B.D. COLLEGE, Patna

B.Sc(IT) 1st Year

C Language

Q:- What is array and how many types of array, Define Single dimension array.

An array is a collection of homogeneous data elements (i-e elements of same type) described by a single name. Each element of an array is referenced by a subscripted variable formed by affixing to the array name a subscript or, index enclosed in parentheses. If single subscript is required to reference an element of an array, the array is known as one-dimensional array and soon. Analogously, the arrays whose elements are referenced by two or, more subscripts are called multi-dimensional arrays.

So an array is a collection of similar elements. These similar elements could be all ints or, all floats or, all chars, etc. usually, the array of characters is called a 'string';

where as an array of ints or, floats are called simply an array. Remember that all elements of any given array must be of the same type. i-e we cannot have an array of 10 numbers of which 5 are ints and 5 are floats.

Single Dimension Array

To set up an array in memory of a computer, we must declare both the name of the array and the number of cells (size) associated with it. The declaration of an array says 8 ints as follows.

int x[8];

This declaration instructs the C compiler to associate eight memory cells with the name x. These memory cells containing different value of x will be adjacent to each other in memory. In order to manipulate data storage in an array, we reference each individual element of the array by specifying the array name and identity the element desired by a subscript.

For example the subscripted variable x[0] may be used to reference the initial or, 0th element of the array x. x[1] the next element, and finally x[7] the last element.

int x[8];

0	1	2	3	4	5	6	7
3	8	16	20	81	100	61	92

Example Using Program :-

Q. Write a Program to accept 10 int data in a single dimension array then display all even data of array.

sol.:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
int ar[10],i;
clrscr();
printf("enter 10 data in an array");
for(i=0;i<10;i++)
scanf("%d",&ar[i]);
printf("\nAll Even data of array is ");
for(i=0;i<10;i++)
{
If ar[i]%2==0)
printf("\n%d",ar[i]);
}
getch();
}
```

Q. Write a Program to accept 10 int data in a single dimension array then calculate sum of all data of array.

sol.:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
int ar[10],i,s;
clrscr();
printf("enter 10 data in an array");
for(i=0;i<10;i++)
scanf("%d",&ar[i]);
for(i=s=0;i<10;i++)
s=s+ar[i];
printf("the sum of all data of array is %d",s);
getch();
}
```

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