CSE 112 : Object Oriented Programming Lab
Lab - 2

July 15, 2024

Task 1

- Build a class named 'Shape' with two private attributes, 'side1' and 'side2', along with methods 'area' and 'perimeter'. Implement setter and display functions to access these attributes and display their values. Create two instances of 'Shape', setting the values 'side1=10' and 'side2=20' for the first instance, and 'side1=30' and 'side2=40' for the second instance.

  Formula for area: area $= 2 \times \left(\frac{side1+side2}{2}\right)$

  Formula for perimeter: perimeter $= 2 \times side1 + 2 \times side2$

Task 2

- Create a class named Square having data member side as double type.
- Implement a member function display () is used to show the values of side and a parameterized constructor is used to initialize the value of side for the first object.
- Create one object ob1(30) and show the value of side for the object.

Task 3

- Design a class named Book to encapsulate information about a book, such as title, author, and publication year.
- Implement a non-parameterized constructor to set default values for the attributes.
- Provide an example of creating objects of the Book class, accessing their attributes.

Task 4

- Define a class called **Complex** to represent complex numbers. It has private member variables **real** and **img** to store the real and imaginary parts of the number, respectively.
- Implement public member functions *set_data* and *get_data* to set and display the values of the complex number.
- Declare a member function named sum that takes two **Complex** objects as parameters and returns a new **Complex** object that represents the sum of the two complex numbers.
- Inside the sum function, create a new **Complex** object temp and assign the sum of the real and imaginary parts of the two input complex numbers to the corresponding members of temp.

- In the main function, create three **Complex** objects c1, c2, and c3. Set the data for c1 and c2 using the *set_data* function.
- Call the sum function, passing c1 and c2 as arguments, and assign the returned object to c3.
- Display the sum of the complex numbers using the *get_data* function.