

## Object Oriented Programming lab(Java) (CSL203)

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List of Program			
Sl. No	Question	Lab Question/ Tutorial	Sign
CYCLE 1			
1	Write a simple java program to print “ Hello World”	T	
2	Write a Java program to find the sum of digits in an integer read from the keyboard.	T	
3	Write a Java Program to find the largest of N numbers, without using array.	L	
4	Write a java Program to find the sum of N numbers, without using array.	T	
CYCLE 2			
5	Write a java program to find the Fibonacci series using recursive and nonrecursive functions	T	
6	Write a java program to check whether the input string is palindrome or not.	L	
7	Write a java program to find the frequency of a characters in a given string	L	
8	Write a java program to multiply two matrices.	L	
9	Write a java program to print the multiplication table.	T	
10	Write a java program that prompts the user for an integer and then printouts all prime numbers up to that integer	T	
11	Write a Java program to reverse a given string.	L	
12	Write a Java program to display the transpose of a given matrix.	L	
13	Write a Java program to find the second smallest element in an array.	T	
14	Write a Java program to check whether a given number is prime or not.	T	

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CYCLE 3			
15	To write a java program to creates a class named Employee having the following members : Name, Age, Phone number, Address, Salary. It also has a method named printSalary() 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.	L	
16	To 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.	L	
17	Write two Java classes Employer and Engineer. Engineer should inherit from Employee class. Employee class to have two methods display() and calcSalary(). Write a program to display the engineer salary and to display from Employee class using a single object instantiation.(ie. only one object creation allowed) -> display() only prints the name of the class and doe snot return any value. Ex. "Name of class in Employee" -> calcSalary() in Employee displays "salary of employee is 10000" and calcSalary() in Engineer displays "Salary of employee is 20000".	T	
18	Write a Java program to which creates a class named "Employee" having the following members: Name, Age, Phone number, Address, Salary. It also has a method named 'printSalary()' which prints the salary of the Employee. Two classes '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.	T	
19	Write a Java program to demonstrate the use of garbage collector	L	
CYCLE 4			
20	Write a file handling program in Java with reader/writer	L	

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21	Write a Java program that read from a file and write to file by handling all file related exceptions.	L	
22	Write a Java program that reads a line of integers, and then displays each integer, and the sum of all the integers	L	
23	Write a java program to create user defined package	T	
24	Write a Java program that shows the usage of try, catch, throws and finally	L	
CYCLE 5			
25	Write a Java program that implements a multi-threaded 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.	L	
26	Write a Java program that shows thread synchronization	L	
27	Write a Java program compute factorial value using Applet	T	
28	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	L	
29	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.	L	
30	Write a program for passing parameters using Applet	T	
CYCLE 6			
31	Write a Java program to display all records from a table using Java Database Connectivity	L	

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32	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.	L	
33	Write a java program that works as a simple calculator. Use a Grid Layout to arrange Buttons for digits and for the + - * %operations. Add a text field to display the result	T	
34	Write a Java program that implements Quick sort algorithm for sorting a list of names in ascending order.	L	
35	Write a Java program that implements the binary search algorithm	L	

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### Extra Question

Write a Java program that prints all real solutions to the quadratic equation  $ax^2 + bx + c = 0$ . Read in a, b, c and use the quadratic formula. If the discriminant ( $b^2 - 4ac$ ) is negative; display a message stating that there are no real solutions.

Write a Java program that prints all real solutions to the quadratic equation  $ax^2 + bx + c = 0$ . Read in a, b, c and use the quadratic formula. If the discriminant ( $b^2 - 4ac$ ) is negative; display a message stating that there are no real solutions.

1. Write a Java program that prints all real solutions to the quadratic equation  $ax^2 + bx + c = 0$ . Read in a, b, c and use the quadratic formula. If the discriminant ( $b^2 - 4ac$ ) is negative; display a message stating that there are no real solutions.
2. Write a Java program for sorting a given list of names in ascending order
- 3.