OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB

Course Code:	23CS3352	**Year:**	II	**Semester:**	I
Course Category:	PC	**Branch:**	CSE	**Course Type:**	PRACTICAL
Credits:	1.5	**L – T – P**	0-0-3	**Prerequisites:**	C Programming language
Continuous Evaluation:	30	**Semester End Evaluation:**	70	**Total Marks:**	100

Course Outcomes		
Upon successful completion of the course, the student will be able to:		
CO1	Apply the concepts of object-oriented programming and Java programming constructs to develop applications.	L3
CO2	Implement programs as an individual on different IDEs/ online platforms	L3
CO3	Develop an effective report based on various programs implemented.	L3
CO4	Apply technical knowledge for a given problem and express with an effective oral communication.	L3
CO5	Analyse outputs using given constraints/test cases.	L4

Syllabus

S No.	CONTENTS	Mapped CO
1	**Exercise – 1**: a) Write a JAVA program to display default value of all primitive data type of JAVA b) Write a JAVA program that display the roots of a quadratic equation $ax^2+bx=0$. Calculate the discriminate D and basing on value of D, describe the nature of root.	**CO1, CO2, CO3, CO4, CO5**
2	**Exercise - 2** a) Write a JAVA program to search for an element in a given list of elements using binary search mechanism. b) Write a JAVA program to sort for an element in a given list of elements using bubble sort c) Write a JAVA program using StringBuffer to delete, remove character.	**CO1, CO2, CO3, CO4, CO5**
3	**Exercise - 3** a) Write a JAVA program to implement class mechanism. Create a class, methods and invoke them inside main method. b) Write a JAVA program implement method overloading. c) Write a JAVA program to implement constructor. d) Write a JAVA program to implement constructor overloading.	**CO1, CO2, CO3, CO4, CO5**

4	**Exercise - 4** a) Write a JAVA program to implement Single Inheritance b) Write a JAVA program to implement multi level Inheritance c) Write a JAVA program for abstract class to find areas of different shapes	**CO1, CO2, CO3, CO4, CO5**
5	**Exercise - 5** a) Write a JAVA program give example for "super" keyword. b) Write a JAVA program to implement Interface. What kind of Inheritance can be achieved? c) Write a JAVA program that implements Runtime polymorphism	**CO1, CO2, CO3, CO4, CO5**
6	**Exercise – 6** a) Write a JAVA program that describes exception handling mechanism b) Write a JAVA program Illustrating Multiple catch clauses c) Write a JAVA program for creation of JAVA Built-in Exceptions d) Write a JAVA program for creation of User Defined Exception	**CO1, CO2, CO3, CO4, CO5**
7	**Exercise – 7** a) Write a JAVA program that import and use the user defined packages. b) Write a JAVA program that import and use the user defined packages with jar file C) Write a Java Program to explore the following classes i) Formatter class ii) Random Class iii) Formatting for Date/Time in Java	**CO1, CO2, CO3, CO4, CO5**
8	**Exercise – 8** a) Write a JAVA program that creates threads by extending Thread class. First thread display "Good Morning "every 1 sec, the second thread displays "Hello "every 2 seconds and the third display "Welcome" every 3 seconds,(Repeat the same by implementing Runnable) illustrating b) Write a program **is Alive** and **join ()** c) Write a Program illustrating Daemon Threads.	**CO1, CO2, CO3, CO4, CO5**
9	**Exercise – 9** a) Implement the programs using ArrayList class b) Implement the programs using HashSet class c) Implement the programs using PriorityQueue class	**CO1, CO2, CO3, CO4, CO5**

Learning Resources
Text Books
1) JAVA one step ahead, Anitha Seth, B.L.Juneja, Oxford. 2) Joy with JAVA, Fundamentals of Object Oriented Programming, DebasisSamanta, MonalisaSarma, Cambridge, 2023.

Reference Books
1) The complete Reference Java, 11th edition, Herbert Schildt,TMH 2) Introduction to Java programming, 7th Edition, Y Daniel Liang, Pearson
E-Resources & other digital material
1) https://nptel.ac.in/courses/106/105/106105191/ 2) https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_012880464547618816347_shared/overview