MCA S2 Java Programming Lab (20-381-0206)

List of Programs

Sl No	Programs	Deadline
Familiarization of Basic Java Syntax & Introduction to Object Oriented Programming		
1.	Program to add two integer matrices.	13-January-2023
2.	Program to print the saddle points of an integer matrix.	
3.	Program to print the number of occurrences of each character of a string.	
4.	Program to find the roots of a quadratic equation. The coefficients and the constant are given.	
5.	Program to add two real numbers. Read the input as command line arguments.	
6.	Program to calculate the area of a rectangle given its length and width.	20-January-2023
7.	Program to calculate the area of a rectangle given the endpoints of one of its diagonals as (x,y) co-ordinates.	
8.	Program to store student data which include name, register number and marks obtained in 4 subjects and to print the results. The result should contain name, register number, marks, passed/failed per subject, passed/failed in the whole examination and total marks if passed in all the subjects. The maximum total per subject is 50 and 25 is required for a pass.	
9.	Quadratic polynomial addition.	27-January-2023
10.	Menu driven program to implement queue operations.	
11.	Menu driven program to implement stack operations.	
12.	Program to implement set operations; union, intersection and difference. Assume that the sets contain only integer elements and every element is unique within a single set.	
Constructors		
13.	Program to calculate the area of a rectangle given its length and width. Write a constructor to initialise the values of sides of the rectangle.	03-Feb-2023
Method Overloading		
14.	For a school final board examination, the students should take five	10-Feb-2023

	subjects. And, if the student is interested, he/she can opt an additional subject thereby making it a total of six subjects. To compute the grades the scores of all the 5 will be considered for students without an additional subject and for the students with an additional subject, the best five marks out of six will be considered. Implement the scenario using polymorphic functions for calculating the grades. Assume any suitable formula for computing the grades.	
Inheritance		
15.	Implement the scenario given in question 15 using inheritance.	17-Feb-2023
Abstract Classes and Interfaces		
17.	In an organization, there are different classes of employees. Consider the activities of reading the employee data and calculating the salary. Implement the scenario if reading the employee data needs the same implementation in all classes of employees and calculating the salary needs different implementations in different classes of employees. (Abstract Classes)	24-Feb-2023
18.	In an organization, there are different classes of employees. Consider the activities of reading the employee data and calculating the salary. Implement the scenario if both the activities need different implementations in different classes of employees. (Interfaces)	03-March-2023
GUI and Exception Handling		
18.	Create a Java application satisfying the following requirements. a. A user is expected to enter the percentage score of undergraduate studies in a form. Create a GUI for reading the user input. b. Consider two cases where a user enters a negative value and a value greater than 100. Write custom Java exception classes and handling routines to separately handle both these cases.	10-March-2023
Multithreaded Programming		
19.	Implement the bounded-buffer problem in Java.	17-March-2023

List of Titles for Lab Record

Sl No	Title
1.	MATRIX ADDITION
2.	SADDLE POINTS OF A MATRIX
3.	CHARACTER COUNT
4.	INSERTION SORT
5.	COMMAND LINE ADDITION
6.	AREA OF A RECTANGLE
7.	ROOTS OF A QUADRATIC EQUATION
8.	STUDENT DATABASE
9.	POLYNOMIAL ADDITION
10.	QUEUE OPERATIONS
11.	STACK OPERATIONS
12.	SET OPERATIONS
13.	THE CONSTRUCTOR
14.	METHOD OVERLOADING
15.	INHERITANCE
16.	ABSTRACT CLASSES
17.	INTERFACES
18.	GUI & EXCEPTION HANDLING
19.	MULTI THREADED PROGRAMMING