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/*****************************************
/ozan gazi onder homework6 Question 1
/student class that reads and writes the student data
/then calculates the average GPA*********/


#include<iostream>
#include<fstream>
#include<cstring>
#include<iomanip>
#define W setw

using namespace std;

class student
{
      private:
         char first[20], last[20];//student name
         int age;//student age
         double gpa;//student gpa
      public:
             student();
             int readFile(ifstream &);//reads data from student.dat
             void writeFile(ofstream &);//writes the data to the file
             void show();//display student data
             int read();//reads student data from the user
             double getGpa();//returns student's gpa
};
//Implementions of the methods

student::student() {gpa = 0.;}//constructor with intilialized gpa

int student::readFile(ifstream &IS)
{
    IS>>first>>last>>age>>gpa;
      return !IS.eof();//detects if its the end of file
}

void student::writeFile(ofstream &OS)
{
    OS<<W(10)<<first<<W(4)<<last<<W(10)<<age<<W(5)<<gpa<<endl;
}

double student::getGpa()
{
       return gpa;
}

void student::show()
{
```

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     cout<<W(10)<<first<<W(4)<<last<<W(10)<<age<<W(5)<<gpa<<endl;
}

int student::read()
{
    //for some reason ctrl^Z causes my program to crush
    //thats why, I used value 0 in age as a sentinel value
    cout<<"\nEnter first name: "; cin>>first;
    cout<<"\nEnter last name: "; cin>>last;
    cout<<"\nEnter student age(type 0 to quit): "; cin>>age;
    cout<<"\nEnter GPA: "; cin>>gpa;
    return (age>0);
}

//MAIN PROGRAM
int main()
{
    student list[20], s[20];//arrays of students
    int n = 0;
    double totalGPA = 0., averageGPA;//gpa accumulator

    ofstream OUTPUT("student.dat", ios::out);
    while(list[n].read())//reads data from the user by calling
read()method
    {
        list[n].writeFile(OUTPUT);//writes the data to student.txt
        n++;
    }
    OUTPUT.close();

   int x =0;
   ifstream IS("student.dat", ios::in);
   while(s[x].readFile(IS))//reads the file
   {
      s[x].show();
      totalGPA += s[x].getGpa();//adds GPA
      x++;
   }
   IS.close();
   averageGPA = totalGPA/x;//calculates the average GPA
   cout<<"\n\nAverge GPA: "<<averageGPA<<endl;

   system("pause");
   return 0;
}



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Enter first name: alex

Enter last name: miller

Enter student age(type 0 to quit): 22

Enter GPA: 3.2

Enter first name: egemen

Enter last name: ege

Enter student age(type 0 to quit): 25

Enter GPA: 3.70

Enter first name: burak

Enter last name: guler

Enter student age(type 0 to quit): 19

Enter GPA: 2.2

Enter first name: ozan

Enter last name: onder

Enter student age(type 0 to quit): 0

Enter GPA: 0
alexmiller  22         3  0.2
    egemen ege        25  3.7
burakguler  19         2  0.2


Averge GPA: 1.36667
Press any key to continue . . .
```