Week 6

CIE/Student.java

package CIE;

public class Student {

protected String usn;

protected String name;

protected int sem;

public Student(String usn, String name, int sem) {

this.usn = usn;

this.name = name;

this.sem = sem;

}

public void displayStudentInfo() {

System.out.println("USN: " + usn + ", Name: " + name + ", Semester: " + sem);

}

}

CIE/Internals.java

package CIE;

public class Internals {

private int[] internalMarks = new int[5];

public Internals(int[] marks) {

if (marks.length == 5) {

System.arraycopy(marks, 0, internalMarks, 0, 5);

} else {

throw new IllegalArgumentException("Exactly 5 internal marks are required.");

}

}

public int[] getInternalMarks() {

return internalMarks;

}

}

SEE/External.java

package SEE;

import CIE.Student;

public class External extends Student {

private int[] seeMarks = new int[5];

public External(String usn, String name, int sem, int[] seeMarks) {

super(usn, name, sem);

if (seeMarks.length == 5) {

System.arraycopy(seeMarks, 0, this.seeMarks, 0, 5);

} else {

throw new IllegalArgumentException("Exactly 5 SEE marks are required.");

}

}

public int[] getSeeMarks() {

return seeMarks;

}

}

import CIE.\*;

import SEE.\*;

import java.util.Scanner;

Main.java

public class Main {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.println("Ruqaiyya Mahreen 1BM23EE044");

System.out.print("Enter the number of students: ");

int n = scanner.nextInt();

Student[] students = new Student[n];

Internals[] internalsMarks = new Internals[n];

External[] externalsMarks = new External[n];

for (int i = 0; i < n; i++) {

scanner.nextLine(); // Consume the newline character

System.out.print("Enter USN: ");

String usn = scanner.nextLine();

System.out.print("Enter Name: ");

String name = scanner.nextLine();

System.out.print("Enter Semester: ");

int sem = scanner.nextInt();

System.out.print("Enter 5 internal marks: ");

int[] internalMarks = new int[5];

for (int j = 0; j < 5; j++) {

internalMarks[j] = scanner.nextInt();

}

internalsMarks[i] = new Internals(internalMarks);

System.out.print("Enter 5 SEE marks: ");

int[] seeMarks = new int[5];

for (int j = 0; j < 5; j++) {

seeMarks[j] = scanner.nextInt();

}

externalsMarks[i] = new External(usn, name, sem, seeMarks);

}

System.out.println("\nFinal Marks of Students:");

for (int i = 0; i < n; i++) {

students[i] = externalsMarks[i]; // Since External is a subclass of Student

students[i].displayStudentInfo();

int[] internal = internalsMarks[i].getInternalMarks();

int[] external = externalsMarks[i].getSeeMarks();

System.out.print("Final Marks in 5 Courses: ");

for (int j = 0; j < 5; j++) {

int finalMark = internal[j] + (external[j] / 2); // SEE marks are divided by 2

System.out.print(finalMark + " ");

}

System.out.println();

}

scanner.close();

}

}

