



## SCS 1310 - Object Oriented Programming

### Practical - 07

Upload your answers in a pdf file renamed with your index.

1. Consider the following declaration of the Shape class and write a C++ program to satisfy the given requirements.

```
class Shape {  
protected:  
    float width, height;  
public:  
    void set_data(float a, float b) {  
        width = a; height = b;  
    }  
};
```

Requirements:

- a) Add a parameterized constructor to shape class that gives value to width and height.
- b) Initially define two functions in the `Shape` class to calculate the areas of a triangle and a rectangle. You will refactor these methods into separate classes in Part (d) later.

$$\begin{aligned}\text{Area of a Triangle} &= (1/2) \times \text{width} \times \text{height} \\ \text{Area of a Rectangle} &= \text{width} \times \text{height}\end{aligned}$$

- c) Write a `main()` function to display the areas of triangle and rectangle.
  - d) Try to create two separate classes (`Triangle` and `Rectangle`) that inherits from `Shape` class and have the area calculation method inside those two classes and do the needful changes to the sub question a).
- 
2. Write a program to print the area of a rectangle by creating a class named 'Area' having two functions. First function named as 'setDim' takes the length and breadth of the rectangle as parameters and the second function named as 'getArea' returns the area of the rectangle. Length and breadth of the rectangle are entered through keyboard.
  3. Write a program that would print the information (name, year of joining, salary, address) of three employees by creating a class named 'Employee'. The output should be as follows:

Name	Year of joining	Address
Robert	1994	64C- WallsStreat
Sam	2000	68D- WallsStreat
John	1999	26B- WallsStreat

4. Write a C++ program to add two matrices using multi-dimensional arrays.
  
5. Write a program by creating an 'Employee' class having the following functions and print the final salary.
  - a) 'getInfo()' which takes the salary, number of hours of work per day of employee as parameters.
  - b) 'AddSal()' which adds \$10 to the salary of the employee if it is less than \$500.
  - c) 'AddWork()' which adds \$5 to the salary of the employee if the number of hours of work day is more than 6 hours.