

Q1: Simple Pointer Example Program In C++

```
#include<iostream>

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;

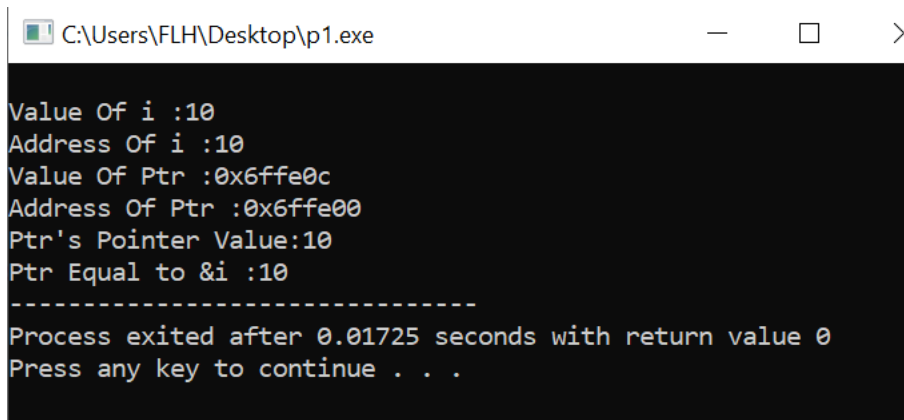
    cout << "\nAddress Of Ptr :" << &Ptr;

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

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

    return 0;

}
```



```
C:\Users\FLH\Desktop\p1.exe

Value Of i :10
Address Of i :10
Value Of Ptr :0x6ffe0c
Address Of Ptr :0x6ffe00
Ptr's Pointer Value:10
Ptr Equal to &i :10
-----
Process exited after 0.01725 seconds with return value 0
Press any key to continue . . .
```

Q2: Simple Program for Print address of Variable Using Pointer in C++

```
#include <iostream>

#include<conio.h>

using namespace std;

int main() {

    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;

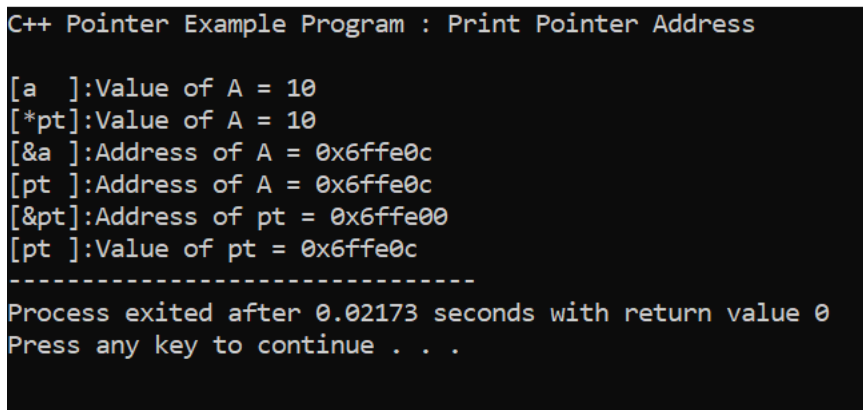
cout << "\n[pt ]:Value of pt = " << pt;

return 0;

}

```

 C:\Users\FLH\Desktop\p2.exe



```

C++ Pointer Example Program : Print Pointer Address

[a ]:Value of A = 10
[*pt]:Value of A = 10
[&a ]:Address of A = 0x6ffe0c
[pt ]:Address of A = 0x6ffe0c
[&pt]:Address of pt = 0x6ffe00
[pt ]:Value of pt = 0x6ffe0c
-----
Process exited after 0.02173 seconds with return value 0
Press any key to continue . . .

```

Q3: Pointer Simple Example Program with Reference operator (&) and Dereference operator (*)

```

#include <iostream>

#include<conio.h>

using namespace std;

int main() {

    //Pointer Variable Declaration for Integer Data Type

    int* pt;

    int var;

    cout << "C++ Pointer Example for Reference operator (&) and Dereference operator (*)\n";

    var = 1;

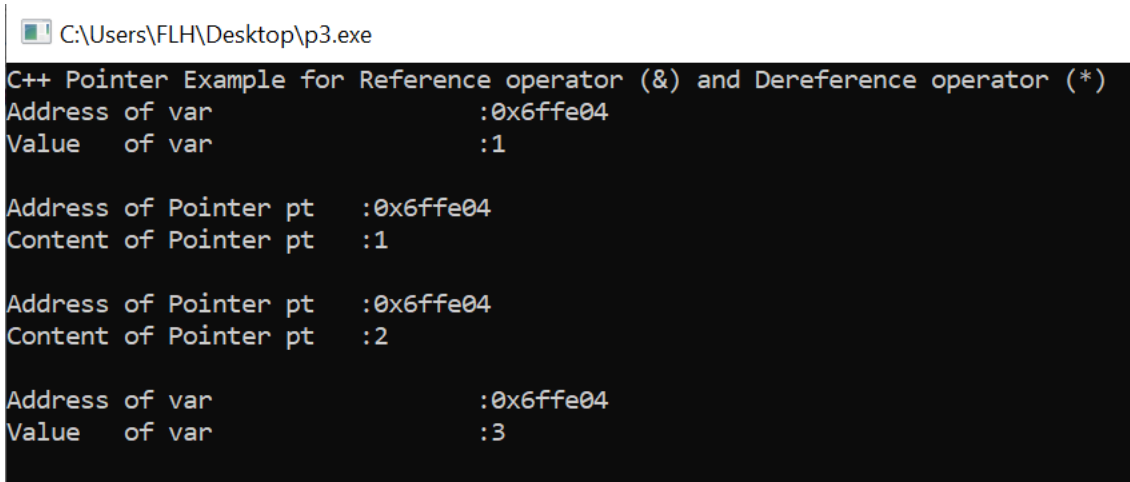
    cout << "Address of var" << &var << "\n";

```

```

cout << "Value  of var          :" << var << "\n\n";
//& takes the address of var , Here now pt == &var, so *pt == var
pt = &var;
cout << "Address of Pointer pt   :" << pt << "\n";
cout << "Content of Pointer pt   :" << *pt << "\n\n";
var = 2;
cout << "Address of Pointer pt   :" << pt << "\n";
cout << "Content of Pointer pt   :" << *pt << "\n\n";
//Assign Values using dereference operator
*pt = 3;
cout << "Address of var          :" << &var << "\n";
cout << "Value  of var          :" << var << "\n\n";
getch();
return 0;
}

```



The screenshot shows a Windows file explorer window with the file 'C:\Users\FLH\Desktop\p3.exe'. Below it is a terminal window titled 'C++ Pointer Example for Reference operator (&) and Dereference operator (*)'. The terminal output displays the following results:

```

C++ Pointer Example for Reference operator (&) and Dereference operator (*)
Address of var          :0x6ffe04
Value  of var          :1

Address of Pointer pt   :0x6ffe04
Content of Pointer pt   :1

Address of Pointer pt   :0x6ffe04
Content of Pointer pt   :2

Address of var          :0x6ffe04
Value  of var          :3

```

Q4: Simple Example Program for Swap Numbers Using Pointers In C++

```

#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;

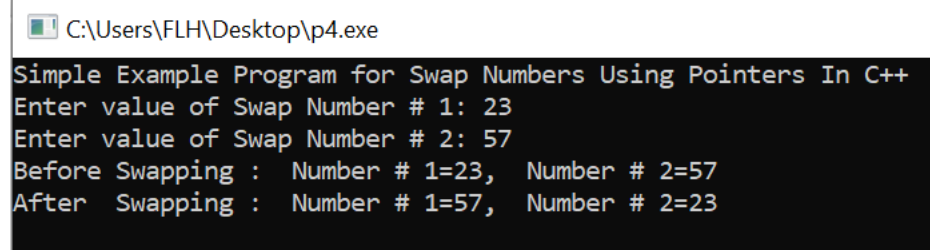
    //Print Values before Swapping
    cout << "Before Swapping : Number # 1=" << number1 << ", Number # 2=" << number2
    << "\n";

    //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;
}

```



```

C:\Users\FLH\Desktop\p4.exe
Simple Example Program for Swap Numbers Using Pointers In C++
Enter value of Swap Number # 1: 23
Enter value of Swap Number # 2: 57
Before Swapping : Number # 1=23, Number # 2=57
After Swapping : Number # 1=57, Number # 2=23

```

Q5: Print size of different types Using Pointer in C++

```
#include <iostream>
```

```

#include<conio.h>

using namespace std;

int main() {
    // Declare Variables

    int a = 10;
    int *pa = &a;
    char b = 'x';
    char *pb = &b;
    float c = 10.01;
    float *pc = &c;
    double d = 10.01;
    double *pd = &d;
    long e = 10.01;
    long *pe = &e;

    cout << "Pointer C++ Example Program : Print Size of Different types Using sizeof\n";
    cout << "\n[sizeof(a) ]: = " << sizeof (a);
    cout << "\n[sizeof(*pa) ]: = " << sizeof (*pa);
    cout << "\n[sizeof(b) ]: = " << sizeof (b);
    cout << "\n[sizeof(*pb) ]: = " << sizeof (*pb);
    cout << "\n[sizeof(c) ]: = " << sizeof (c);
    cout << "\n[sizeof(*pc) ]: = " << sizeof (*pc);
    cout << "\n[sizeof(d) ]: = " << sizeof (d);
    cout << "\n[sizeof(*pd) ]: = " << sizeof (*pd);
    cout << "\n[sizeof(e) ]: = " << sizeof (e);
    cout << "\n[sizeof(*pe) ]: = " << sizeof (*pe);
    return 0;
}

```

C:\Users\FLH\Desktop\p5.exe

Pointer C++ Example Program : Print Size of Different types Using sizeof

```
[sizeof(a) ]: = 4
[sizeof(*pa) ]: = 4
[sizeof(b) ]: = 1
[sizeof(*pb) ]: = 1
[sizeof(c) ]: = 4
[sizeof(*pc) ]: = 4
[sizeof(d) ]: = 8
[sizeof(*pd) ]: = 8
[sizeof(e) ]: = 4
[sizeof(*pe) ]: = 4
```

```
-----
Process exited after 0.01977 seconds with return value 0
Press any key to continue . . .
```

Q6: Simple Program for Add Two Numbers Using Pointer in C++

```
#include <iostream>
#include<conio.h>
using namespace std;
int main() {
    int *p1, *p2;
    int num1, num2, sum;
    cout << "Pointer Example C++ Program : Add Two Numbers \n";
    cout << "\nEnter Two Numbers for Sum : \n";
    cin>>num1;
    cin>>num2;
    p1 = &num1;
    p2 = &num2;
    sum = *p1 + *p2;
    cout << "Sum of Two Numbers : " << sum;
    getch();
    return 0;
}
```

C:\Users\FLH\Desktop\p6.exe

```
Pointer Example C++ Program : Add Two Numbers

Enter Two Numbers for Sum :
57
33
Sum of Two Numbers : 90
-----
Process exited after 6.594 seconds with return value 0
Press any key to continue . . .
```

Q7: Simple Program for Increment and Decrement Integer Using Pointer in C++

```
#include <iostream>
#include<conio.h>
using namespace std;
int main() {
    int a;
    int *pt;
    cout << "Pointer Example C++ Program : Increment and Decrement Integer\n";
    a = 10;
    pt = &a;
    (*pt)++; //Post Increment
    cout << "\n[a ]:Increment Value of A = " << a;
    ++(*pt); //Pre Increment
    cout << "\n[a ]:Increment Value of A = " << a;
    (*pt)--; //Post Decrement
    cout << "\n[a ]:Decrement Value of A = " << a;
    --(*pt); //Pre Decrement
    cout << "\n[a ]:Decrement Value of A = " << a;
    getch();
    return 0;
}
```

C:\Users\FLH\Desktop\p7.exe

Pointer Example C++ Program : Increment and Decrement Integer

[a]:Increment Value of A = 11

[a]:Increment Value of A = 12

[a]:Decrement Value of A = 11

[a]:Decrement Value of A = 10

Process exited after 8.925 seconds with return value 0

Press any key to continue . . .

Q8: Simple Program for Find a difference between two Numbers Using Pointer in C++

```
#include <iostream>
```

```
#include<conio.h>
```

```
using namespace std;
```

```
int main() {
```

```
    // Declare Variables
```

```
    int *p1, *p2;
```

```
    int num1, num2, diff;
```

```
    cout << "Pointer Example C++ Program : Find a difference between two Numbers \n";
```

```
    cout << "\nEnter Two Numbers for Find a Difference : \n";
```

```
    cin>>num1;
```

```
    cin>>num2;
```

```
    p1 = &num1;
```

```
    p2 = &num2;
```

```
    diff = *p1 - *p2;
```

```
    cout << "Difference :" << diff;
```

```
    getch();
```

```
    return 0;
```

```
}
```



```
C:\Users\FLH\Desktop\p8.exe
Pointer Example C++ Program : Find a difference between two Numbers

Enter Two Numbers for Find a Difference :
57
33
Difference :24
-----
Process exited after 6.185 seconds with return value 0
Press any key to continue . . .
```

Q9: Simple Program for Print String Using Pointer in C++

```
#include <iostream>
#include<conio.h>
using namespace std;
int main() {
    // Declare Variables
    char str[20], *pt;
    cout << "Pointer Example C++ Program : Print String \n";
    cout << "Enter Any string [below 20 chars] : ";
    cin>>str;
    // Assign to Pointer Variable
    pt = str;
    while (*pt != '\0') {
        cout << *pt;
        pt++;
    }
    getch();
    return 0;
}
```

C:\Users\FLH\Desktop\p9.exe

```
Pointer Example C++ Program : Print String
Enter Any string [below 20 chars] : MuhammadSohaib
MuhammadSohaib
-----
Process exited after 7.899 seconds with return value 0
Press any key to continue . . .
```

Q10: Simple Program for Count vowels String Using Pointer in C++

```
#include <iostream>

#include<conio.h>

using namespace std;

int main() {

    // Declare Variables

    char str[20], *pt;

    int i = 0, c = 0;

    cout << "Pointer Example C++ Program : Count vowels String \n";

    cout << "Enter Any string (small letters) [below 20 chars] : ";

    cin>>str;

    // Assign to Pointer Variable

    pt = str;

    while (*pt != '\0') {

        if (*pt == 'a' || *pt == 'e' || *pt == 'i' || *pt == 'o' || *pt == 'u')

            c++;

        i++;

        pt++;

    }

    cout << "\nLength of String : " << i;

    cout << "\nVowels Count In the String : " << c;

    cout << "\nConstant Count in the String : " << (i - c);

    getch();

    return 0;

}
```

```
C:\Users\FLH\Desktop\p10.exe
Pointer Example C++ Program : Count vowels String
Enter Any string (small letters) [below 20 chars] : MuhammadSohaib

Length of String : 14
Vowels Count In the String : 6
Constant Count in the String : 8
-----
Process exited after 12.58 seconds with return value 0
Press any key to continue . . .
```

Q11: Pointer to Pointer or Double Pointer Example Program In C++

```
#include <iostream>

#include<conio.h>

using namespace std;

int main() {

    int var;

    //Pointer Variable Declaration for Integer Data Type

    int *pt;

    //Double Pointer Variable Declaration with Double Dereference operator (**)

    int **dp;

    cout << "Pointer Example C++ Program : Pointer to Pointer or Double Pointer \n";

    var = 100;

    cout << "Address of var" << [&var] << "<< &var << "\n";

    cout << "Value of var" << [var] << "<< var << "\n\n";

    //& takes the address of var , Here now pt == &var, so *pt == var

    pt = &var;

    cout << "Address of Pointer" << [pt] << "<< pt << "\n";

    cout << "Value of Pointer" << [*pt] << "<< *pt << "\n\n";

    //& takes the address of pt , Here now dp == &pt, so *pt == pt and **dp==var

    dp = &pt;

    cout << "Address of Double Pointer" << [dp] << "<< dp << "\n";

    cout << "Value of Double Pointer" << [*dp] << "<< *dp << "\n\n";

    cout << "Double Pointer Value" << [**dp] << "<< **dp << "\n";

    getch();
```

```

return 0;
}

```

```

C:\Users\FLH\Desktop\p11.exe
Pointer Example C++ Program : Pointer to Pointer or Double Pointer
Address of var      [&var ] :0x6ffe04
Value of var       [var ]  :100

Address of Pointer  [pt  ]  :0x6ffe04
Value of Pointer    [*pt ]  :100

Address of Double Pointer [dp ] :0x6ffdf8
Value of Double Pointer [*dp ] :0x6ffe04

Double Pointer Value  [**dp] :100

-----
Process exited after 5.442 seconds with return value 0
Press any key to continue . . .

```

Q12: Simple Program for Pointer and Array Example in C++

```

#include <iostream>

#include<conio.h>

using namespace std;

#define MAX_SIZE 5

int main() {

    // Declare Variables

    int var[] = {10, 20, 30, 40, 50};

    int i = 0;

    //Pointer Variable Declaration for Integer Data Type

    int *pt;

    cout << "Pointer Example C++ Program : Pointer and Array \n";

    //& takes the address of var , Here now pt == &var, so *pt == var

    pt = &var[0];

    while (i < MAX_SIZE) {

        cout << "Position : " << i << " # Actual : Value : " << var[i] << " , Address = " <<
        &var[i] << " \n";

        cout << "Position : " << i << " # Pointer : Value : " << *pt << " , Address = " << pt << "
        \n\n";
    }
}

```

```

    i++;

    // pt++ is increasing Address value based on Data Type

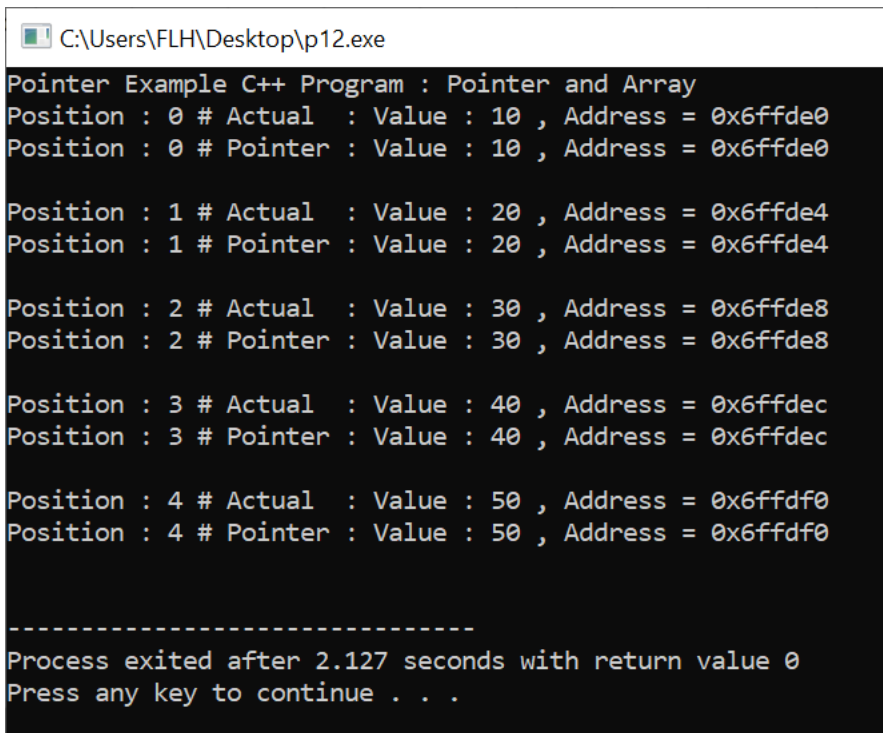
    pt++;
}

getch();

return 0;

}

```



```

C:\Users\FLH\Desktop\p12.exe
Pointer Example C++ Program : Pointer and Array
Position : 0 # Actual   : Value : 10 , Address = 0x6ffde0
Position : 0 # Pointer : Value : 10 , Address = 0x6ffde0

Position : 1 # Actual   : Value : 20 , Address = 0x6ffde4
Position : 1 # Pointer : Value : 20 , Address = 0x6ffde4

Position : 2 # Actual   : Value : 30 , Address = 0x6ffde8
Position : 2 # Pointer : Value : 30 , Address = 0x6ffde8

Position : 3 # Actual   : Value : 40 , Address = 0x6ffdec
Position : 3 # Pointer : Value : 40 , Address = 0x6ffdec

Position : 4 # Actual   : Value : 50 , Address = 0x6ffdf0
Position : 4 # Pointer : Value : 50 , Address = 0x6ffdf0

-----
Process exited after 2.127 seconds with return value 0
Press any key to continue . . .

```

Q13: Simple Program for Sum of Integer an array using pointers in C++

```

#include <iostream>

#include<conio.h>

using namespace std;

#define MAX_SIZE 5

int main() {

    // Declare Variables

    int var[] = {10, 20, 30, 40, 50};

    int i = 0, sum = 0;

    //Pointer Variable Declaration for Integer Data Type

    int *pt;

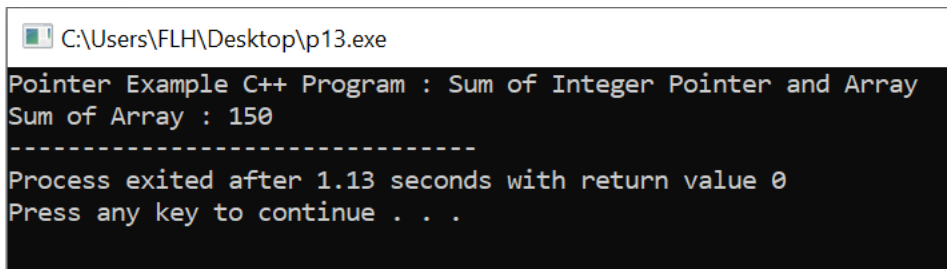
```

```

cout << "Pointer Example C++ Program : Sum of Integer Pointer and Array \n";

//& takes the address of var , Here now pt == &var, so *pt == var
pt = &var[0];
while (i < MAX_SIZE) {
    i++;
    // Calculate sum using pointer
    sum = sum + *pt;
    // pt++ is increasing Address value based on Data Type
    pt++;
}
cout << "Sum of Array : " << sum;
getch();
return 0;
}

```



```

C:\Users\FLH\Desktop\p13.exe
Pointer Example C++ Program : Sum of Integer Pointer and Array
Sum of Array : 150
-----
Process exited after 1.13 seconds with return value 0
Press any key to continue . . .

```

Q14: Simple Example Program for Passing pointers to functions In C++

```

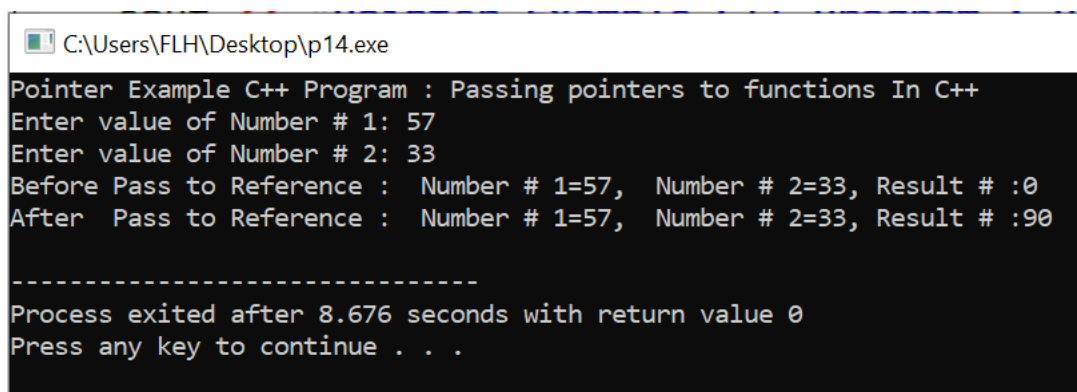
#include <iostream>
#include<conio.h>
using namespace std;
// Declare Add Numbers Function Using Pointer
void add_numbers(int *value1, int *value2, int *result) {
    *result = *value1 + *value2;
}
int main() {
    // Declare Variables
    int number1, number2, result = 0;

```

```

cout << "Pointer Example C++ Program : Passing pointers to functions In C++ \n";
// Read User Input
cout << "Enter value of Number # 1: ";
cin>>number1;
cout << "Enter value of Number # 2: ";
cin>>number2;
//Print Values Pass to Reference
cout << "Before Pass to Reference : Number # 1=" << number1 << ", Number # 2=" <<
number2 << ", Result # :" << result << "\n";
//Call add_numbers Function By Passing Reference
add_numbers(&number1, &number2, &result);
//Print Values Pass to Reference
cout << "After Pass to Reference : Number # 1=" << number1 << ", Number # 2=" <<
number2 << ", Result # :" << result << "\n";
getch();
return 0;
}

```



```

C:\Users\FLH\Desktop\p14.exe
Pointer Example C++ Program : Passing pointers to functions In C++
Enter value of Number # 1: 57
Enter value of Number # 2: 33
Before Pass to Reference : Number # 1=57, Number # 2=33, Result # :0
After Pass to Reference : Number # 1=57, Number # 2=33, Result # :90
-----
Process exited after 8.676 seconds with return value 0
Press any key to continue . . .

```

Q15: Simple Example Program for Area Of Circle Using Pointer In C++

```

#include <iostream>
#include<conio.h>
using namespace std;
// Declare Area of Circle Function Using Pointer
void area_of_circle(float *value, float *result) {
    *result = 3.14 * (*value) * (*value);
}

```

```

}

int main() {
    float radius, area;

    cout << "Pointer Example C++ Program : Area Of Circle Using Pointer and Functions\n";
    cout << "\nEnter the radius of Circle : ";
    cin>>radius;


    //area = 3.14 * radius * radius;
    area_of_circle(&radius, &area);

    cout << "\nArea of Circle : " << area;

    getch();

    return 0;
}

```

 C:\Users\FLH\Desktop\p15.exe

```

Pointer Example C++ Program : Area Of Circle Using Pointer and Functions

Enter the radius of Circle : 57

Area of Circle : 10201.9
-----
Process exited after 4.264 seconds with return value 0
Press any key to continue . . .

```