Laboratory Activity 10

Arrays

Objectives:

1. Learn the different Arrays in C.
2. Develop algorithms and flowcharts for use in programming applications.
3. Design, compile, test, run, and implement C language program

Discussion:

✓ An array is a special type of variable which can contain or hold one or more values of the same data type with reference to only one variable name.

✓ The array variable has a common name identifier and can hold many values at the same time, provided they have the same data type.

✓ An array variable can be distinguished through a pair of square brackets [ ]. The number inside the brackets is called an index or element.

One Dimensional Array

Syntax:

data_type array_name[index];

Example:

int ar[5]; or float arrayvar[10];

This example illustrates variable: ar[5] which is an integer type and can store a maximum of 5 values.

ar[0] = 10;
ar[1] = 20;
ar[2] = 50;
ar[3] = 80;
ar[4] = 30;

Two-Dimensional Array

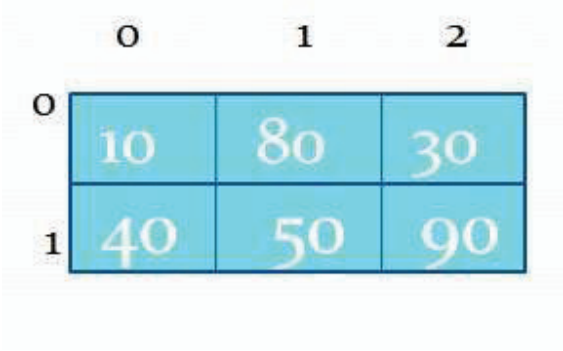
Syntax:

data_type array_name[arow][acol]

Example:

int Score[2][3];

Score[0][0]= 10
Score[0][1]= 80
Score[0][2]= 30
Score[1][0]= 40
Score[1][1]= 50
Score[1][2]= 90



Example 1. Write a program using one-dimensional array that loads or stores the 5 values into an array variable. The values are the resulting computation from a simple equation. Then display the stored values

```
#include <stdio.h>
main()
{

int no[5];
int i;
clrscr();
printf("\n One Dimensional Array");
/*this first loop stores the 5values */
for (i=0; i<5; i++)
   no[i]= i +10;
/*this second loop displays the */
/*stored 5 values*/

for(i=0; i<5; i++)
          printf("\n\n%d",no[i]);

getch();
}
```

Example 2. Write a program that determines the highest value among the five input values

```
#include<stdio.h>
main()
{
int n[5];
int high, i;
clrscr();
/*enter the five values*/
printf("\n enter five numbers: ");
for(i=0; i<5; i++)
{
scanf("%d",&n[i]);
}
/*determine the highest value*/
high=0;
for(i=0; i<5; i++)
{
if (high < n[i])
high=n[i];
}
printf("\nThe highest is: %d",high);

getch();
}
```

Example 3. A program that stores roll numbers and marks obtained by a student side by side in matrix

```
#include <stdio.h>
main()
{
int stud[4][2];
        int i, j;
        for (i=0; i<=3; i++)
        {
                printf ("\n Enter roll no. and marks"); scanf
                ("%d%d", &stud[i][0], &stud[i][1] );
        }
        for (i=0; i<=3; i++)
        printf ("\n %d %d", stud[i][0], stud[i][1]);

        system("pause");
        return 0;
}
```