JAVA PROGRAMMIN CODE ALPHA

TASK-1:-

import java.util.ArrayList;

import java.util.Scanner;

public class StudentGradesManager {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

ArrayList<String> studentNames = new ArrayList<>();

ArrayList<Double> studentGrades = new ArrayList<>();

System.out.println("=== Student Grades Manager ===");

boolean continueInput = true;

while (continueInput) {

System.out.print("Enter student name: ");

String name = scanner.nextLine();

System.out.print("Enter grade for " + name + ": ");

double grade = -1;

while (grade < 0 || grade > 100) {

if (scanner.hasNextDouble()) {

grade = scanner.nextDouble();

if (grade < 0 || grade > 100) {

System.out.print("Invalid grade. Enter a value between 0 and 100: ");

}

} else {

System.out.print("Invalid input. Enter a numeric value: ");

scanner.next(); // discard invalid input

}

}

scanner.nextLine(); // clear buffer

studentNames.add(name);

studentGrades.add(grade);

System.out.print("Add another student? (yes/no): ");

String response = scanner.nextLine().trim().toLowerCase();

continueInput = response.equals("yes");

}

if (studentNames.isEmpty()) {

System.out.println("No student data entered.");

return;

}

// Summary calculations

double total = 0;

double highest = studentGrades.get(0);

double lowest = studentGrades.get(0);

int highestIndex = 0, lowestIndex = 0;

for (int i = 0; i < studentGrades.size(); i++) {

double grade = studentGrades.get(i);

total += grade;

if (grade > highest) {

highest = grade;

highestIndex = i;

}

if (grade < lowest) {

lowest = grade;

lowestIndex = i;

}

}

double average = total / studentGrades.size();

// Display summary

System.out.println("\n=== Summary Report ===");

for (int i = 0; i < studentNames.size(); i++) {

System.out.printf("%s: %.2f%n", studentNames.get(i), studentGrades.get(i));

}

System.out.printf("%nAverage Grade: %.2f%n", average);

System.out.printf("Highest Grade: %.2f (%s)%n", highest, studentNames.get(highestIndex));

System.out.printf("Lowest Grade: %.2f (%s)%n", lowest, studentNames.get(lowestIndex));

scanner.close();

}

}

OUTPUT:-

**=== Student Grades Manager ===**

Enter student name: Thrisha

Enter grade for Thrisha: 85

Add another student? (yes/no): yes

Enter student name: Thiru

Enter grade for Thiru: 90

Add another student? (yes/no): no

**=== Summary Report ===**

Thrisha: 85.00

Thiru: 90.00

Average Grade: 87.50

Highest Grade: 90.00 (Thiru)

Lowest Grade: 85.00 (Thrisha)

**=== Code Execution Successful ===**