Muthoot Institute of Technology and Science (MITS)

Department of Computer Applications

II Semester MCA

20MCA132 OBJECT ORIENTED PROGRAMMING LAB

Schedule of Lab Work

Sl.No	Program Name	Scheduled Date
12	**Method Overloading [CO 3]- Set 12 Write these programs in Observation Book**	
12.1	Perform method overloading. Hint:- Defining 3 methods having same name. One method accepts two integer parameters to add them. Second method accepts 3 double values and adds them. The third method accepts one integer argument and one double argument and adds them.	17.03.2025
12.2	Perform constructor overloading.	17.03.2025
13	**Inheritance [CO 3]- Set 13 Write these programs in Observation Book**	
13.1	Create a class "Person" with fields "name" and "age" and a method "display1()" that prints the name and age of the person. Create a subclass "Employee" that extends "Person" and adds a field "salary" and a method "display2()" that prints the name, age, and salary of the employee. Create an object of the "Person" class and call the "display1()" method. Create an object of the `Employee` class and call the "display1()" and "display2()" methods.	20.03.2025
13.2	Create a class "Person" with fields "name" and "age" and create a parametrized constructor for initialize instance variables. Create a subclass "Employee" that extends "Person" and adds a field "salary". Create a parametrized constructor for initialize instance variables and a method "display( )" that prints the name, age, and salary of the employee. Create an object of the `Employee` class and call the "display()"method to print all the details.	20.03.2025
13.3	**Perform Multilevel inheritance.** Hint:- The base class 'stud_details' is created for assigning the Rol.no and name of the student and display it. The derived class "Marks" is created for inputting 3 subjects marks and display it. Again, a derived class is created as "Total" for calculate the total mark of 3 subjects and display it. Inputs are given through the keyboard.	20.03.2025
14	**Method Overriding [CO 3]- Set 14 Write these programs in Observation Book**	
14.1	Write a Java program to create a class Employee with a method called calculateSalary(). Create two subclasses Manager and Programmer. In each subclass, override the calculateSalary() method to calculate and return the salary based on their specific roles.	20.03.2025
14.3	Change the above program using super keyword.	20.03.2025
15	**Fair record Questions- [CO 3]- Set 15- Prepare the fair record**	
15.1	Write a java program to calculate the area of different shapes namely circle, rectangle and triangle using the concept of method overloading.	24.03.2025

<table>
<tr><td>15.2</td><td>Create a class ‘Employee’ with data members Empid, Name, Salary, Address and constructors to initialize the data members. Create another class ‘Teacher’ that inherit the properties of class employee and contain its own data members department, Subjects taught and constructors to initialize these data members and also include display function to display all the data members. Use array of objects to display details of N teachers.</td><td>24.03.2025</td></tr>
<tr><td>15.3</td><td>Create a class ‘Person’ with data members Name, Gender, Address, Age and a constructor to initialize the data members and another class ‘Employee’ that inherits the properties of class Person and also contains its own data members like Empid, Company_name, Qualification, Salary and its own constructor. Create another class ‘Teacher’ that inherits the properties of class Employee and contains its own data members like Subject, Department, Teacherid and also contain constructors and methods to display the data members. Use array of objects to display details of N teachers.</td><td>24.03.2025</td></tr>
<tr><td>16</td><td colspan="2">Interface [CO 3]- Set 16- Write these programs in Observation Book</td></tr>
<tr><td>16.1</td><td>Compute the area of a rectangle, triangle and a circle using interface.</td><td>27.03.2025</td></tr>
<tr><td>16.2</td><td>Prepare the students mark list using inheritance and interface concepts.</td><td>27.03.2025</td></tr>
<tr><td>17</td><td colspan="2">Dynamic Method Dispatch [CO 3]- Set 17- Write these programs in Observation Book</td></tr>
<tr><td>17.1</td><td>Create a class with Vehicle with serial no, type and name as instance variables and display the details. Create a subclass of Vehicle as Car with serial no, name and cost as instance variables and display the details. Implement runtime polymorphism (method overriding with dynamic method dispatch)</td><td>27.03.2025</td></tr>
<tr><td>18</td><td colspan="2">Fair record Questions- [CO 3]- Set 18- Prepare the fair record</td></tr>
<tr><td>18.1</td><td>Create an interface having prototypes of functions area() and perimeter(). Create two classes Circle and Rectangle which implements the above interface. Create a menu driven program to find area and perimeter of objects.</td><td>27.03.2025</td></tr>
<tr><td>18.2</td><td>Prepare bill with the given format using calculate method from interface.

Order No.:

Date :

<table>
<tr><th>Product Id</th><th>Name</th><th>Quantity</th><th>unit price</th><th>Total</th></tr>
<tr><td>01</td><td>A</td><td>2</td><td>25</td><td>50</td></tr>
<tr><td>02</td><td>B</td><td>1</td><td>100</td><td>100</td></tr>
<tr><td></td><td></td><td></td><td>Net. Amount</td><td>150</td></tr>
</table>
</td><td>27.03.2025</td></tr>
<tr><td>19</td><td colspan="2">Packages [CO 3]- Set 19- Write these programs in Observation Book</td></tr>
<tr><td>19.1</td><td>Create a package named "Pack" with a class "Calculations". This class has methods for calculating
the square, cube and square root of a given number. Import this package into our class and perform all the calculations inside the package</td><td>03.04.2025</td></tr>
<tr><td>19.2</td><td>Create a package Pack2 with 2 classes Student and Faculty. Student class is used to accept students' details and display it. Faculty class is used to accept</td><td>03.04.2025</td></tr>
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	faculty details and display it. Import these two classes into our program and perform all operations	
20	**Exception Handling [CO 3]- Set 20- Write these programs in Observation Book**	
20.1	Write a Java program to implement the concept of ArithmaticException	07.04.2025
20.2	Write a java program for implementing multiple exceptions like ArithmaticException and ArrayIndexOutofBoundsException	07.04.2025
20.3	Write a java program for implementing user defined exception Hint:- create a user defined exception called InvalidAgeException where if the user age < 18 then throw the exception otherwise display "you are eligible to vote"	07.04.2025
21	**Fair record Questions- [CO 3]- Set 21- Prepare the fair record**	
21.1	Create a Graphics package that has classes for shapes Rectangle, Triangle, Square and Circle. Test the package by finding the area of these figures. **Hint:-** Create 3 java files for calculate the area 3 different shapes in the directory Shapes inside the directory where the java program is stored. Then import all the class files inside the package Shapes to our original program. Equation for area of a circle= A=πr^2 . Area of a triangle = √(s(s-a)(S-b)(S-c)) Area of a rectangle= l*b	21.04.2025
21.2	Create an Arithmetic package that has classes for the 4 basic arithmetic operations. Test the package by implementing all operations on two given numbers.	21.04.2025
21.3	Write a user defined exception class to authenticate the user name and password.	24.04.2025
21.4	Find the average of N positive integers, raising a user defined exception for each negative input.	24.04.2025
21.5	Program to find the sum of command line arguments and count the invalid integers entered through command line.	24.04.2025