**Experiment-11**

**Aim: write a program to define a function template for calculating the square of a given number of different data types and also create template function for swapping of numbers of different data types.**

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#include <iostream>

#include <stdlib.h>

#include <conio.h>

#include <string.h>

using namespace std;

template<class T>

T square(T &x)

{

T y;

y=x\*x;

return y;

}

template<class T1>

void Swap(T1 &a,T1 &b)

{

T1 t;

t=a;

a=b;

b=t;

cout<<"After Swapping\n("<<a<<","<<b<<")"<<endl;

}

void Swap(int &c, int &d)

{

int e;

e=c;

c=d;

d=e;

cout<<"After swapping \n("<<c<<","<<d<<")"<<endl;

}

void Swap( char \*\*p,char \*\*q)

{

char \*z=\*p;

\*p=\*q;

\*q=z;

cout<<"After swaping \n"<<"str1="<<\*p<<"\n"<<"str2="<<\*q<<"\n";

}

int main()

{

int a,b;

float c,d;

double i;

char \*p="Hello",\*q="World";

cout<<"\*\*\*\*\*Squaring of Numbers\*\*\*\*\*\n\n";

cout<<"Enter any integer number: ";

cin>> a;

cout<<"square of number= "<<square(a);

cout<<"\nEnter any double number: ";

cin>>i;

cout<<"square of number= "<<square(i);

cout<<"\n\n\*\*\*\*\*\*Swapping\*\*\*\*\*\*\n\n";

cout<<"Swapping integer numbers \n";

a=6; b=7;

cout<<"swap("<<a<<","<<b<<")\n";

Swap(a,b);

cout<<"\nSwapping floating numbers\n";

cout<<"Swap(5.5,8.5)\n";

c=5.5;d=8.5;

Swap(c,d);

cout<<"\nSwapping characters\n";

cout<<"swap(l,m)\n";

char g='l',h='m';

Swap(g,h);

cout<<"\nSwapping Strings\n";

cout<<"strings before swapping\n";

cout<<"str1="<<p<<"\n"<<"str2="<<q<<endl;

cout<<"Strings ";

Swap(&p,&q);

return 0;

}

**OUTPUT**

