

## One Dimensional array

A one-dimensional array is a group of elements having the same datatype and same name. Individual elements are referred to using common name and unique index of the elements.

The simplest form of an array is one-dimensional-array. The array itself is given name and its elements are referred to by their subscripts. In C++, an array is denoted as follows:

```
array_name[array_size]
```

where size specifies the number of elements in the array and the subscript (also called index) value ranges from 0 through size-1.

### C++ One Dimensional Array Example

Here are some example program, demonstrating one dimensional array in C++

**Example 1: write program to print the elements of array{1,2,3,4,5}?**

```
#include<iostream>
using namespace std;
void main( )
{
    int arr[5] = {1, 2, 3, 4, 5};
    int i;
    for(i=0; i<5; i++)
    cout<<"arr["<<i<<" ] = "<<arr[i]<<"\n";
}
```

**Example 2:write program to find the summation and average of elements in array?**

```
#include<iostream>
using namespace std;
void main()
{ int arr[10]; int i; int sum=0, avg=0;
cout<<"Enter 10 array elements: ";
for(i=0; i<10; i++) {
cin>>arr[i];
sum = sum + arr[i];
}
cout<<"\n\nThe array elements are: \n";
for(i=0; i<10; i++)
{ cout<<arr[i]<<" "; }
cout<<"\n\nSum of all elements is: "<<sum;
avg = sum/10;
cout<<"\n\nAnd average is: "<<avg;
}
```

**Example 3: write program will add two arrays and store the sum in the third array. Print them all out to the screen.**

```
#include <iostream>

using namespace std;

int main ()

{   const int MAX_ARRAY = 5;

    int a[MAX_ARRAY];

    int b[MAX_ARRAY];

    int c[MAX_ARRAY];

    int index;

        // Ask users to enter values for array a[].

        for (index = 0; index < MAX_ARRAY; index++)

{

cout << "Please input a number for the array element: ";

cin >>a[index]; }

        // Ask users to enters value for array b[].

        for (index = 0; index < MAX_ARRAY; index++)

{   cout << "Please input a number for the array element: ";

        cin >>b[index]; }

        // Store the sum of array a[] and array b[] to array c[].

        for (index = 0; index < MAX_ARRAY; index++)

{

            c[index] = a[index]+ b[index]; }

        // Add code to print out each of the arrays

        for (index = 0; index < MAX_ARRAY; index++)

{   cout << "array a is " << a[index] << endl;

        cout << "array b is " << b[index] << endl;
```

```
cout << "array c is " << c[index] << endl;
cout << endl;    }
    return 0;
}
```

**Example 4:write program to search any number in array?**

```
#include <iostream>
#include<conio.h>
using namespace std;
#define ARRAY_SIZE 5
int main() {
int numbers[ARRAY_SIZE], i ,search_key;
cout<<"Simple C++ Example Program for Simple Searching In Array\n";
// Read Input
for (i = 0; i < ARRAY_SIZE; i++)
    { cout<<"Enter the Number : "<< (i+1) <<" : ";
    cin>>numbers[i];    }
    cout<<"Enter the key\n";
    cin>>search_key;    /* Simple Search with Position */
for (i = 0; i < ARRAY_SIZE; i++)
{ if(numbers[i] == search_key)
{ cout<<"Search Element Found . Position Is : "<< (i+1) <<" \n";
break; }
if(i == ARRAY_SIZE - 1)
{ cout<<"Search Element is not in Array.\n"; }
}
}
```