



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

OBJECT ORIENTED PROGRAMMING LAB (IN JAVA) 2024

Course : B.Tech

Course Code : CSL203

Course Name : **OOPJ LAB**

Year & Semester : 2nd Year, 3

Academic Year: 2024-25

LIST OF EXPERIMENTS

Exp No.	CO	Name	Details	Mandatory
1	CO2	Palindrome	Java program that checks whether a given string is a palindrome or not. Ex: MALAYALAM is palindrome	Yes
2	CO2	String	Java Program to find the frequency of a given character in a string.	Yes
3	CO2	Two Dimensional Array	Java program to multiply two given matrices	Yes
4	CO1	Overloading	Java program to calculate the area of different shapes namely circle, rectangle, and triangle using the concept of method overloading.	No
5	CO1	Inheritance	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.	Yes



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6	CO1	Interface	<p>In this exercise you will create a hierarchy of animals that is rooted in an abstract class <i>Animal</i>. Several of the animal classes will implement an interface called <i>Pet</i>. You will experiment with variations of these animals, their methods, and polymorphism.</p> <pre>classDiagram class Animal { #legs : int #Animal(legs : int) +walk() +eat() } class Spider { +Spider() +eat() } class Cat { +Cat(name : String) +Cat() +getName() : String +setName(name : String) +play() +walk() +eat() } class Fish { +Fish() +getName() : String +setName(name : String) +play() +walk() +eat() } class Pet { <<interface>> +getName() : String +setName(name : String) +play() } Animal < -- Spider Animal < -- Cat Animal < -- Fish Pet < .. Spider Pet < .. Cat Pet < .. Fish</pre>	No
7	CO1	Abstract class	<p>Java program to create an abstract class named <i>Shape</i> that contains an empty method named <i>numberOfSides()</i>. Provide three classes named <i>Rectangle</i>, <i>Triangle</i> and <i>Hexagon</i> such that each one of the classes extends the class <i>Shape</i>. Each one of the classes contains only the method <i>numberOfSides()</i> that shows the number of sides in the given geometrical structures.</p>	Yes
8	CO3	Exception Handling	<p>Java program that shows the usage of <i>try</i>, <i>catch</i>, <i>throws</i> and <i>finally</i>.</p>	Yes



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9	CO3	Custom Exception	<p>Create a mini-application for a banking system in Java. In this program, we will add some basic functionalities of a bank account like a deposit of amount, withdrawal of amount, etc. Initially, the program accepts the number of customers (Array of Objects) we need to add and adds the customer and account details accordingly. Further, it displays the series of menus to operate over the accounts.</p> <ol style="list-style-type: none">1. Display all account details2. Search by account number3. Deposit the amount4. Withdraw the amount5. Exit <p>Create Custom Exception and perform the following action:</p> <p>Customers are not allowed to deposit amount ≤ 0 (In this case throw <code>InvalidAmountException</code>).</p> <p>Customers are not allowed to withdraw amount ≤ 0 (throw <code>InvalidAmountException</code>).</p> <p>Customers are also not allowed to withdraw an amount greater than ($>$) the available amount (throw <code>InsufficientFundsException</code>)</p>	No
10	CO2	File Reader / Writer	<p>Write a file handling program in Java with reader/writer. create a file sample.txt and store the inputs given from the keyboard. After execution of program a new file is generated with name "new-sample.txt" with the contents from sample.txt.</p>	No
11	CO2	File Exception Handling	<p>Write a Java program that read from a file and write to file by handling all file related exceptions</p>	Yes
12	CO4	Multi-threading	<p>Write a Java program that implements a multithreaded program which has three threads. First thread generates a random integer every 1 second. If the value is even, second thread computes the square of the number and prints. If the value is odd the third thread will print the value of cube of the number</p>	No



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13	CO4	Thread Synchronization	Write a Java program that shows thread synchronization	Yes
14	CO2	String Tokenizer	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).	Yes
15	CO5	GUI Calculator	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 possible exceptions like divide by zero. Use Java Swing.	Yes
16	CO5	GUI Traffic Light	Write a Java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow, or green. 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	Yes
17	CO2	Quick Sort	Write a Java program that implements Quick sort algorithm for sorting a list of names in ascending order.	Yes
18	CO2	Doubly Linked List	Write a Java program for the following: 1) Create a doubly linked list of elements. 2) Delete a given element from the above list. 3) Display the contents of the list after deletion.	Yes