**Practical-10**

**Q. Program to create a triangle class and overloading area function and assignment and equality operators .**

**Code:-**

//Harsh Bamotra AC-1216

//Program to create a triangle class

#include <iostream>

#include <cmath>

using namespace std;

//defining class triangle

class triangle

{

private: //defining private members

double base , height , side;

public:

void setData(double x , double y , double z) //function to initialize the private members

{

base=x;

height=y;

side=z;

}

void setData(double x , double y) //overloading setData

{

base=x;

height=y;

side=0;

}

double area(double base , double height) //function to calculate the area

{

double area;

area=0.5\*base\*height;

return area;

}

double area(double base , double height , double side) //overloading area

{

double area , sp;

sp=(base+height+side)/2;

area=sqrt(sp\*(sp-base)\*(sp-height)\*(sp-side));

return area;

}

void operator =(triangle &m) //overloading assignment operator

{

m.base=base;

m.height=height;

m.side=side;

}

bool operator ==(triangle &m) //overloading equality operator

{

if(m.base==base && m.height==height && m.side==side)

{

return true;

}

else

{

return false;

}

}

};

int main()

{

double s1 , s2 , s3; //defining variables

int ch;

triangle t1 , t2; //defining objects

cout << endl << "\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* MENU \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*" << endl;

cout << "1. Find area using three sides." << endl;

cout << "2. Find area using two sides." << endl;

cout << "Enter your choice ::";

cin >> ch;

switch (ch)

{

case 1:

cout << endl << "\*\*\*\*\* Enter the sides of the triangle \*\*\*\*\*" << endl;

cout << "Enter the first side of the triangle::";

cin >> s1;

cout << "Enter the second side of the triangle::"; //taking the length of sides

cin >> s2;

cout << "Enter the third side of the triangle::";

cin >> s3;

t1.setData(s1 , s2 , s3); //initializing data members

cout << "The area of the triangle::" << t1.area(s1 , s2 , s3) << endl;

break; //printing the result

case 2:

cout << endl << "\*\*\*\*\* Enter the sides of the triangle \*\*\*\*\*" << endl;

cout << "Enter the first side of the triangle::";

cin >> s1;

cout << "Enter the second side of the triangle::"; //taking the length of sides

cin >> s2;

t1.setData(s1 , s2); //initializing data members

cout << "The area of the triangle::" << t1.area(s1 , s2) << endl;

break; //printing the result

default:

cout << "Wrong Input !! Exiting !!";

break;

}

if(ch==1 || ch==2)

{

t1=t2; //demonstrating assignment

cout << endl << "\*\*\*\*\*\*\*\*\*\* Checking assignment \*\*\*\*\*\*\*\*\*\*\*" << endl;

if(t1==t2) //demonstrating equality operator

{

cout << "Assignment successfull !!";

}

else //printing if the assignment is successfull

{

cout << "Not successfull !!";

}

}

return 0;

}

# Output:-

A screenshot of a computer

Description automatically generated with medium confidence

# Harsh Bamotra AC-1216