

VIT - Vellore

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BCSE102P_Structured and Object Oriented Programming Lab_VL2024250502365

VIT V_Structured and OOP_Lab 5_COD_Hard_Static data Members functions

Attempt : 1

Total Mark : 10

Marks Obtained : 10

Section 1 : Coding

1. Problem statement

Alice is working on a program to manage multiple rectangles using a class named Rectangle. This class contains a static data member count to keep track of the total number of rectangle instances created and a static member function getCount() that returns the value of count. The class also has non-static member functions: setDimensions(int l, int w) to set the length and width of each rectangle and getArea() to calculate the area of the rectangle. Whenever a new rectangle is instantiated, the static member count is incremented.

Help Alice to retrieve the total number of rectangles created and calculate the area for each rectangle.

Formula:

Area = length * width

Answer

```
// You are using GCC
#include<iostream>
#include<vector>
using namespace std;
```

```
class Rectangle{
public:
    static int count;
    int l,b;

    static int getCount(){
        return count;
    }

    void setDimensions(int x, int y){
        l = x;
        b = y;
        count++;
    }

    int getArea(){
        return l*b;
    }
};

int Rectangle :: count = 0;
```

```
int main(){
    int n;
    cin>>n;

    Rectangle rect[n];

    for(int i = 0; i < n; i++){
        int x,y;
        cin>>x>>y;
        rect[i].setDimensions(x,y);
```

```
}  
cout<<"Total number of rectangles: "<<Rectangle::getCount()<<endl;  
for(int i = 0; i < n; i++){  
    cout<<"Area of rectangle "<<i+1<<": "<<rect[i].getArea()<<endl;  
}  
return 0;  
}
```

Status : Correct

Marks : 10/10