Lab test 2

Name: **Franz Tamani**

Student ID: **102114822**

Source Code (Copy and paste your code below)

|  |
| --- |
| #include <iostream>  #include <fstream>  #include <iomanip>  using namespace std;  struct student  {  string name;  int no\_of\_units; //Max Number of Units is 5  string units[5];  int mark[5];  };  int readFile(fstream&, student[]);  void menu();  void display(student[], int);  double find\_average(student[], int, string);  double find\_unit\_average(student\*, int, string);  int main()  {  student stuArray[100];  fstream inFile;  string name;  double avg;  int arrSize = 0;  int menuOption = 0;    arrSize = readFile(inFile, stuArray);  while (menuOption != -1)  {  switch (menuOption)  {  case 0:  menu();  cin >> menuOption;  cin.ignore();  break;  case 1:  display(stuArray, arrSize);  menuOption = 0; // return to menu  break;  case 2:  cout << "Enter a student name: ";  cin >> name;  cin.ignore();  avg = find\_average(stuArray, arrSize, name);  if (avg < 0)  cout << "No such student in the gradebook" << endl << endl;  else  {  cout << "The average marks of " << name << " is "  << fixed << setprecision(2) << avg << endl << endl;  }  menuOption = 0; // return to menu  break;  case 3:  cout << "Enter unit name: ";  cin >> name;  cin.ignore();  avg = find\_unit\_average(stuArray, arrSize, name);  if (avg < 0)  cout << "No such unit in the database" << endl << endl;  else  {  cout << "The average for " << name << " is "  << fixed << setprecision(2) << avg << endl << endl;  }  menuOption = 0; // return to menu  break;  default:  break;  }  }    return 0;  }  void menu()  {  cout << "Enter Your Choice" << endl;  cout << "Enter 1 to display the grade details" << endl;  cout << "Enter 2 to find the average mark of student" << endl;  cout << "Enter 3 to find average marks for a particular unit in the gradebook" << endl;  cout << "Enter -1 to exit the program" << endl;  }  int readFile(fstream& inFile, student stuArr[])  {  int size = 0;  inFile.open("marks.txt");  if (inFile.fail())  {  cout << "Input File - ERROR!!!" << endl;  exit(1); //1 - define input file error  }  for (int i = 0; !inFile.eof(); i++, size++)  {  inFile >> stuArr[i].name >> stuArr[i].no\_of\_units;  for (int j = 0; j < stuArr[i].no\_of\_units; j++)  {  inFile >> stuArr[i].units[j] >> stuArr[i].mark[j];  }  }  //for (size = 0; !inFile.eof(); size++, stuArr++)  //{  // inFile >> stuArr->name >> stuArr->no\_of\_units;  // for (int i = 0; i < stuArr->no\_of\_units; i++)  // {  // inFile >> stuArr->units[i] >> stuArr->mark[i];  // }  //}  return size;  }  void display(student stuArr[], int size)  {  for (int i = 0; i < size; i++)  {  cout << "Name: " << stuArr[i].name << endl;  cout << stuArr[i].name << " has done " << stuArr[i].no\_of\_units  << " units, their marks are" << endl;  for (int j = 0; j < stuArr[i].no\_of\_units; j++)  {  cout << stuArr[i].units[j] << " " << stuArr[i].mark[j] << endl;  }  }  cout << endl;  }  double find\_average(student stuArr[], int size, string name)  {  double result = 0;  for (int i = 0; i < size; i++)  {  if (stuArr[i].name == name)  {  for (int j = 0; j < stuArr[i].no\_of\_units; j++)  {  result += stuArr[i].mark[j];  }  result = result / stuArr[i].no\_of\_units;  return result;  }  }  return -1;  }  double find\_unit\_average(student\* stuArr, int size, string name)  {  double avg = 0;  int unitAmt = 0;  for (int i = 0; i < size; i++, stuArr++)  {  for (int j = 0; j < stuArr->no\_of\_units; j++)  {  if (stuArr->units[j] == name)  {  avg += stuArr->mark[j];  unitAmt++;  }  }  }  if (unitAmt > 0)  return avg / unitAmt;  else  return -1;  } |

Screenshots of output window





