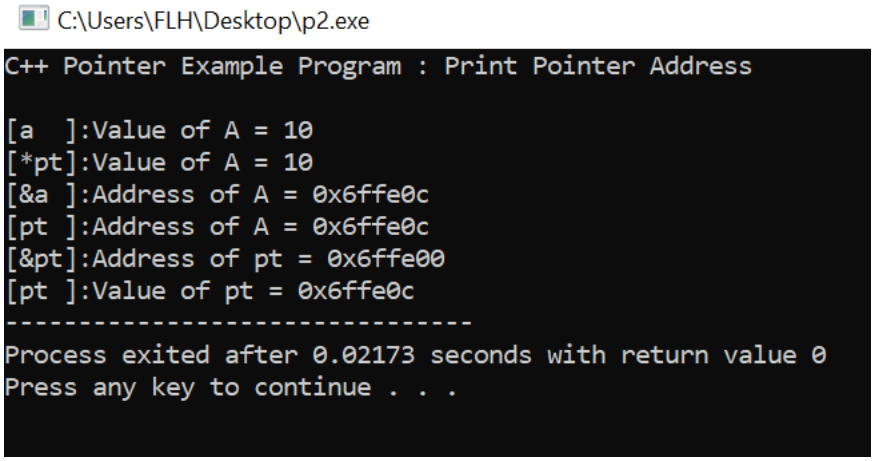
Q1: Simple Pointer Example Program In C++

```
#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;
}
```

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;
}
```



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";
```

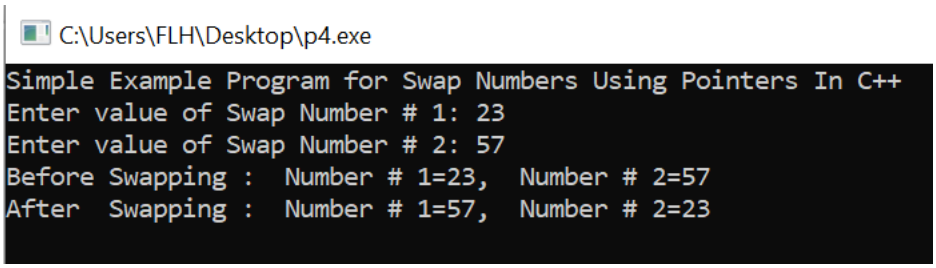
```
   cout << "Value   of var                    :" << var << "\n\n";
   //& takes the address of var , Here now pt == &var, so *pt == var
   pt = &var;
   cout << "Address of Pointer pt       :" << pt << "\n";
   cout << "Content of Pointer pt       :" << *pt << "\n\n";
   var = 2;
   cout << "Address 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;
}
```

```
C:\Users\FLH\Desktop\p3.exe
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;
```

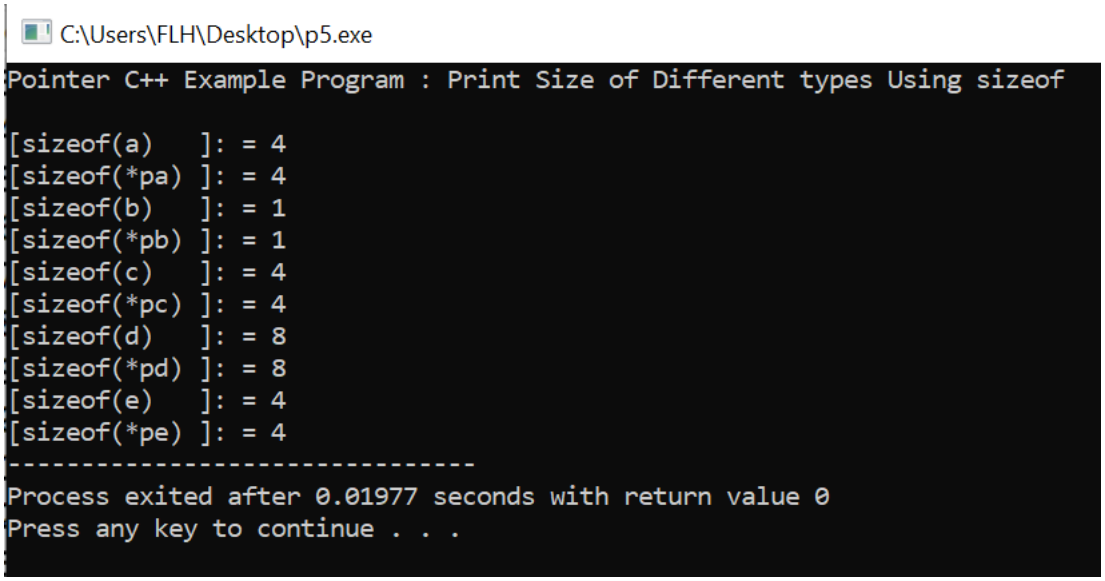
```
   temp = *value1;
   *value1 = *value2;
   *value2 = temp;
}
int main() {
   // Declare Variables
   int number1, number2;
   cout << "Simple Example Program for Swap Numbers Using Pointers In C++\n";
   // Read User Input
   cout << "Enter value of Swap Number # 1: ";
   cin>>number1;
   cout << "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;
}
```



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

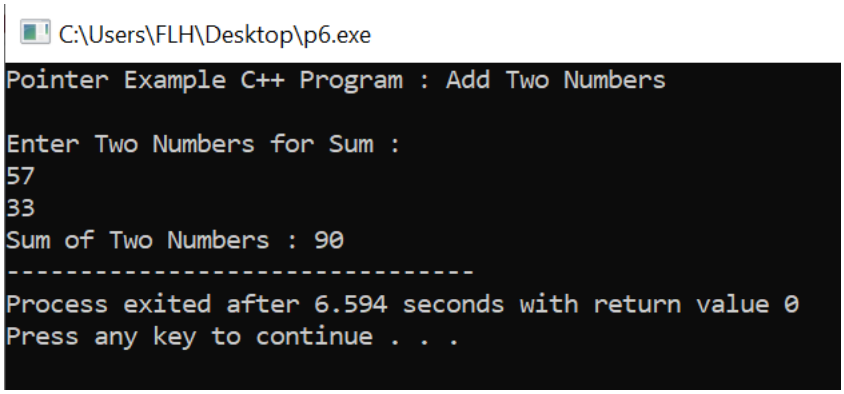
```
#include <iostream>
```

```
#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;
}
```



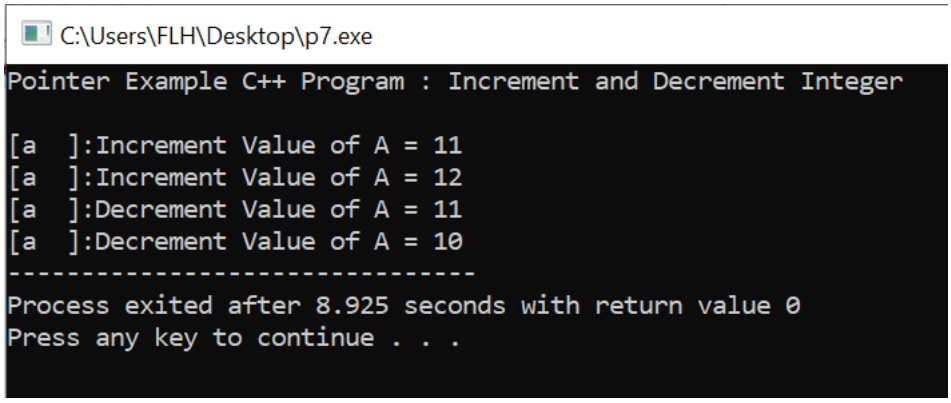
Q6: Simple Program for Add Two Numbers Using Pointer in C++

```
#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;
}
```



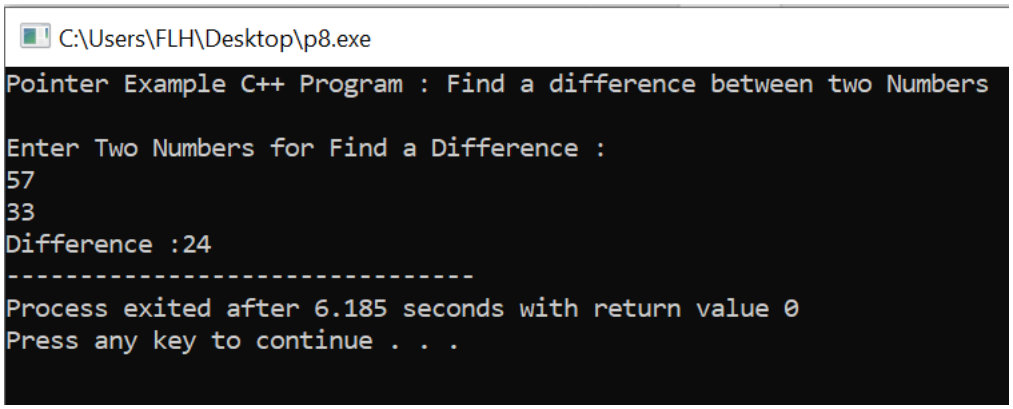
Q7: Simple Program for Increment and Decrement Integer Using Pointer in C++

```
#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;
}
```



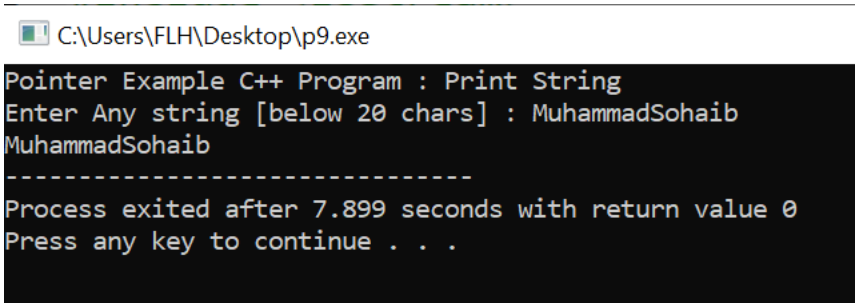
Q8: Simple Program for Find a difference between two Numbers Using Pointer in C++

```
#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;
}
```



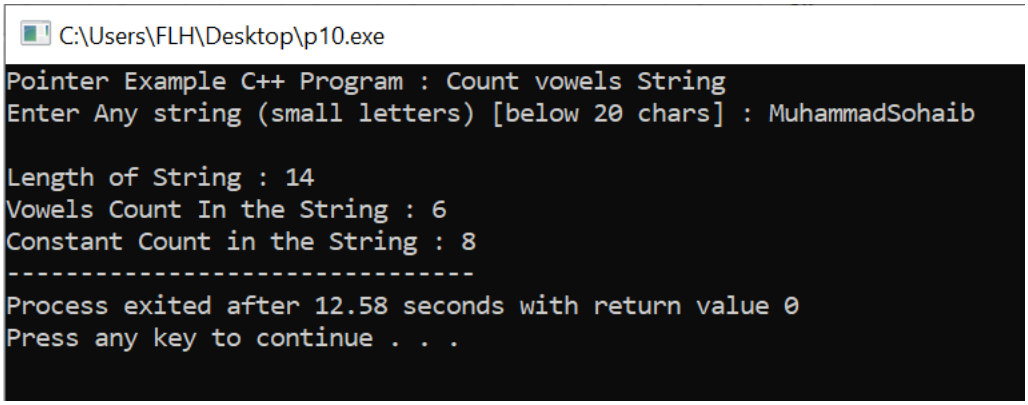
Q9: Simple Program for Print String Using Pointer in C++

```
#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;
}
```



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

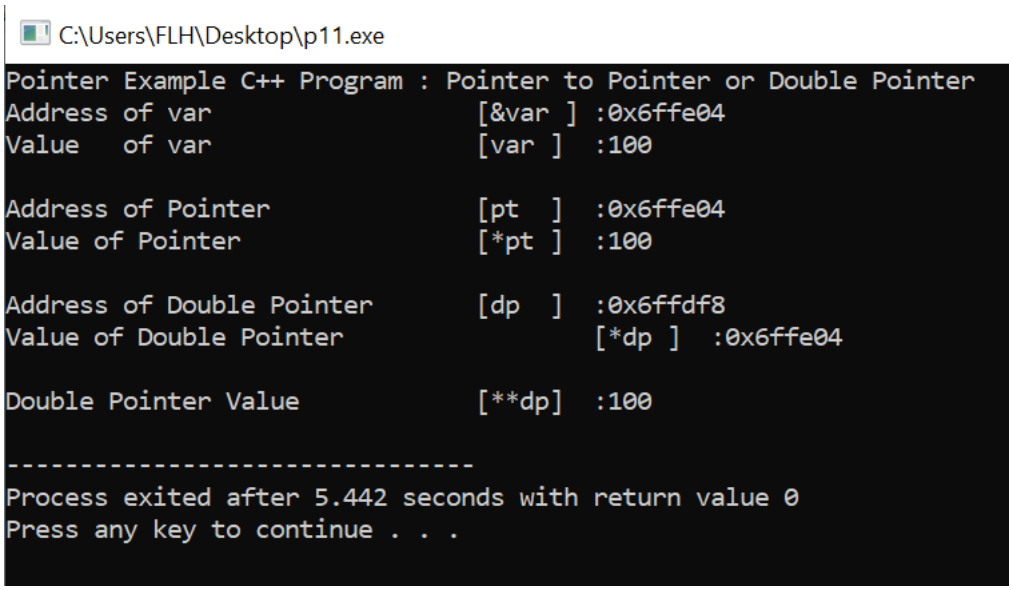
```
#include <iostream>
#include<conio.h>
using namespace std;
int main() {
  // Declare Variables
  char str[20], *pt;
  int i = 0, c = 0;
  cout << "Pointer Example C++ Program : Count vowels String \n";
  cout << "Enter Any string (small letters) [below 20 chars] : ";
  cin>>str;
  // Assign to Pointer 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;
}
```



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();
```

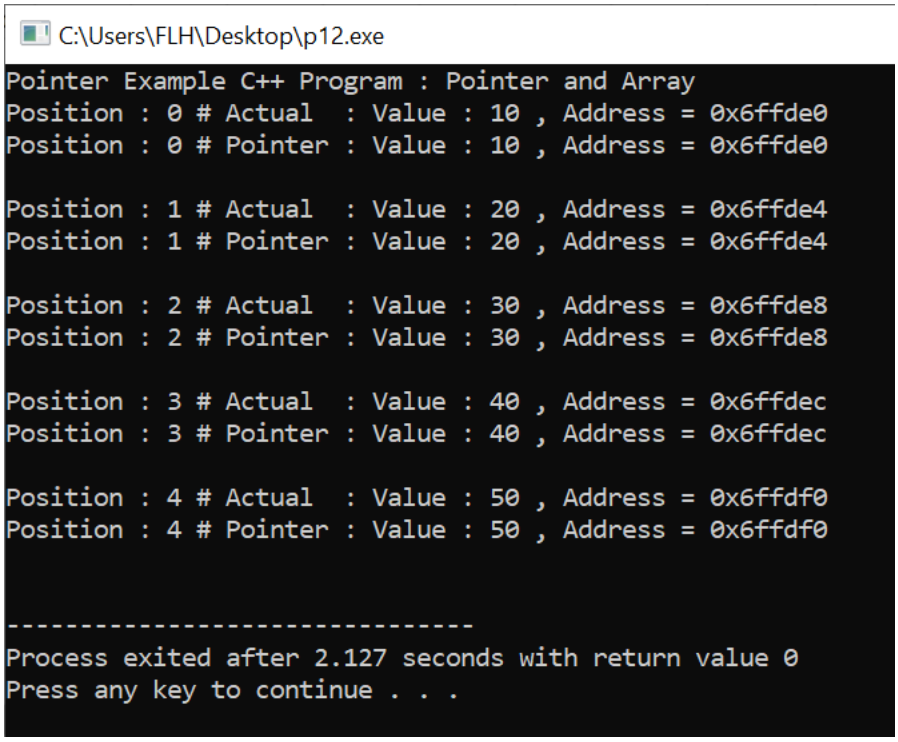
```
  return 0;
}
```



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";
```

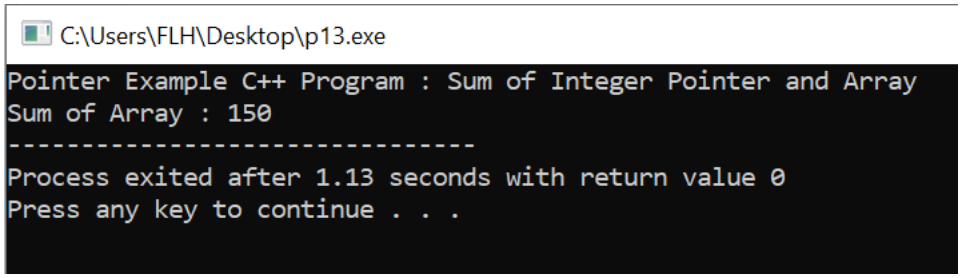
```
    i++;
    // pt++ is increasing Address value based on Data Type
    pt++;
  }
  getch();
  return 0;
}
```



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;
```

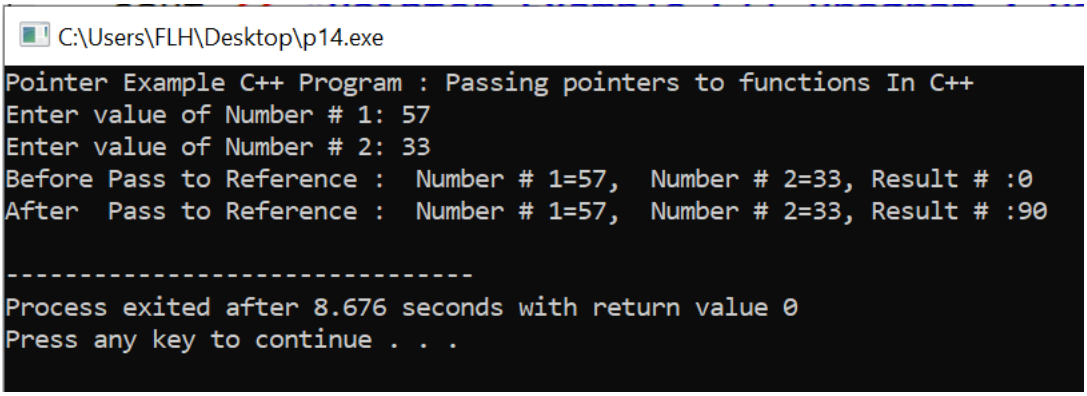
```
  cout << "Pointer Example C++ Program : Sum of Integer Pointer and Array \n";

  //& 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;
}
```



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;
}
```



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;
}
```