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#include <iostream>
#include <vector>
#include <iomanip>
using namespace std;

struct Course {
    float grade;
    int credit;
};

int main() {
    int numCourses;
    cout << "Enter the number of courses taken: ";
    cin >> numCourses;

    vector<Course> courses(numCourses);
    float totalGradePoints = 0;
    int totalCredits = 0;

    for (int i = 0; i < numCourses; ++i) {
        cout << "\nCourse " << i + 1 << ":\n";
        cout << "Enter grade (on 10-point scale): ";
        cin >> courses[i].grade;

        cout << "Enter credit hours: ";
        cin >> courses[i].credit;

        totalGradePoints += courses[i].grade * courses[i].credit;
        totalCredits += courses[i].credit;
    }

    if (totalCredits == 0) {
        cout << "\nNo credits entered. Cannot calculate GPA.\n";
        return 1;
    }

    float gpa = totalGradePoints / totalCredits;

    cout << "\n--- Course Details ---\n";
    for (int i = 0; i < numCourses; ++i) {
        cout << "Course " << i + 1 << ": Grade = " << courses[i].grade
            << ", Credit Hours = " << courses[i].credit << "\n";
    }

    cout << fixed << setprecision(2);
    cout << "\nTotal Credits: " << totalCredits << endl;
    cout << "Total Grade Points: " << totalGradePoints << endl;
    cout << "Semester GPA (CGPA): " << gpa << endl;
}

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return 0;
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}
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