CODE:

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this program reads student names and their grades from a file and outputs the data in a specific format, including each grade, each student's average, and the class average

TO DO: generalize program for indeterminate number of students (arrays require const ints)

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#include <iostream>

#include <fstream>

#include <string>

using namespace std;

const int numOfGrades = 4, numOfStudents = 7; //set number of grades for each student and number of total students

struct student {

string studentName; //student's name

int studentGrades[numOfGrades]; //array containing each grade

double studentAvg; //student's average score

int studentGradeSum = 0; //cumulative total of student's grades added together (for calculating average)

};

int main() {

int gradeCount = 0, classGradeSum = 0; //variables for count of grades input and sum of all grades, respectively

ifstream inFile;

inFile.open("..//file.txt"); //open file

student students[numOfStudents]; //declare array of students

if (!inFile) { //throw error if file doesn't open

cout << "Error reading file.";

return 1;

}

while (!inFile.eof()) { //get student names and grades

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

inFile >> students[i].studentName; //input name for each student

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

inFile >> students[i].studentGrades[j]; //populate array for each student with each grade

students[i].studentGradeSum += students[i].studentGrades[j]; //add that grade to student's cumulative total

gradeCount++; //increment counter for number of grades entered

classGradeSum += students[i].studentGrades[j]; //add each grade to total for entire class

}

students[i].studentAvg = students[i].studentGradeSum / numOfGrades; //calculate average grade for each student

}

}

for (int i = 0; i < numOfStudents; i++) { //output data

cout << students[i].studentName << "'s grades:\n"; //student name

for (int j = 0; j < numOfGrades; j++) { //each grade

cout << students[i].studentGrades[j] << " ";

}

//output average grade

cout << "\n" << students[i].studentName << "'s average grade:\n" << students[i].studentAvg << "\n";

cout << "\n";

}

double classAvg = classGradeSum / gradeCount; //calculate class average

cout << "Class average grade: " << classAvg << endl; //output class average

system("pause");

return 0;

}