

**II/IV B. TECH. FIRST SEMESTER
JAVA LAB(Required)**

Course Code : CS 3L3**Credits: 2****Lab Hours: 3 periods/ week****Internal assessment: 25 Marks****Tutorial:-****Semester end examination: 50 Marks**

Prerequisites: Object Oriented Programming Through Java

Course Objectives:

Practical implementations based on the OOPs features using JAVA.

Course Outcomes:

At the end of this course student will:

CO1) Apply the key features of the Java programming language

CO2) Apply essential object-oriented programming concepts

CO3) Apply object-oriented programming techniques like dynamic polymorphism, abstract (virtual) methods using Java

CO4) Design an application with strong and good object-oriented design principles.

CO5) Use various IDE's to implement Java Programs.

Syllabus:**Exercise-1**

1. Write a Java Program that uses both recursive and non-recursive functions to print the *nth* value of the Fibonacci sequence.
2. Write a Java Program that prints out all the prime numbers within a range.

Exercise -2

3. Write a Java Program that checks whether a given string is a palindrome or not.
4. Write a Java Program for sorting a given list of names in ascending order applying at least two

Sorting techniques (bubble, selection or insertion sort)

Exercise -3

5. Write a Java Program using String Tokenizer class, which reads a line of integers and then displays each integer and the sum of all integers
6. Write a Java Program to demonstrate sequence of Constructor calling in a Hierarchy. Implement parameterized constructors also for hierarchic calls.

Exercise -4

7. Write a Java Program check the compatibility for multiplication, if compatible multiply two matrices and find resultant matrix's transpose.

Exercise -5

8. Implement dynamic polymorphism, overloading (method and constructor) and overriding.
9. Write a java program how to access the super class variable and method and pass value.

Exercise -6

10. Write a Java Program that depicts file stream API to check whether a directory exists, number of files in a directory, file length and file content
11. Write a Java Program that implements a simple client/server application. The client sends data to a server. The server receives the data, uses it to produce a result and then sends the result back to the client. The client displays the result on the console. For ex: The data sent from the client is the radius of a circle and the result produced by the server is the area of the circle

Exercise -7

12. Write a Java Program that implements stack or queue with overflow and underflow conditions as Exceptions. Create your own exception classes for Overflow and Underflow

Exercise -8

13. Write a Java Program that converts infix notation to postfix.
14. Write a java program to evaluate postfix notation.

Exercise -9

15. Write a Java Program that creates 3 threads by extending Thread class. First thread displays "Good Morning" every 1 sec, the second thread displays "Hello" every 2 seconds and the third displays "Welcome" every 3 seconds.
(Repeat the same by implementing Runnable)

16. Write a Java Program that correctly implements Producer-Consumer problem using the concept of Inter Thread Communication

Exercise -10

17. Write a Java Program that allows user to paint text, lines, rectangles and ovals (3d objects)
18. Write a Java Program that depicts mouse and key board action events

Exercise -11

19. Write a Java Program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the + - x / % operations. Add a text field to display the result.

Exercise -12

20. Write a Java Program to Sort the DVD list based upon title, year of release, and Rating using comparator and Comparable Interface
21. Write a Java program to store list of Employee objects (Employee object will have empId, firstName, lastName, address, salary, deptId etc...) find out all employees for a given deptId and print the results to any output stream. [Use Lists / Iterators]
(if possible implement GUI for the above exercise)