**Pointer in C++**

## Definition

The pointer is a one of the C++ programming language data-type whose value refers directly to (or "points to") another value stored elsewhere in the computer memory using its address.

## Pointer Variable Assign Syntax:

pointer\_vaibale = &variable;

## C++ Example Pointer Program:

#include<iostream>

#include<conio.h>

using namespace std;

int main() {

int i = 10;

int \*Ptr;

Ptr = &i;

cout << "\nValue Of i :" << i;

cout << "\nAddress Of i :" << i;

cout << "\nValue Of Ptr :" << Ptr;

cout << "\nAddress Of Ptr :" << &Ptr;

cout << "\nPtr's Pointer Value:" << \*Ptr;

cout << "\nPtr Equal to &i :" << \*(&i);

}

## Sample Output

Value Of i :10

Address Of i :10

Value Of Ptr :0x6dfefc

Address Of Ptr :0x6dfef8

Ptr's Pointer Value:10

Ptr Equal to &i :10

(Output may vary based on system and its memory)

## Definition

Pointer is the variable that holds the address of another variable.

## Poniter Syntax

pointer\_vaibale = &variable;

## Print address of Variable Using Pointer

/\* Simple Program for Print address of Variable Using Pointer in C++\*/

// Header Files

#include <iostream>

#include<conio.h>

using namespace std;

int main() {

// Declare Variables

int a;

int \*pt;

cout << "C++ Pointer Example Program : Print Pointer Address\n";

a = 10;

pt = &a;

cout << "\n[a ]:Value of A = " << a;

cout << "\n[\*pt]:Value of A = " << \*pt;

cout << "\n[&a ]:Address of A = " << &a;

cout << "\n[pt ]:Address of A = " << pt;

cout << "\n[&pt]:Address of pt = " << &pt;

cout << "\n[pt ]:Value of pt = " << pt;

getch();

return 0;

}

## Sample Output

Pointer Example Program : Print Pointer Address

[a ]:Value of A = 10

[\*pt]:Value of A = 10

[&a ]:Address of A = 0060FF0C

[pt ]:Address of A = 0060FF0C

[&pt]:Address of pt = 0060FF08

[pt ]:Value of pt = 0060FF0C

/\* Output may vary based on system \*/

## Swap Definition

In computer programming, the act of swapping two variables refers to mutually exchanging the values of the variables. Usually, this is done with the data in memory

## Using a temporary variable

The simplest and probably most widely used method to swap two variables is to use a third temporary variable:

temp := x

x := y

y := temp

## Simple Example Program for Swap Numbers Using Pointers In C++

// Header Files

#include <iostream>

#include<conio.h>

using namespace std;

// Declare Swap Function Using Pointer

void swap\_numbers(int \*value1, int \*value2) {

int temp;

temp = \*value1;

\*value1 = \*value2;

\*value2 = temp;

}

int main() {

// Declare Variables

int number1, number2;

cout << "Simple Example Program for Swap Numbers Using Pointers In C++\n";

// Read User Input

cout << "Enter value of Swap Number # 1: ";

cin>>number1;

cout << "Enter value of Swap Number # 2: ";

cin>>number2;

//Print Values before Swapping

cout << "Before Swapping : Number # 1=" << number1 << ", Number # 2=" << number2 << "\n";

//Call Swap Function By Passing Reference

swap\_numbers(&number1, &number2);

//Print Values after Swapping

cout << "After Swapping : Number # 1=" << number1 << ", Number # 2=" << number2 << "\n";

getch();

return 0;

}

## Sample Output:

Simple Example Program for Swap Numbers Using Pointers In C++

Enter value of Swap Number # 1: 5

Enter value of Swap Number # 2: 6

Before Swapping : Number # 1=5, Number # 2=6

After Swapping : Number # 1=6, Number # 2=5