

## TWO DIMENSIONAL ARRAYS

### INTRODUCTION

One dimensional arrays are suitable for storing **LISTS** of numbers or names.

Two dimensional arrays are utilized when working with data presented in **TABLE FORM**. The table consists of two or more rows or columns or related data.

### EXAMPLE CASE:

The table below consists of the quantity on hand of various items that are stocked at several warehouses belonging to a company.

	item 1	2	3	4
warehouse 1	50	0	16	2
warehouse 2	3	4	0	98
warehouse 3	0	1	4	22

Using this table, it is easy to answer many questions concerning the company's inventory.

- a) What is the total stock of item 4 on hand
- b) What is the total number of items stored in warehouse 2
- c) Are there any items out of stock at a particular warehouse
- d) How many of the 4th item are in stock at warehouse 2

### NOTES

- 1. The data in the table is organized in **3 rows and 4 columns**
- 2. Any value in the table can be *referenced* by indicating its row and column designation. eg. the value in row 2 column 3 is 98.
- 3. In order to use such a table in Vbasic we need only give it a name, say stk. Then, to refer to a particular element of the table we use 2 subscripts.

Thus  $stk[2,4]$  is the stock in *warehouse 2* [row 2] of item 4 [column 4] i.e. 98.

$stk[3,2] = 1$

$stk[1,4] = 2$

- 4. In *general*  $N[R,C]$  - Where N is the name of the array, R is the row number and C is the column number

### EXERCISE

R	C	A	B	P[1]	P[2]	P[3]
2	3	1	2	2	3	1
TWO DIMENSIONAL ARRAY T						
7		0		-12		
9		5		8		
16		13		10		

Write the value of each of the following

- |              |                                   |
|--------------|-----------------------------------|
| a) $T[2,3]$  | i) $T[B,R]$                       |
| b) $R$       | j) $T[R,A]$                       |
| c) $T[R,C]$  | k) $T[R + 1, C - 2]$              |
| d) $T[A,B]$  | l) $T[L,P[1]]$                    |
| e) $P[R]$    | m) $T[P[3], P[2]]$                |
| f) $T[l, 1]$ | n) $T[1,3] + T[2,2], T[2,3]$      |
| g) $A$       | o) $P[2] + T[P[2], P[1]] + P[1]$  |
| h) $T[A,A]$  | p) $T[A,B] + T[P[C], R] + T[0,0]$ |