Object Oriented Programming

Lab task #9

Submitted by

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Submitted to

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Question #1

Code:

```cpp
#include<iostream>                       //Including header files
using namespace std;
class rectangle                          // Class with rectangle name
{
    private:                             // Class members which are private.
    float length;
    float width;

    public:                              // Function prototypes and are public.
    void setlength(float l);             // function to set length
    void setwidth(float w);               // function to set width
    float perimeter(float length , float width);          // function to get perimeter
    float area(float length , float width);               // function to get area
    void show();                                          // function to display data
    int sameArea(rectangle r1);                           // function to compare two rectangles

};
// using a function outside the class with the help of scope resolution operator
void rectangle::setlength(float l)
{
    length = l;                  //setting length
}

void rectangle::setwidth(float w)
{
    width = w;                   //setting width
}

float rectangle::perimeter(float length , float width)
{
    return 2 * (length+width);       // calculating perimeter
}

float rectangle::area(float length , float width)
{
    return length * width;           // calculating area
}
```

```cpp
38
39   void rectangle::show()                // displaying data
40   {
41       cout<<"Length is: "<<length<<endl;
42       cout<<"Width is: "<<width<<endl;
43       cout<<"Perimeter is: "<<perimeter(length , width)<<endl;
44       cout<<"Area is: "<<area(length , width)<<endl;
45   }
46
47   int rectangle::sameArea(rectangle r1)
48   {
49       float areaf = length * width;            //calculating the area of the first rectangle
50       float areas = r1.length * r1.width;       //calculating the area of the second rectangle
51       if (areaf == areas)                      //comparing the areas
52       {
53           cout<<"Area is same."<<endl;
54           return 1;
55       }
56       else
57       {
58           cout<<"Area is not same."<<endl;
59           return 0;
60       }
61
62   }
63
```

```cpp
63
64   int main()
65   {
66       rectangle r1 , r2;                          // creating object
67
68       r1.setlength(5);                            //passing values.|
69       r1.setwidth(2.5);
70       cout<<"Rectangle #1 "<<endl;
71       r1.show();
72       cout<<"---------------------------------------------"<<endl;
73
74       r2.setlength(5);
75       r2.setwidth(18.9);
76       cout<<"Rectangle #2 "<<endl;
77       r2.show();
78       cout<<"---------------------------------------------"<<endl;
79
80       cout<<"Comperision of regtangle #1 and regtangle #2"<<endl;
81       r1.sameArea(r2);
82       cout<<"---------------------------------------------"<<endl;
83
84       cout<<"By changing the values of rectangle #1"<<endl;
85
86       r1.setlength(15);
87       r1.setwidth(6.3);
88       cout<<"Rectangle #1 "<<endl;
89       r1.show();
90       cout<<"---------------------------------------------"<<endl;
91
92       cout<<"Again comperision of regtangle #1 and regtangle #2"<<endl;
93       r1.sameArea(r2);
94       cout<<"---------------------------------------------"<<endl;
95   }
```

Output:

Question #2

Code:

```cpp
#include<iostream>                          //Including header files
using namespace std;
class complex                               // Class with complex name
{
    public:                                 // Class members which are public.
    float rnum;
    float inum;
    float result;

    public:                                 // Function prototypes and are public.
    void set(float, float);                 // function to set data
    void disp();                            // function to get data
    complex sum(complex);                   // function to get sum of complex number

};
// using a function outside the class with the help of scope resolution operator
void complex::set(float r ,float i)
{
    // Assigning values to the class members
    rnum = r;
    inum = i;
}
// displaying the values
void complex::disp()
{
    cout<<"Complex number: "<<rnum<<" + "<<inum<<"i"<<endl;
}

complex complex::sum(complex c)
{
    // calculating the sum
    c.rnum = rnum + c.rnum;

    c.inum = inum + c.inum;
    return c;
}
```

```
37
38    int main()
39    {
40        complex c1 , c2, c3;                    // creating object
41
42        // passing values
43        cout<<"Number #1"<<endl;
44        c1.set(4 , 2);
45        c1.disp();
46
47        cout<<"Number #2"<<endl;
48        c2.set(3 , 8);
49        c2.disp();
50
51        c3 = c2.sum(c1);
52        cout<<"Sum of two complex number is: "<<c3.rnum<<" + "<<c3.inum<<"i"<<endl;
53
54    }
55
```

Output:

```
TERMINAL    OUTPUT    PROBLEMS    DEBUG CONSOLE


PS C:\Users\saada\Desktop\done\LabTask> cd "c:\Users\saada\Desktop\done\LabTask\Task 9"
PS C:\Users\saada\Desktop\done\LabTask\Task 9> & .\"Q2.exe"
Number #1
Complex number: 4 + 2i
Number #2
Complex number: 3 + 8i
Sum of two complex number is: 7 + 10i
PS C:\Users\saada\Desktop\done\LabTask\Task 9>
```