#include <iostream>

#include <iomanip>

using namespace std;

const int MAX\_STUDENTS = 10; // maximum number of student allowed

const int MAX\_TESTS = 5; // Maximum number of tests allowed

int main() {

string studentNames[MAX\_STUDENTS];

int testScores[MAX\_STUDENTS][MAX\_TESTS]; // Array to store test scores

double averageScores[MAX\_STUDENTS];

char finalGrades[MAX\_STUDENTS];

int numStudents = 0;

int numTests = 0; // Number of tests for each student

int choice;

do {

cout << "NOTE: When you are done inputing the student scores make sure you calculate the averages and assign grades before displaying the results. Thank you." << endl;

cout << "Class Grading System Menu:" << endl;

cout << "1. Input Student Scores" << endl;

cout << "2. Calculate Averages" << endl;

cout << "3. Assign Grades" << endl;

cout << "4. Display Results" << endl;

cout << "5. Exit" << endl;

cout << "Enter your choice: ";

cin >> choice;

switch (choice) {

case 1: {

cout << "Enter the number of students (max 10): ";

cin >> numStudents;

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

cout << "Enter name for student " << i + 1 << ": ";

cin.ignore(); // Consume leftover newline from previous input

getline(cin, studentNames[i]);// getline is used to read the fullnames

cout << "Enter the number of tests for " << studentNames[i] << " (max " << MAX\_TESTS << "): ";

cin >> numTests;

// Input validation for numTests

while (numTests < 1 || numTests > MAX\_TESTS) {// || means or

cout << "Invalid number of tests. Enter a value between 1 and " << MAX\_TESTS << ": ";

cin >> numTests;

}

cout << "Enter test scores for " << studentNames[i] << " (separated by spaces): ";

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

cin >> testScores[i][j];

// Validate input

while (testScores[i][j] < 0 || testScores[i][j] > 100) {

cout << "Invalid score. Enter a score between 0 and 100: ";

cin >> testScores[i][j];

}

}

}

break;

}

case 2: {

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

int totalScore = 0;

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

totalScore += testScores[i][j];

}

averageScores[i] = static\_cast<double>(totalScore) / numTests;// this convert totalscore(integer) intoa double(decimal number)

}

cout << "Averages calculated." << endl;

break;

}

case 3: {

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

if (averageScores[i] >= 90) {

finalGrades[i] = 'A';

} else if (averageScores[i] >= 80) {

finalGrades[i] = 'B';

} else if (averageScores[i] >= 70) {

finalGrades[i] = 'C';

} else if (averageScores[i] >= 60) {

finalGrades[i] = 'D';

} else {

finalGrades[i] = 'F';

}

}

cout << "Grades assigned." << endl;

break;

}

case 4: {

cout << "Student Name" << setw(15) << "Average Score" << setw(10) << "Final Grade" << endl;

cout << "-------------------------------------------------" << endl;

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

cout << studentNames[i] << setw(15) << fixed << setprecision(2) << averageScores[i] << setw(10) << finalGrades[i] << endl; // the setw sets the appropraite characters width, add space and create aligned columns

}

break;

}

case 5:

cout << "Exiting program..." << endl;

break;

default:

cout << "Invalid choice. Please try again." << endl;

}

} while (choice != 5);

return 0;

}