SLIIT ACADEMY

FCIT – Semester 1

TWO-DIMENSIONAL ARRAY

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Two Dimensional Arrays

- A collection of elements that are arranged in rows and columns.
- Require two indices. First index represent the number of rows and second index represent the number of columns.
- **Total number of elements in two-dimensional array = row size * columns size**

Examples

INT emp[16][7] - an integer array named emp to store the number of employee in 7 departments of 16 companies

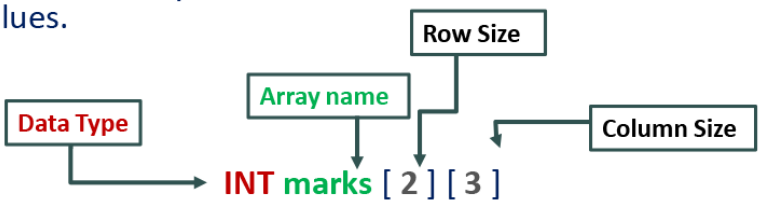
FLOAT marks[20][4] - a float array named marks to store the marks of 20 students in 4 subjects

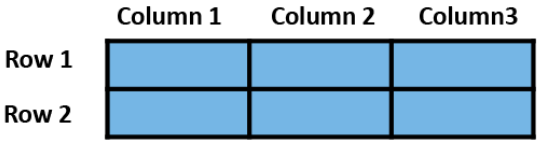
Steps to Follow

- **Declare the array**
  - Specify the type of data the array contains
  - Reserve storage
- **Initialize the array**
  - Put values in array
- **Access or lookup entries**
  - Find entries in array

Declaring Two - Dimensional Array

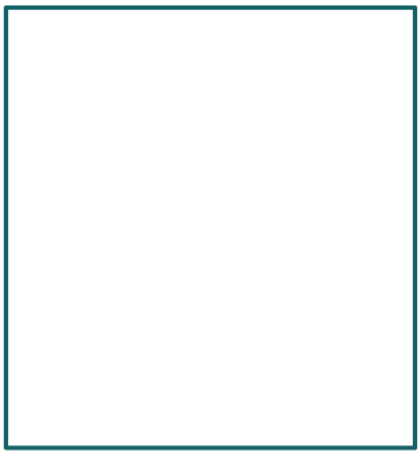
A two - dimensional array is a collection of elements that can be accessed with a two index values.





Loading values to Two - Dimensional Arrays

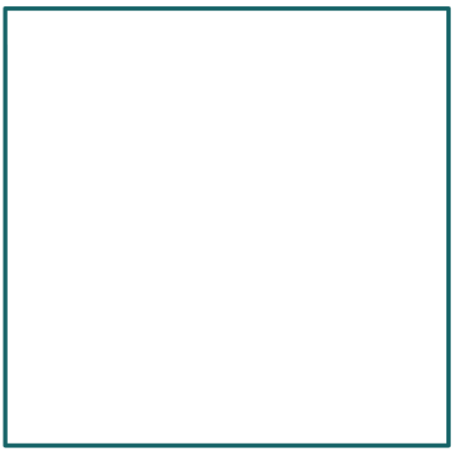
	0	1	2
0	67	89	40
1	78	12	96



n	n<=1	m	m<=2	Get marks[n][m]	m=m+1	n=n+1
0	0<=1 True	0	0<=2 True	marks [0][0]	m=0+1 =1	-
		1	1<=2 True	marks [0][1]	m=1+1 =2	-
		2	2<=2 True	marks [0][2]	m=2+1 =3	
		3	3<=2 False	-	-	n =0+1 =1
1	1<=1 True	0	0<=2 True	marks [1][0]	m=0+1 =1	
		1	1<=2 True	marks [1][1]	m=1+1 =2	
		2	2<=2 True	marks[1][2]	m=2+1 =3	
		3	3<=2 False	-	-	n =1+1 =2
2	2<=1 False	-	-	-	-	-

Printing values of Two - Dimensional Arrays

	0	1	2
0	67	89	40
1	78	12	96



n	n<=1	m	m<=2	Output	m=m+1	n=n+1
0	0<=1 True	0	0<=2 True	67	m=0+1 =1	-
		1	1<=2 True	89	m=1+1 =2	-
		2	2<=2 True	40	m=2+1 =3	
		3	3<=2 False	-	-	n =0+1 =1
1	1<=1 True	0	0<=2 True	78	m=0+1 =1	
		1	1<=2 True	12	m=1+1 =2	
		2	2<=2 True	96	m=2+1 =3	
		3	3<=2 False	-	-	n =1+1 =2
2	2<=1 False	-	-	-	-	-

A program is required to store and display the marks scored by 4 students for 6 subjects.

Summary

- Two-Dimensional Array
- How to declare a two-dimensional array?
- How to load values to a two-dimensional array?
- How to print a two-dimensional array?