] [column-size];

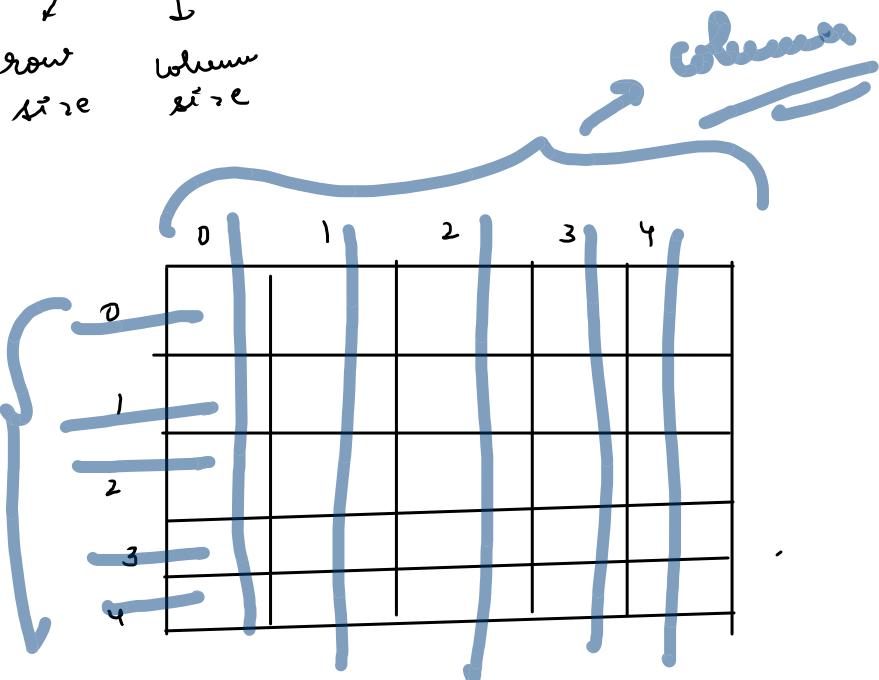
ex:- int arr [] [] = new int [5] [5]

2D
int arr () = new int (5);

```
int arr[ ][ ] = new int [5][5];
```

↓ ↓
row size column size

row
} column



$\text{int arr[5][5]} = \text{new int[5][5];}$

	0	1	2	3	4
0	(0,0)	(0,1)	(0,2)	(0,3)	(0,4)
1	(1,0)	(1,1)	(1,2)	(1,3)	(1,4)
2	(2,0)	(2,1)	(2,2)	(2,3)	(2,4)
3	(3,0)	(3,1)	(3,2)	(3,3)	(3,4)
4	(4,0)	(4,1)	(4,2)	(4,3)	(4,4)

(row-index, col-index)

row-index
col-index

$$\begin{aligned}
 &\Rightarrow \text{row-size} = 5 \\
 &\Rightarrow \text{column-size} = 5 \\
 &\Rightarrow \text{Total no. of elements} = 5 \times 5 = 2^5
 \end{aligned}$$

Memory Management of 2D Array :-

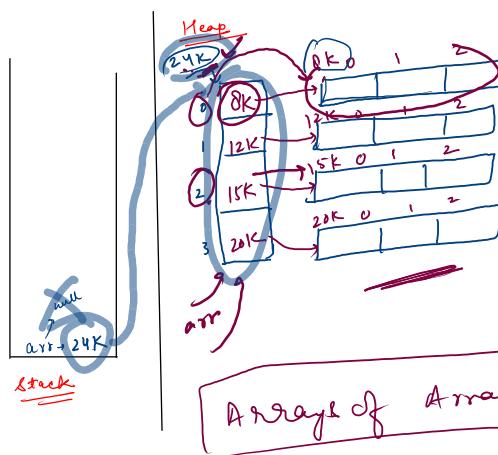
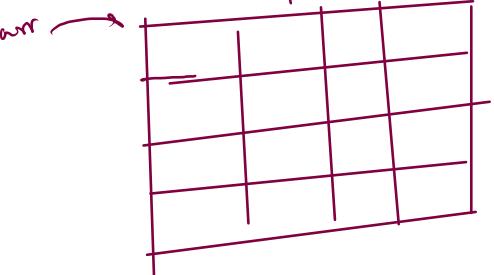
int arr [] [] ; → declaration.

arr = new int [4] [3];
 ↑

How to find the no. of rows and no. of columns in 2D array?

rows → arr.length.

cols → arr [index].length.
 ↑
→ arr [0].length = 3



row = 4
col = 3

~~arr [5] [1] = 99~~
invalid

Arrays of Array.

row - index → length → arr.length

[arr [2].length] = 3

valid index.

→ row = arr.length;

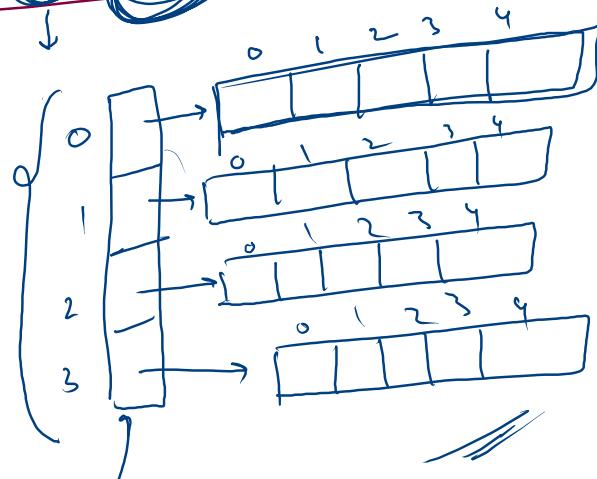
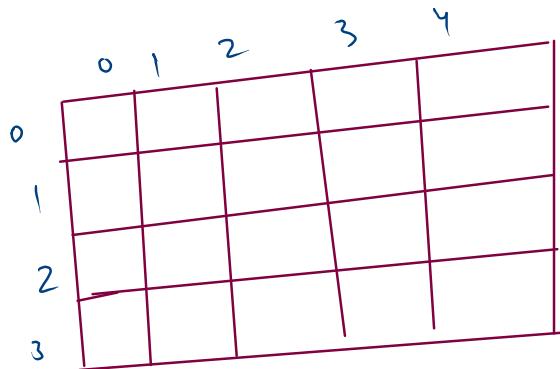
→ col = arr[index].length
 ↓
 valid

In general, for col:-

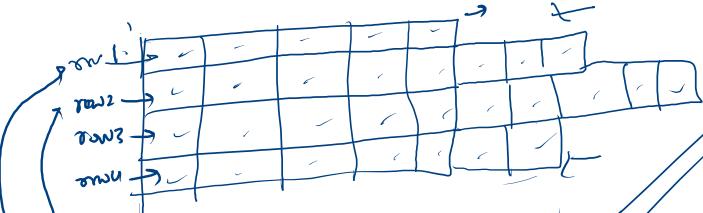
col = arr[0].length

~~int arr[1][0] = new int~~

~~int arr[1][0] = { 1, 2, 3, 4 }~~



arr



~~int arr[] [] = new int [2][5];~~
 int arr[] [] = new int [2][5];
 int total ele = 0;
 for (int i = 0; i < arr.length) {
 }
 total ele += arr[i].length;

int arr[] [] = {{1, 2, 3, 4, 5}, {1, 2, 4, 5, 6, 7}};

9:14 pm

8 minus break

9:20

pm

Sample Input 0

5
3
3
1
2
3
4
5
6
7
8
9

Sample Output 0

{
1 2 3
4 5 6
7 8 9

Print 2d Array (14 july)

Problem

Submissions

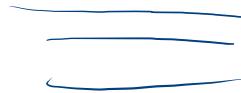
Leaderboard

Discussions

1. You are given a number n , representing the number of rows.
2. You are given a number m , representing the number of columns.
3. You are given $n \times m$ numbers, representing elements of 2d array a .
4. You are required to display the contents of 2d array as suggested by output format below.

$$n = 3$$

$$m = 3$$



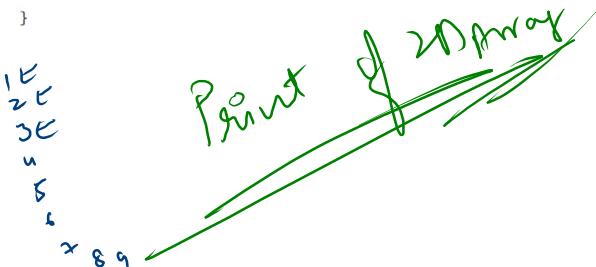
```

public class Solution {
    public static void main(String[] args) {
        /* Enter your code here. Read input from STDIN. Print output to STDOUT */
        Scanner scn = new Scanner(System.in);
        int n = scn.nextInt(); // no of rows
        int m = scn.nextInt(); // no of cols
        int arr [][] = new int[n][m]; // syntax of 2D array

        for(int i=0;i<n;i++){ // rows
            for(int j=0;j<m;j++){ // columns
                arr[i][j] = scn.nextInt();
            }
        }

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

```



$n = 3$	$m = 3$
0	1
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9

$i = 0 \leftarrow 3(T)$
 $j = 0 < 3(T) \rightarrow arr[0][0]$
 $j = 1 < 3(T) \rightarrow arr[0][1]$
 $j = 2 < 3(T) \rightarrow arr[0][2]$

$i = 0 < 3(T)$ $arr[0][0] = 1$
 $j = 0 < 3(T)$
 $j = 1 < 3(T) \rightarrow arr[0][1] = 2$
 $j = 2 < 3(T) \rightarrow arr[0][2] = 3$
 $j = 3 < 3(F) \times$

$i = 1 < 3(T)$
 $j = 0 < 3(T) \rightarrow arr[1][0]$
 $j = 1 < 3(T) \rightarrow arr[1][1]$
 $j = 2 < 3(T) \rightarrow arr[1][2]$
 $j = 3 < 3(F)$

$i = 2 < 3(T)$
 $j = 0 < 3(T) \rightarrow arr[2][0]$
 $j = 1 < 3(T) \rightarrow arr[2][1]$
 $j = 2 < 3(T) \rightarrow arr[2][2]$
 $j = 3 < 3(F)$

$i = 3 < 3(F)$

Compare Two Matrices (14 July)

→ Non matching
↳ return "Not same" for (int i=0; i< m); i++)
Sample Input 0

0	0	
1	2	3
4	5	6
7	8	9
3	3	
1	2	3
4	5	6
7	8	9

} for (int j=0; n1[j]; j++)
if (arr1[i][j] != arr2[i][j])
→ return "Not same"

Problem Submissions Leaderboard Discussions

You have to take two matrices as input. First Matrix of size $m1 \times n1$. Second Matrix of size $m2 \times n2$. Compare the two matrices and print "Same" if both the matrices are same else print "Not Same".

Input Format

Integers $m1$ and $n1$ depicting the size of the matrix. $m1 \times n1$ Integer values, depicting all the elements of the matrix. Integers $m2$ and $n2$ depicting the size of the matrix. $m2 \times n2$ Integer values, depicting all the elements of the matrix.

$$m1 = 3$$

$$n1 = 3$$

1	2	3
4	5	6
7	8	9

$$m2 = 3$$

$$n2 = 3$$

1	2	3
4	5	6
7	8	9

Sample Output 0

Same

- 1) Row size of arr1.length == arr2.length ✓
2) Col size of arr1[0].length == arr2[0].length ✓
3) Check all the elements

Find first non-matching element
↳ return "Not same"



```

public static String compareMatrices(int arr1[][], int arr2[][]){
    if(arr1.length != arr2.length || arr1[0].length != arr2[0].length)
        return "Not Same";
    }

    for(int i=0;i<arr2.length;i++){
        for(int j=0;j<arr1[0].length;j++){
            if(arr1[i][j] != arr2[i][j]){
                return "Not Same";
            }
        }
    }

    return "Same";
}

```

If arr1.length and arr2.length are not equal
return "Not Same"

Input for arr1

```

public static void main(String[] args) {
    /* Enter your code here. Read input from STDIN. Print output to STDOUT. */
    Scanner scn = new Scanner (System.in);
    int m1 = scn.nextInt();
    int n1 = scn.nextInt();
    int arr1[][] = new int[m1][n1];
    for(int i=0;i<m1;i++){
        for(int j=0;j<n1;j++){
            arr1[i][j] = scn.nextInt();
        }
    }
}

```

Input for arr2

```

int m2 = scn.nextInt();
int n2 = scn.nextInt();
int arr2[][] = new int[m2][n2];
for(int i=0;i<m2;i++){
    for(int j=0;j<n2;j++){
        arr2[i][j] = scn.nextInt();
    }
}

System.out.println(compareMatrices(arr1,arr2));
}

```

$m1 \ n1$
 $m2 \ n2$

arr

In general
↳ $\text{arr}[0].length$

OK

↳

