
Fundamentals of Computer Programming

CS-110

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Passing an Array in Function

Week 9-c

Learning Objectives

01

To understand how to pass an array in a function

02

To practice passing an array in a function

Passing an Array in a Function

- In C++, we can pass arrays as an argument to a function.
- We can return arrays from a function as well. However, the actual array is not returned.
- Instead, the address of the first element of the array is returned with the help of pointers (We will cover this topic later)

Passing array to function in C

```
void func( int a[] , int size )  
{  
}  
  
int main( )  
{  
    int n=5;  
    int arr[5] = { 1, 2, 3, 4, 5 };  
    func( arr , n);  
    return 0;  
}
```

Pointer a takes the base address of array arr

Pointer to arr

Length of arr

The length of arr is passed. It is compulsory to pass size as is just a pointer

Example:

A Function that returns the average of elements in an array

```
double getAverage(int arr[], int size)
{
    int i, sum = 0;
    double avg;

    for (i = 0; i < size; ++i)
    {
        sum += arr[i];
    }
    avg = double(sum) / size;
    return avg;
}
```

```
#include <iostream>
using namespace std;

// function declaration:
double getAverage(int arr[], int size);

int main () {
    // an int array with 5 elements.
    int balance[5] = {1000, 2, 3, 17, 50};
    double avg;

    // pass pointer to the array as an argument.
    avg = getAverage( balance, 5 ) ;

    // output the returned value
    cout << "Average value is: " << avg << endl;
    return 0;
}
```

Example:

A Function that returns the largest element in an array

```
int findLarge(int a[], int s)
{
    int i, m;
    m = a[0];
    for(i=1; i<s; i++)
    {
        if(m<a[i])
            m = a[i];
    }
    return m;
}
```

```
#include<iostream>
#include<chrono>
using namespace std;
int findLarge(int [], int);
int main()
{
    const int size=10;
    int arr[size], larg, i;
    srand(time(0));
    for(i=0; i<size; i++)
        arr[i]=rand()%100;
    cout<<"Array Elements: ";
    for(i=0;i<size;i++)
        cout<<arr[i]<<" ";
    larg = findLarge(arr, size);
    cout<<"\nLargest Number = "<<larg;
    cout<<endl;
    return 0;
}
```




Acknowledgment

- Content of these slides are taken from:
 - <https://www.geeksforgeeks.org/>
 - <https://www.tutorialspoint.com/>
 - <https://www.programiz.com/>
 - <https://www.w3schools.com/>