**Experiment: 3**

PART B

(PART A: TO BE COMPLETED AND SUBMITTED BY STUDENTS)

Students must execute all the programs, write executed code in the workbook, and submit part B of experiment 3 on the student portal. The filename should be **OOPJ\_batch\_rollno\_experimentno. Example: OOPJ\_A1\_A001\_P1**

|  |  |
| --- | --- |
| **Roll No.: C035** | **Name:** |
| **Prog/Yr/Sem:** | **Batch:** |
| **Date of Experiment:** | **Date of Submission:** |

**Aim:** **To study Class, object, methods and constructor.**

**Tasks:**

|  |  |
| --- | --- |
| 1 | Write a Java program to define a class LibraryBook with attributes such as title, author, and price. Accept input for these attributes from the user and include a method displayDetails() to print the details. |
| 2 | Create a class named Eligible that has data members as number of classes held and attended, as well as methods: input() and compute(). The input() accepts the data from user and compute() calculates the percentage and verifies that a student having 80% or more than displays a message as “ student permitted to appear in the exam” otherwise “student not permitted to appear in the exam”. Create an instance of a class that invokes the both the methods. |
| 3 | Write a Java program to create a class called Account with instance variables accountNumber and balance. Implement a parameterized constructor that initializes these variables with validation:   * accountNumber should be non-null and non-empty. * balance should be non-negative. * Print an error message if the validation fails. |
| 4 | WAP to compute the area of the room by illustrating the concept of constructor overloading where the length and breadth of the room passed as parameter through constructor which are same in one constructor and different in another constructor. Further use a method that computes the area of the room. |
| 5 | Design a Java program that utilizes method overloading to create a calculator capable of performing arithmetic operations. |
| 6 | A computer science professor written the java code as created a class called “MyClass” with a method named “myMethod” that is overloaded with four different visibility modifiers: public, private, protected and default (package-private). Demonstrate the above concept with method overloading under various visibility modifiers. |
| 7 | Develop a Java program to define a class Student with attributes including name, rollNumber, and marks for three subjects. Take user input for these attributes, and implement two methods: average() to calculate the average of the marks, and printInfo() to display the student's details in a formatted manner. |
| 8 | Write a Java program to create a class called Dog with instance variables name and color. Implement a parameterized constructor that takes name and color as parameters and initializes the instance variables. Print the values of the variables. |
| 9 | WAP to create a class named as Bird which consist the three constructor: first constructor displays the name of the bird with no-arguments. Second constructor takes the name of the bird as a parameter and third constructor takes both name and age of the bird as a parameter. Create three instances of class and display the names of the bird. |

**Executed Code, Input and Output**

|  |  |
| --- | --- |
|  | Write a Java program to define a class LibraryBook with attributes such as title, author, and price. Accept input for these attributes from the user and include a method displayDetails() to print the details. |
| **Executed Code: -**  // Paste the executed code here  **Input Output: -**  // Paste the input/output of executed code | |
|  | Create a class named Eligible that has data members as number of classes held and attended, as well as methods: input() and compute(). The input() accepts the data from user and compute() calculates the percentage and verifies that a student having 80% or more than displays a message as “ student permitted to appear in the exam” otherwise “student not permitted to appear in the exam”. Create an instance of a class that invokes the both the methods. |
| **Executed Code: -**  // Paste the executed code here  **Input Output: -**  // Paste the input/output of executed code | |
|  | Write a Java program to create a class called Account with instance variables accountNumber and balance. Implement a parameterized constructor that initializes these variables with validation:   * accountNumber should be non-null and non-empty. * balance should be non-negative. * Print an error message if the validation fails. |
| **Executed Code: -**  // Paste the executed code here  **Input Output: -**  // Paste the input/output of executed code | |
|  | WAP to compute the area of the room by illustrating the concept of constructor overloading where the length and breadth of the room passed as parameter through constructor which are same in one constructor and different in another constructor. Further use a method that computes the area of the room. |
| **Executed Code: -**  // Paste the executed code here  **Input Output: -**  // Paste the input/output of executed code | |
|  | Design a Java program that utilizes method overloading to create a calculator capable of performing arithmetic operations. |
| **Executed Code: -**  // Paste the executed code here  **Input Output: -**  // Paste the input/output of executed code | |
|  | A computer science professor written the java code as created a class called “MyClass” with a method named “myMethod” that is overloaded with four different visibility modifiers: public, private, protected and default (package-private). Demonstrate the above concept with method overloading under various visibility modifiers. |
| **Executed Code: -**  // Paste the executed code here  **Input Output: -**  // Paste the input/output of executed code | |

**Answers:**

**Tasks:**

**1.**

import java.util.Scanner;

class LibraryBook

{

String title;

String author;

double price;

public void displayDetails()

{

System.out.println("Book Title: " + title);

System.out.println("Author: " + author);

System.out.println("Price: " + price);

}

public void acceptDetails()

{

Scanner sc = new Scanner(System.in);

System.out.print("Enter the title of the book: ");

title = sc.nextLine();

System.out.print("Enter the author of the book: ");

author = sc.nextLine();

System.out.print("Enter the price of the book: ");

price = sc.nextDouble();

}

public static void main(String[] args)

{

LibraryBook book = new LibraryBook();

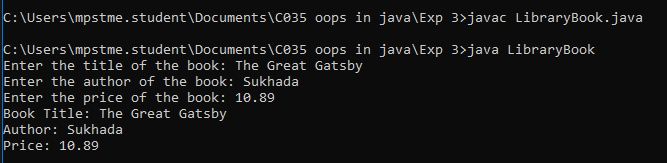
book.acceptDetails();

book.displayDetails();

}

}

**Output:**

****

**2.**

**Conclusion (Learning Outcomes):** Reflect on the questions answered by you jot down your learnings about the Topic:

**Questions:**

1. What is constructer? When is it invoked?
2. What is the difference between Constructor and method/function?
3. What are the different types of Constructors available in java? Define.