Two Dimensional Array

In **stud[i][0]** and **stud[i][1]** the first subscript of the variable **stud**, is row number which changes for every student. The second subscript tells which of the two columns are we talking about—the zeroth column which contains the roll no. or the first column which contains the marks. Remember the counting of rows and columns begin with zero. The complete array arrangement is shown below.

	col. no. 0	col. no. 1
row no. 0	1234	56
row no. 1	1212	33
row no. 2	1434	80
row no. 3	1312	78

Figure 8.4

Thus, 1234 is stored in **stud[0][0]**, 56 is stored in **stud[0][1]** and so on. The above arrangement highlights the fact that a two-dimensional array is nothing but a collection of a number of one-dimensional arrays placed one below the other.

The array arrangement shown in Figure 8.4 is only conceptually true. This is because memory doesn't contain rows and columns. In memory whether it is a one-dimensional or a two-dimensional array the array elements are stored in one continuous chain. The arrangement of array elements of a two-dimensional array in memory is shown below:

s[0][0]	s[0][1]	s[1][0]	s[1][1]	s[2][0]	s[2][1]	s[3][0]	s[3][1]
1234	56	1212	33	1434	80	1312	78
65508	65510	65512	65514	65516	65518	65520	65522

Figure 8.5

We can easily refer to the marks obtained by the third student using the subscript notation as shown below:

printf ("Marks of third student = %d", stud[2][1]) ;