**CYCLE 2**

1. Write a Java program to calculate the area of different shapes namely circle, rectangle, trapezoid and triangle. (Use the concepts of JAVA like *this* keyword, constructor overloading and method overloading)

2. Define a class called Rectangle with member variables length and width. Use appropriate member functions to calculate the perimeter and area of the rectangle. Define another member function *int sameArea(Rectangle)* that has one parameter of type Rectangle. *sameArea* returns 1 if the two Rectangles have the same area, and returns 0 if they don't. Use appropriate constructors to initialize the member variables(Use both default and parameterized constructor)

Write a main function to create two rectangle objects and display its area and perimeter. Check whether the two Rectangles have the same area and print a message indicating the result. (Use the concept of *this* pointer too)

3. Write the definition for a class called Complex that has floating point data members for storing real and imaginary parts. Define a function *Complex sum(Complex)* to add two complex numbers & return complex number. Write main function to create three complex number objects. Set the value in two objects and call *sum()* to calculate sum and assign it in third object. Display all complex numbers. (Use the concept of *this* pointer too.)

4. Define a class called Time that has hours and minutes as integer. The class has the following member function: *Time sum(Time)* to sum two time object & return time

a. Use the concept of constructor overloading to initialize the time

b. Write the definitions for each of the above member functions.

c. Write main function to create three time objects. Set the value in two objects and call sum() to calculate sum and assign it in third object. Display all time objects. (Use the concept of *this* pointer too)

5. Create a class ‘Account’ with two overloaded constructors. The first constructor is used for initializing the name of account holder, the account number and the initial amount in the account. The second constructor is used for initializing the name of the account holder, the account number, the addresses, the type of account and the current balance. The Account class is having methods Deposit (), Withdraw (), and Get\_Balance(). Make the necessary assumption for data members and return types of the methods. Create objects of Account class and use them.