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|  | **CS2003 --Object Oriented Programming** |  |
| 29 August 2024 | **PRACTICE QUESTION** | Lalith Adithyan S |

**AIM:**

Write a java program to create a university database of various departments. The number of departments is limited to 5. Use your own classes, access modifiers, inheritance and packages wherever applicable.

**CODE:**

**Departments.java**

public class Department {

    private String name;

    private int numberOfCourses;

    public Department(String name, int numberOfCourses) {

        this.name = name;

        this.numberOfCourses = numberOfCourses;

    }

    public String getName() {

        return name;

    }

    public int getNumberOfCourses() {

        return numberOfCourses;

    }

    public void displayInfo() {

        System.out.println("Department Name: " + name);

        System.out.println("Number of Courses: " + numberOfCourses);

    }

}

**University.java**

class ComputerScienceDepartment extends Department {

    private int numberOfLabs;

    public ComputerScienceDepartment(String name, int numberOfCourses, int numberOfLabs) {

        super(name, numberOfCourses);

        this.numberOfLabs = numberOfLabs;

    }

    public int getNumberOfLabs() {

        return numberOfLabs;

    }

    @Override

    public void displayInfo() {

        super.displayInfo();

        System.out.println("Number of Labs: " + numberOfLabs);

    }

}

class MathematicsDepartment extends Department {

    private int numberOfResearchPapers;

    public MathematicsDepartment(String name, int numberOfCourses, int numberOfResearchPapers) {

        super(name, numberOfCourses);

        this.numberOfResearchPapers = numberOfResearchPapers;

    }

    public int getNumberOfResearchPapers() {

        return numberOfResearchPapers;

    }

    @Override

    public void displayInfo() {

        super.displayInfo();

        System.out.println("Number of Research Papers: " + numberOfResearchPapers);

    }

}

class PhysicsDepartment extends Department {

    private int numberOfExperiments;

    public PhysicsDepartment(String name, int numberOfCourses, int numberOfExperiments) {

        super(name, numberOfCourses);

        this.numberOfExperiments = numberOfExperiments;

    }

    public int getNumberOfExperiments() {

        return numberOfExperiments;

    }

    @Override

    public void displayInfo() {

        super.displayInfo();

        System.out.println("Number of Experiments: " + numberOfExperiments);

    }

}

**Main.java**

public class Main {

    public static void main(String[] args) {

        Department csDept = new ComputerScienceDepartment("Computer Science", 20, 5);

        Department mathDept = new MathematicsDepartment("Mathematics", 15, 50);

        Department physicsDept = new PhysicsDepartment("Physics", 10, 30);

        System.out.println("Department Details:");

        System.out.println("-------------------");

        csDept.displayInfo();

        System.out.println();

        mathDept.displayInfo();

        System.out.println();

        physicsDept.displayInfo();

    }

}

**OUTPUT:**

