Inheritance_Lab5

May 11, 2020

In [ ]:
```
// Example solution for Rectangle and Square friend classes
#include <assert.h>
#include <iostream>
using std::cout;

// Declare class Square
class Square{
// Add public constructor to Square, initialize side_
    // Add friend class Rectangle
    // Add private attribute side_
private:
    int side_;
    friend class Rectangle;
public:
    Square(int s) : side_(s){Side(s);}
    void Side(int s){
        if(s<=0){cout<<"Side: Error: Invalid Input.\n";}
        else{side_ = s;}
    }
};

class Rectangle{
// Define class Rectangle
    // Add public function to Rectangle: Area()
    // Add private attributes width_, height_;
public:
// Define a Rectangle constructor that takes a Square
// Define Area() to compute area of Rectangle
    Rectangle(const Square &square): width_(square.side_), height_(square.side_){}
    int Area() const {return width_ * height_;}
private:
    int width_{0};
    int height_{0};
};

// Update main() to pass the tests
int main(){
    Square square(4);
```

```
    Rectangle rectangle(square);
    assert(rectangle.Area() == 16);
    cout<<rectangle.Area()<<"\n";
}
```

Compile & Execute

Explain
Loading terminal (id_iyjd706), please wait...
Hide Solution

In [ ]:
```
// Example solution for Rectangle and Square friend classes
#include <assert.h>

// Declare class Rectangle
class Rectangle;

// Define class Square as friend of Rectangle
class Square {
// Add public constructor to Square, initialize side
public:
    Square(int s) : side(s) {}

private:
    // Add friend class Rectangle
    friend class Rectangle;
    // Add private attribute side to Square
    int side;
};

// Define class Rectangle
class Rectangle {
// Add public functions to Rectangle: area() and convert()
public:
    Rectangle(const Square& a);
    int Area() const;

private:
    // Add private attributes width, height
    int width {0};
    int height {0};
};

 // Define a Rectangle constructor that takes a Square
Rectangle::Rectangle(const Square& a) : width(a.side), height(a.side)
{
}
```

```
// Define Area() to compute area of Rectangle
int Rectangle::Area() const
{
    return width * height;
}
// Update main() to pass the tests
int main()
{
    Square square(4);
    Rectangle rectangle(square);
    assert(rectangle.Area() == 16);
}
```