DHANALAKSHMI SRINIVASAN ENGINEERING COLLEGE
(AUTONOMOUS)
(Approved by AICTE & Affiliated to Anna University, Chennai)
Accredited with 'A' Grade by NAAC, Accredited by TCS
Accredited by NBA with BME, ECE & EEE
PERAMBALUR - 621 212. Tamil Nadu.
website : www.dsengg.ac.in

LABORATORY COURSE PLAN (2023-2024 ODD SEMESTER)

LAB COURSE TITLE	JAVA PROGRAMMING LABORATORY			
LAB COURSE CODE	U20IT505			
LAB COURSE STRUCTURE	LECTURE	TUTORIAL	PRACTICAL	CREDIT
	0	0	4	2
REGULATION	BRANCH	YEAR	SEMESTER	ACADEMIC YEAR
2020	IT	III	V	2023-2024
COURSE INCHARGE				

SYLLABUS

COURSE OBJECTIVE:

1. To teach fundamentals of object oriented programming in Java.
2. Understand various concepts of Java.
3. To familiarize Java environment to create, debug and run simple Java programs.
4. To demonstrate java compiler and eclipse platform and learn how to use Net Beans IDE to create Java Application.
5. To Demonstrate java compiler and eclipse platform and learn application using AWT.

LIST OF EXPERIMENTS

1. 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 discriminate b2 -4ac is negative, display a message stating that there are no real solutions.
2. The Fibonacci sequence is defined by the following rule: The first two values in the sequence are 1 and 1. Every subsequent value is the sum of the two values preceding it. Write a Java program that uses both recursive and non recursive functions to print the nth value in the Fibonacci sequence.
3. Prompts the user for an integer and then prints out all prime numbers up to that integer. (use Scanner class to read input)
4. Multiply two given matrices.
5. Reads a line of integers, and then displays each integer, and the sum of all the integers (Use String Tokenizer class of java.util)

6. Checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome.
7. Sorting list of names. Read input from command line.
8. Make frequency count of words in a given text.
9. Program to create a Student class with following fields i.Hall ticket number ii.Student Name iii. Department Create 'n' number of Student objects where 'n' value is passed as input to Constructor.
10. Demonstrate String comparison using == and equals method.

TOTAL: 60 PERIODS

BIBLIOGRAPHY

TEXT/REFERENCE BOOKS:

1. Herbert Schildt, "JavaTM : The Complete Reference", 9th edition, Oracle Press, 2014.
2. Anita Seth, B. L. Juneja, "JAVA: One Step Ahead", Oxford University Press, 2017.
3. Cay S. Horstmann and Gary Cornell, "Core Java: Volume I Fundamentals", 9th edition, Prentice Hall, 2013.
4. K. Arnold, D. Holmes and J. Gosling, "The JAVA programming language", 4th edition, Addison Wesley Professional, 2005.
5. Timothy Budd, "Understanding Object-oriented programming with Java", 3rd edition, Addison Wesley, 2000.

HARDWARE:

Standalone desktop

SOFTWARE:

- Java compiler (or) Eclipse IDE

Web link for resource &Virtual lab reference link

https://www.digimat.in/nptel/courses/video/106105191/L01.html.
https://www.javatpoint.com/java-tutorial

EXP. NO.	NAME OF THE EXPERIMENTS	NO. OF PERIODS	CUMULATIVE PERIODS
1.	Prints all real solutions to the quadratic equation ax2 +bx + c = 0. Read in a, b, c and use the quadratic formula. If the discriminate b2 -4ac is negative, display a message stating that there are no real solutions	4	4
2.	The Fibonacci sequence is defined by the following rule: The first two values in the sequence are1 and 1. Every subsequent value is the sum of the two values preceding it. Write a Java program that uses both recursive and non recursive functions to print the nth value in the Fibonacci sequence	8	12

3.	Prompts the user for an integer and then prints out all prime numbers up to that integer. (use Scanner class to read input)	4	16
4.	Multiply two given matrices.	4	20
5.	Reads a line of integers, and then displays each integer, and the sum of all the integers (Use String Tokenizer class of java.util)	8	28
6.	Checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome.	8	32
7.	Sorting list of names. Read input from command line.	4	36
8.	Make frequency count of words in a given text.	4	40
9.	Program to create a Student class with following fields i.Hall ticket number ii. Student Name iii. Department Create 'n' number of Student objects where 'n' value is passed as input to Constructor.	8	48
10.	Demonstrate String comparison using == and equals method.	8	56
11.	Demonstrate String comparison using + and equals method.	4	60

COURSE OUTCOME

Upon Completion of the course, the students will be able to:

CO1. Implement Object oriented features using Java (K3)
CO2. Apply the concept of polymorphism and inheritance. (K3)
CO3. Implement exception handling. (K3)
CO4. Develop network and window application using AWT. (K3)
CO5. Develop the Application using swings. (K3)
CO6. Implement the containers in java. (k3)

CO-PO mapping:

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
CO1	3	3	2	2	2	2	-	-	2	-	2	2	2	2
CO2	3	3	2	2	2	2	-	-	2	-	2	2	3	3
CO3	3	3	2	1	2	2	-	-	2	-	2	2	3	3
CO4	3	3	2	2	2	2	-	-	2	-	2	2	3	3
CO5	3	3	1	1	2	-	-	-	2	-	2	2	3	3
CO6	2	2	2	0	2	-	-	-	2	-	2	2	3	3
AVG	2.83	2.83	1.83	1.33	2.00	1.33	-	-	2.00	-	2.00	2.00	2.5	2.5

ADDITIONAL EXPERIMENTS		
EXP. NO.	**NAME OF THE EXPERIMENTS**	**Identified Resource link**
1	Write Java program to find prime numbers between 1 to n.	https://knreddycse.weebly.com/java-lab-programs.html.
2	Write a Java program for sorting a given list of names in ascending order.	https://knreddycse.weebly.com/java
3	Write a java program to find factorials of numbers in a given range.	https://knreddycse.weebly.com/java
4	Write a JAVA program to append the contents to an existing file.	https://knreddycse.weebly.com/java
5	Write a JAVA program to compare two files.	https://knreddycse.weebly.com/java
6	Write a java program to split a given text file into n parts. Name each part as the name of the original file followed by .part<n> where n is the sequence number of the part file.	https://knreddycse.weebly.com/java
7	.Write a Java program that correctly implements producer consumer problem using the concept of inter thread communication	https://knreddycse.weebly.com/java
8	Write a java program to make rolling a pair of dice 10,000 times and counts the number of times each pair are rolled *Hint: Math.random( )* .	https://knreddycse.weebly.com/java

MODEL LAB DETAILS

BATCH	REGISTER NO.	MODE OF LAB CONDUCT	DATE	TIMING
1	8104212050001-64,301 TO 306	Offline		

LIST OF QUESTIONS

1. Create a java program that calculates the average, grade and display the result of the student. You have assigned a sketch of business requirements to develop a college record-keeping program that has records for students and faculty. There is a natural hierarchy for grouping these record types. They are all records of generic class “People”, which consists of two subclasses “Students” and “Employees”. Students divide into two smaller subclasses: “undergraduate Students” and

"Postgraduate students". In future these subclasses my further subdivide into still smaller subclasses.

2. Write a Java program that determines the number of days in a month.
3. To write a java program that reads a string from inputs containing first name, last name and computes an e-mail address with first 3 letters of the first name, first 4letters of last name, '.' separator and domain. Display the outputs by invoking objects.
4. Create a java abstract class to implement stack concept. Check for the overflow and empty conditions.
5. To write a java program for implementing the file handling process. Create a program should let the user to copy first line of one file into another with the following options.
6. Create a New File b) Append to a file c) Overwrite in a file
7. Write a Java program to display text with 3 different colors and styles.
8. To write a Java program which implements multiple classes related with inheritance. The program should have a main class Product, subclasses Book and CD. Also create a sub-class for Book called Scientific. All the Subclass should inherit the properties of the main class and it can have its own properties also. Observe the inheritance hierarchy output and display.

VIVA QUESTIONS

1. What are the differences between C++ and Java?
2. List the features of the Java Programming language?
3. What is a Class Loader?
4. Will the program run if we write static public void main?
5. How is Java different from C++?
6. Pointers are used in C/ C++. Why does Java not make use of pointers?
7. What are the default values assigned to variables and instances in java?
8. What do you mean by data encapsulation?
9. What is Java?
10. What is variable and constants?
11. What is array?
12. What is inheritance?
13. What is polymorphism?
14. What is AWT?
15. What are swings?

PREPARED BY **VERIFIED BY**

AP/IT HOD/IT

APPROVED BY

PRINCIPAL