# Lab 5-1

Problem: Sort through a list of names and GPAs, and sort alphabetically, keeping GPAs corresponding to names.



# Source File:

/\*Problem: Sort through a list of names and GPAs, and sort alphabetically,

keeping GPAs corresponding to names.

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Date: February 10th, 2014

Inputs: File with names and GPAs

Outputs: Names sorted alphabetically with corresponding GPAs

\*/

#include <iostream>

#include <fstream>

#include <vector>

#include <iomanip>

#include <string>

using namespace std;

void fillVectors(vector<string> & names, vector<double> & gpas, ifstream & input);

void sortVectors(vector<string> & names, vector<double> & gpas);

int main()

{

/\*

Grabs file location from user

Opens stream from file

Sends stream to fillVector()

Sends filled array to sortVectors()

Displays sorted vector

\*/

vector<string> names;

vector<double> gpas;

char file[256];

cout<<"Please enter the address of the file to be processed: \n";

cin.getline(file,256);

ifstream input(file);

if(!input.is\_open())

{

cout<<"Error: The file "<<file<<" failed to open correctly. Quitting program.";

exit(-1);

}

fillVectors(names,gpas,input);

sortVectors(names,gpas);

cout<<"\n\nHere are the names sorted alphabetically:\n";

for(int i=0;i<names.size();i++)

cout<<names.at(i)<<setw(10)<<gpas.at(i)<<endl;

cout<<endl<<endl;

return 0;

}

void fillVectors(vector<string> & names,vector<double> & gpas, ifstream & input)

{

/\*Uses open stream to fill string vector and double vector\*/

string temp;

double numtemp;

for(int i=0;i<5;i++)

{

getline(input,temp,' ');

names.push\_back(temp);

input>>numtemp;

gpas.push\_back(numtemp);

}

}

void sortVectors(vector<string> & names,vector<double> & gpas)

{

/\*Takes filled vectors and sorts them using a bubble sort\*/

string nameholder;

double numholder;

for(int i=1;i<5;i++)

{

for(int x=1;x<5;x++)

{

if(names[x-1][0]>names[x][0])

{

nameholder=names.at(x-1);

names.at(x-1)=names.at(x);

names.at(x)=nameholder;

numholder=gpas.at(x-1);

gpas.at(x-1)=gpas.at(x);

gpas.at(x)=numholder;

}

else if(names[x-1][0]==names[x][0])

{

if(names[x-1][1]>names[x][1])

{

nameholder=names.at(x-1);

names.at(x-1)=names.at(x);

names.at(x)=nameholder;

numholder=gpas.at(x-1);

gpas.at(x-1)=gpas.at(x);

gpas.at(x)=numholder;

}

}

}

}

}

# Input File:

James 3.9

Margaret 3.5

Charles 1.2

Jennifer 4.0

Claude 2.9

# Sample Run:

Please enter the address of the file to be processed:

C:\Users\naroa\Desktop\TextFile1.txt

Here are the names sorted alphabetically:

Charles 1.2

Claude 2.9

James 3.9

Jennifer 4

Margaret 3.5

Press any key to continue . . .