Home Assignment

M-603 (computer Programming)

VI Semester - 2020.

Answer the following questions:→

Arrays :- A list of related values is stored in RAM in the form of an array. Values in an array are identified using array name with subscripts. Single subscripted variable is referred to a one-dimensional or linear array; two subscripted variable is referred to a two-dimensional or matrix array; and so on.

One-Dimensional Array :- Values in a mathematical set are written as shown below;

$x = \{3.1, 3.2, 4.6, 2.9, 3.8, 3.2\}$

These values are referred in mathematics as follows:

x_0, x_1, x_2 and so on.

In C language they are represented as follows:

x[0] x[1] x[2] and so on.

It may be imagined that these values are stored in RAM as follows:

Subscript →	0	1	2	3	4	5
Array name →	3.1	3.2	4.6	2.9	3.8	3.2

Two-Dimensional Array :- consider a matrix of 3×4,

$$A = \begin{bmatrix} 2 & 4 & 3 & 0 \\ 3 & 8 & -1 & 6 \\ -2 & 0 & -5 & 6 \end{bmatrix}$$

These values are referred in mathematics as follows:

$A_{0,0}$ $A_{0,1}$ $A_{0,2}$ and so on.

In C language they are represented as follows:
a[0][0] a[0][1] a[0][2] and so on.

It may be imagined that these values are stored in RAM as follows.

Array name → a

	0	1	2	3 ← Column subscripts.
0	2	4	3	0
1	3	8	-1	6
2	-2	0	-5	6

↑ Row subscripts

Array Declaration :→ Arrays are declared using type declaration statements with a maximum number of values accommodated in them. Consider the following example.

```
int x[50], a[3][4];
```

Example :- Write a C program to read a list of test marks of 50 students. Calculate the mean of marks and print a list of marks greater than the mean.

Ans:→

```
/* Program to find mean of marks */
# include <stdio.h>
# include <conio.h>
# include <math.h>
main()
{
 int x[50], n, i, sum;
 float mean;
 clrscr();
```

```
printf ("\n How many students ? ");
scanf ("%d", &n);
printf ("\n Enter all the marks \n");
for (i= 0; i<n; i++)
    scanf ("%d", &x[i]);
sum = 0;
/* loop to add all the marks */
for (i=0; i<n; i++)
   sum = sum + x[i];
mean = (float) sum/n;
printf ("\n Mean = %.6.2f", mean);
/* loop to print the list of marks greater than
                                    Mean */
printf ("\n\n Marks greater than mean :");
for (i=0; i<n; i++)
    if( x[i] > mean)
        printf ("%5d", x[i]);
   getch();
}.
```