```cpp
// Implementation of Triangle.h
#include <iostream>
#include <string>
#include <cmath>

// Must include the header file that is being implemented
#include "Triangle.h"

using namespace std;

// Constructor
Triangle::Triangle(double side1, double side2, double side3)
{
	//data validation
	if (side1 < 0)
		side1 = 0;
	if (side2 < 0)
		side2 = 0;
	if (side3 < 0)
		side3 = 0;
	this->setSides(side1, side2, side3);
}

// Destructor
Triangle::~Triangle()
{
	//no clean up required for this class...
}

// function to set three sides of a triangle
void Triangle::setSides(double side1, double side2, double side3)
{
	//data validation
	if (side1 < 0)
		side1 = 0;
	if (side2 < 0)
		side2 = 0;
	if (side3 < 0)
		side3 = 0;
	this->sides[0] = side1;
	this->sides[1] = side2;
	this->sides[2] = side3;
}

// function to get the values of three sides of triangle
void Triangle::getSides(double &side1, double &side2, double &side3)
{
	side1 = this->sides[0];
	side2 = this->sides[1];
	side3 = this->sides[2];
}

// function that calculates and sets the value of area member varaible
void Triangle::findArea()
{
	// Calculate area using Heron's Formula
	// http://www.mathsisfun.com/geometry/herons-formula.html
	double s = this->getPerimeter() / 2;
	// FIXME
	// Find area using Heron's formula provided in the above link and
	// set the value for area with the calculated value;
	this->area = 0;
}

```

```
65  // function to calculate and return perimeter of triangle
66  double Triangle::getPerimeter()
67  {
68        // FIXME
69        // Calculate the perimeter of the triangle and return it
70        return 0;
71  }
72
73  // function that returns area of a triangle
74  double Triangle::getArea()
75  {
76        return this->area;
77  }
78
79  // function that determines the type of a triangle and returns the same
80  string Triangle::getType()
81  {
82        //Equilateral triangle: all three sides must be equal
83        if (this->sides[0] == this->sides[1] && this->sides[1] == this->sides[2])
84              return "Equilateral";
85        // FIXME
86        // Add the rule for checking if the triangle is Isosceles
87        else // no sides are equal
88              return "Scalene";
89  }
```