

Lab Tasks

(Question to revise Class and Object concepts)

1. Create a class called **Pair** that has two public integer member variables named "a" and "b", and a public member function named **sum()** that has no arguments but adds the two member variables together and returns their sum.
2. Kristen is a contender for valedictorian of her high school. She wants to know how many students (if any) have scored higher than her in the 5 exams given during this semester.

Create a class named **Student** with the following specifications:

- i. An instance variable named **Scores** to hold a student's exam scores.
- ii. A *void input ()* function that reads 5 integers and saves them to **Scores**.
- iii. An *int calculateTotalScore()* function that returns the sum of the student's scores.

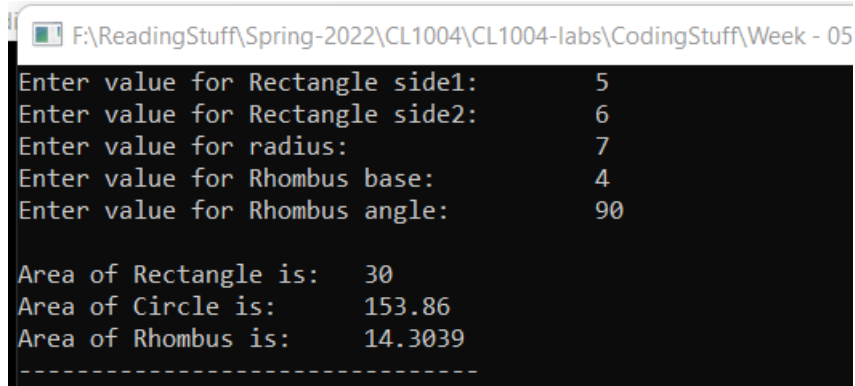
(Question for Access Modifiers)

3. Write a program in which a class named **Account** has private member variables named **account_no**, **account_bal**, **security_code**. Use a public function to initialize the variables and print all data.

(Question for Static and Constant)

4. To count the object value using the storage keyword **static**.
5. Write a program of your own in which you demonstrate the concept of **constant** keyword.
6. you are given a task by your instructor in which he asked you to write a program which can take two sides, radius, base and angle as input for a class with name **Draw**. Then write three more subclasses with name **drawRectangle**, **drawRhombus** and **drawCircle**, that is for finding the area of Rectangle and area of circle and area of Rhombus. In driver function define three variables with name **drawRectangle**, **drawCircle** and **drawRhombus** which can call the area function for the private variables **side1**, **side2**, **radius**, **base** and **angle** of **Draw** class. (The name of function finding **area()** will remain same in all child classes). Hint: (use trigonometric formula)

Sample output



```
F:\ReadingStuff\Spring-2022\CL1004\CL1004-labs\CodingStuff\Week - 05
Enter value for Rectangle side1: 5
Enter value for Rectangle side2: 6
Enter value for radius: 7
Enter value for Rhombus base: 4
Enter value for Rhombus angle: 90

Area of Rectangle is: 30
Area of Circle is: 153.86
Area of Rhombus is: 14.3039
-----
```

7. Write a program with a name father and a subclass with name son. Both of them should have a function with same name but different body. In driver function define a son and call the on it.
8. Write down a program which asks you your name, age, std_id, gender, your marks earned in programming fundamentals, your remaining courses marks as input and display your entered information as output on the screen along with your grades in each subject and gpa and total cgpa as well.
Formula for calculating gpa and cgpa is given below.

```
GPA= Sum of (Credit*Point) / total of credits
CGPA= Sum of GPA / number of semesters
```