Chapter 4 :- Arrays

Types of Arrays

1. **Single Dimensional Array** :-

In c programming language, single dimensional arrays are used to store list of values of same datatype. In other words, single dimensional arrays are used to store a row of values.

In single dimensional array, data is stored in linear form. Single dimensional arrays are also called as one-dimensional arrays, Linear Arrays or simply 1-D Arrays.

2. **Multi Dimensional Array** :-

An array of arrays is called as multi dimensional array. In simple words, an array created with more than one dimension (size) is called as multi dimensional array.

Multi dimensional array can be of two dimensional array or three dimensional array or four dimensional array or more.

Most popular and commonly used multi dimensional array is two dimensional array. The 2-D arrays are used to store data in the form of table. We also use 2-D arrays to create mathematical matrices.

Passing Array to Function

In C, there are various general problems which requires passing more than one variable of the same type to a function. For example, consider a function which sorts the 10 elements in ascending order. Such a function requires 10 numbers to be passed as the actual parameters from the main function. Here, instead of declaring 10 different numbers and then passing into the function, we can declare and initialize an array and pass that into the function. This will resolve all the complexity since the function will now work for any number of values.

As we know that the array_name contains the address of the first element. Here, we must notice that we need to pass only the name of the array in the function which is intended to accept an array. The array defined as the formal parameter will automatically refer to the array specified by the array name defined as an actual parameter.

For Example :-

```
#include<stdio.h>
int minarray(int arr[],int size){
int min=arr[0];
int i=0;
for(i=1;i<size;i++){
if(min>arr[i]){
min=arr[i];
}
}//end of for
```

```
return min;
}//end of function

int main(){
int i=0,min=0;
int numbers[]={4,5,7,3,8,9};//declaration of array

min=minarray(numbers,6);//passing array with size
printf("minimum number is %d \n",min);
return 0;
}
```

Output :- minimum number is 3