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//grading.cpp, run under MS Visual C++ 2010 Express
//Programming Assignment - Another Very Grading Problem
//author: Linda Weiser Friedman
//date compiled: November 2014
#include <iostream>
#include <fstream>
#include <iomanip>
#include <string>
using namespace std;
//input data file
ifstream infile ("C:\\Users\\lwfriedman\\Documents\\cplusplus\\grading\\students.dat");
//output text file - Report
ofstream outReport ("C:\\Users\\lwfriedman\\Documents\\cplusplus\\grading\\wArrays\\report.txt");

int main () { //variable declarations
string id, course, semester, LastName, FirstName;
float weight[4];
int n = 0;
int grade[4];
float FinalGrade, SumGrades = 0;
float MaxSoFar = -1;
float MinSoFar = 150;

if (!infile) //testing files
    cerr << "Error: could not open input file\n";
else if (!outReport)
    cerr << "Error: could not open output file\n";
else { //files OK - //do rest of program
    infile >> course >> semester;
    for (int j=0; j<4; j++) infile >> weight[j];
    outReport << "Little School of Soft Knocks\n";
    outReport << "Student Grade Report" << endl;
    outReport << "\nSemester: " << semester << "\nCourse: " << course << endl;
    outReport << "\nIn computing the Final Grade for each student, the following\n"
        << "weights were used:\n";
    for (int j=0; j<4; j++)
        outReport << setw(10) << "Grade " << j << setw(6) << weight[j]*100 << "%\n";
    outReport << setiosflags(ios::right) << setw(10) << "Student ID"
        << setw(10) << "Name" << setw(10) << ' '
        << setw(20) << "Grades 1 - 4" << setw(14) << "Final Grade"
        << resetiosflags(ios::right) << endl << endl;
}
}

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while (infile >> id >> LastName >> FirstName){
    FinalGrade = 0;
    for (int j=0; j<4; j++) {
        infile >> grade[j];
        FinalGrade += weight[j]*grade[j];
    }
    outReport << setiosflags (ios::fixed) << setprecision(2)
        << setw (11) << setiosflags (ios::left) << id << setw(10) << FirstName << setw(10) << LastName
        << setiosflags(ios::right);
    for (int j=0; j<4; j++) outReport << setw (5) << grade[j];
    outReport << setw (10) << FinalGrade << resetiosflags(ios::right) << endl;
    SumGrades += FinalGrade;
    n++;
    if (FinalGrade > MaxSoFar)
        MaxSoFar = FinalGrade;
    if (FinalGrade < MinSoFar)
        MinSoFar = FinalGrade;
} //end while

outReport << endl << setiosflags(ios::showpoint | ios::fixed | ios::left)
    << setw(25) << "number of students = " << n << endl
    << setw(25) << "Class Average is " << SumGrades/n << endl
    << setw(25) << "Maximum Grade is " << MaxSoFar << endl
    << setw(25) << "Minimum Grade is " << MinSoFar << endl;
return 0;
} //end if/else from testing files
} //end main

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Input file:

```
Object-Oriented_Programming
Fall2014
0.15 0.25 0.25 0.35
123456789 Archer Lew 99 62 101 89
111111111 Bond James 100 98 99 89
101010101 Burke Amos 65 77 88 98
222222222 Chambers Pat 44 84 88 101
999999999 Chambers Diane 70 32 90 95
333333333 Clousseau Inspector 42 65 85 54
444444444 Ed Mister 88 99 77 99
666666666 Hammer Mike 88 87 98 78
111222333 Hope Matthew 89 90 80 87
777777777 Kent Clark 99 99 98 99
555555555 Kramer Cosmo 98 87 76 65
000111222 Marlowe Philip 78 76 65 67
888888888 Rockford James 89 78 87 89
444555666 Sunnydale Buffy 87 32 78 92
777888999 Wolfe Nero 100 100 99 100
```

Output report:

Little School of Soft Knocks
Student Grade Report

Semester: Fall2014
Course: Object-Oriented_Programming

In computing the Final Grade for each student, the following weights were used:

- Grade 0 15%
- Grade 1 25%
- Grade 2 25%
- Grade 3 35%

Student ID	Name	Grades 1 - 4	Final Grade
123456789	Lew Archer	99 62 101 89	86.75
111111111	James Bond	100 98 99 89	95.40
101010101	Amos Burke	65 77 88 98	85.30
222222222	Pat Chambers	44 84 88 101	84.95
999999999	Diane Chambers	70 32 90 95	74.25
333333333	Inspector Clousseau	42 65 85 54	62.70
444444444	Mister Ed	88 99 77 99	91.85
666666666	Mike Hammer	88 87 98 78	86.75
111222333	Matthew Hope	89 90 80 87	86.30
777777777	Clark Kent	99 99 98 99	98.75
555555555	Cosmo Kramer	98 87 76 65	78.20
000111222	Philip Marlowe	78 76 65 67	70.40
888888888	James Rockford	89 78 87 89	85.75
444555666	Buffy Sunnydale	87 32 78 92	72.75
777888999	Nero Wolfe	100 100 99 100	99.75

number of students = 15
Class Average is 83.99
Maximum Grade is 99.75
Minimum Grade is 62.70