1)Console based OOP application for a College with different departments.

import java.util.\*;

abstract class Department {

private String deptName;

private int deptId;

public Department(String deptName, int deptId) {

this.deptName = deptName;

this.deptId = deptId;

}

public String getDeptName() { return deptName; }

public int getDeptId() { return deptId; }

public abstract void performOperation();

public void showDetails() {

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

System.out.println("Department ID: " + deptId);

}

}

class CSE extends Department {

public CSE(int id) {

super("Computer Science Engineering", id);

}

public void performOperation() {

System.out.println("CSE Department focuses on coding, software development, and AI research.");

}

}

class ECE extends Department {

public ECE(int id) {

super("Electronics and Communication Engineering", id);

}

public void performOperation() {

System.out.println("ECE Department focuses on circuits, communication systems, and embedded projects.");

}

}

class MECH extends Department {

public MECH(int id) {

super("Mechanical Engineering", id);

}

public void performOperation() {

System.out.println("MECH Department works on machines, robotics, and manufacturing designs.");

}

}

public class CollegeApp {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

Department dept = null;

System.out.println("=== College Department Management ===");

System.out.println("1. CSE Department");

System.out.println("2. ECE Department");

System.out.println("3. MECH Department");

System.out.print("Enter your choice: ");

int choice = sc.nextInt();

switch (choice) {

case 1: dept = new CSE(101); break;

case 2: dept = new ECE(102); break;

case 3: dept = new MECH(103); break;

default:

System.out.println("Invalid choice!");

System.exit(0);

}

System.out.println("\n--- Department Details ---");

dept.showDetails();

dept.performOperation();

sc.close();

}

}