**OOP Using Java**

**Lab Cycle**

1. Write a Java program that checks whether a given string is a palindrome or not.
2. Write a Java Program to find the frequency of a given character in a string.
3. Write a Java program to multiply two given matrices.
4. Write a Java program to calculate the area of different shapes namely circle, rectangle, and triangle using the concept of method overloading.
5. Write a Java program which creates a class named 'Employee' having the following

members: Name, Age, Phone number, Address, Salary. It also has a method named 'print-Salary( )' which prints the salary of the Employee. Two classes 'Officer' and 'Manager' inherits the 'Employee' class. The 'Officer' and 'Manager' classes have data members 'specialization' and 'department' respectively. Now, assign name, age, phone number, address and salary to an officer and a manager by making an object of both of these classes and print the same.

1. Write a Java program to create an abstract class named Shape that contains an empty method named numberOfSides(). Provide three classes named Rectangle, Triangle, and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method numberOfSides()that shows the number of sides in the given geometrical structures.
2. Write a program to illustrate Interface Inheritance
3. Write a program to illustrate the use of try ,catch,throw,throws,finally
4. Write a Java program for the

a)Create a doubly linked list of elements

b)Delete the given element from the above list

c)Display the contents of the list after deletion

1. Write a Java program that implements Quick sort algorithm for sorting a list of names in ascending order.
2. Write a Java program that read from a file and write to file by handling all file related exceptions.
3. Write a Java program that reads a line of integers and then displays each integer, and the sum of all the integers. (use String Tokenizer class of java.util)
4. Write a Java program that shows Thread Synchronization
5. Write a Java program that works as a simple calculator. Arrange buttons for digits and the +,-,\*,/ operations properly. Add a text field to display the result. Handle any exceptions like divide by zero. Use Java Swing
6. Write Java program that simulates a traffic light. The program lets the user select one of three lights.: Red, Green or Yellow. When a radio button is selected, the light is turned on and only one light can be on at a time/ No light is on when the program starts.