**Arrays in C**

In C language, arrays are referred as structured data types. An array is defined as **finite ordered collection of homogenous** data, stored in contiguous memory locations.

Here the words,

* **finite** means data range must be defined.
* **ordered** means data must be stored in continuous memory addresses.
* **homogenous** *means* data must be of similar data type.

**Declaring an Array**

Like any other variable, arrays must be declared before they are used. General form of array declaration is,

data-type variable-name[size];  
  
int arr[10];

**Initialization of an Array**

After an array is declared it must be initialized. Otherwise, it will contain **garbage** value(any random value). An array can be initialized at either **compile time** or at **runtime**.

--- arr[0] =1;

.

.

---- arr[9] = 10;

Or

Int arr[10] = {1,2,3,4,5,6,7,8,9,10};

**Runtime initialization // reading numbers from user**

int arr[4];  
 int i, j;  
 printf("Enter array element");  
 for(i = 0; i < 4; i++)  
 {  
 scanf("%d", &arr[i]); //Run time array initialization  
 }

**Printing all elements of an array**

for(j = 0; j < 4; j++)  
 {  
 printf("%d\n", arr[j]);  
 }

**Printing the size of an array**

int array[] = {15, 50, 34, 20, 10, 79, 100}; //7 elements

int n; //4 (size of int in bytes)

n = sizeof(array); // 7 \* 4 = 28(bytes)

printf("Size of the given array is %d\n", n); //28

printf("Size of the given array is %d\n", sizeof(int)); //4

printf("Size of the given array is %d\n", n/sizeof(int)); //28/4 = 7

**Finding number of elements in an array :**

If the array size is 28 bytes

Each integer location takes 4 bytes

Array has 7 elements