**LAB 11**

**Objectives**

To understand the concept of pointers.

**Task 1**

**Compile following code and observe the result.**

int main()

{

int i=5;

int \*j;

j=&i;

cout<<"\nAddress of i= "<<&i;

cout<<"\nAddress of i= "<<j;

cout<<"\nAddress of j= "<<&j;

cout<<"\n valueof j= "<<j;

cout<<"\n valueof i= "<<i;

cout<<"\n valueof i= "<<\*(&i);

cout<<"\n valueof i= "<<\*j;

}

#include<iostream>

using namespace std;

int main()

{

int i=5;

int \*j;

j=&i;

cout<<"\nAddress of i= "<<&i<<endl;

cout<<"\nAddress of i= "<<j<<endl;

cout<<"\nAddress of j= "<<&j<<endl;

cout<<"\n valueof j= "<<j<<endl;

cout<<"\n valueof i= "<<i<<endl;

cout<<"\n valueof i= "<<\*(&i)<<endl;

cout<<"\n valueof i= "<<\*j<<endl;

system("pause");

}

**Task 2**

Write a function that calculates the square of any integer given by user. Pass the value by reference.

#include<iostream>

using namespace std;

int sq(int &num);

void main()

{

int num,x;

cout<<"Enter number : ";

cin>>num;

x=sq(num);

cout<<"\nSquare of "<<num<<" is "<<x<<endl;;

system("pause");

}

int sq(int &num)

{

num=num+1;

return num\*num;

}

**Task 3**

Write a function that calculates the area of circle. Pass the parameter by reference.

#include<iostream>

using namespace std;

float area(float &r);

void main()

{

float r,x;

cout<<"Enter Radius of Circle : ";

cin>>r;

x=area(r);

cout<<"Radius is "<<r<<endl;

cout<<"Area of Circle is "<<x<<endl;;

system("pause");

}

float area(float &r)

{

r=r+1;

return 3.14\*r\*r;

}

**Task 4**

Write a function that swaps the values of two integers by using pointers.

#include<iostream>

using namespace std;

void swaping(int \*a,int \*b);

void main()

{

int a,b;

cout<<"Enter first integer number : ";

cin>>a;

cout<<"Enterm second integer number : ";

cin>>b;

swaping(&a,&b);

cout<<a<<" and "<<b<<endl;

system("pause");

}

void swaping(int \*a,int \*b)

{

int temp;

temp=\*a;

\*a=\*b;

\*b=temp;

}

**Task 5**

* Write a program that contains array of type character. Elements of array should be from A to J. Print this array with help of pointers. Also prints the addresses of array elements.

#include<iostream>

using namespace std;

void main()

{

char alpha[10]={'A','B','C','D','E','F','G','H','I','J'};

char \*ptr=&alpha[0];

for(int i=0;i<10;i++)

{

cout<<"Address of "<<\*ptr<<" is "<<&alpha<<endl;

ptr++;

}

system("pause");

}

* Print array elements in reverse order.

#include<iostream>

using namespace std;

void main()

{

char alpha[10]={'A','B','C','D','E','F','G','H','I','J'};

char \*ptr=&alpha[9];

for(int i=0;i<10;i++)

{

cout<<"Address of "<<\*ptr<<" is "<<&alpha<<endl;

ptr--;

}

system("pause");

}

**Task 6**

Write a program that contains array of type integer. The length of array should be 10.Calculate the sum, average of elements of array using pointer.

#include<iostream>

using namespace std;

void main()

{

int num[11]={ 2,3,4,5,8,10,12,14,15,16},sum = 0;

float avg;

int \*ptr=&num[0];

for(int i=0;i<10;i++)

{

cout<<\*ptr<<endl;

ptr++;

sum=sum+\*ptr;

}

cout<<"\nsum of ten integer is "<<sum<<endl;

avg = float(sum)/10;

cout<<"Average of ten integer is "<<avg<<endl;

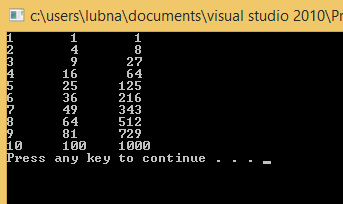
system("pause");

}

**Task 7**

Write a program that contains array of 10 integer elements. Calculate the square and cube of all element using pointers.

**Example**



#include<iostream>

using namespace std;

void main(){

int num[10]={1,2,3,4,5,6,7,8,9,10};

int \*ptr = &num[0];

for(int i = 0; i< 10; i++)

{

cout<<\*ptr<<"\t"<<\*ptr \* \*ptr<<"\t"<<\*ptr \* \*ptr \* \*ptr<<endl;

ptr++;

}

system("pause");

}