# Lab 2-2

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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Inputs: File with names and GPAs

Outputs: Names sorted alphabetically with corresponding GPAs

\*/

#include <iostream>

#include <fstream>

#include <iomanip>

#include <string>

using namespace std;

void fillArrays(ifstream & input,char names[][25],double gpas[]);

void sortArrays(char names[][25],double gpas[]);

int main()

{

/\*

Grabs file location from user

Opens stream from file

Sends stream to fillArrays()

Sends filled array to sortArrays()

Displays sorted array

\*/

char names[5][25];

double gpas[5];

char file[256];

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

cin.getline(file,256);

ifstream input(file); //declares the input stream and opens it to the file

if(!input.is\_open())

{

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

exit(-1);

}

fillArrays(input,names,gpas);

sortArrays(names,gpas);

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

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

cout<<names[i]<<setw(10)<<gpas[i]<<endl;

cout<<endl<<endl;

return 0;

}

void fillArrays(ifstream & input,char names[][25],double gpas[])

{

/\*

Uses open stream to fill character array and double array

\*/

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

{

input.getline(names[i],25,' ');

input>>gpas[i];

}

}

void sortArrays(char names[][25],double gpas[])

{

/\*

Takes filled arrays and sorts them using a bubble sort

\*/

char placeholder[25];

double numholder;

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

{

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

{

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

{

strcpy\_s(placeholder,names[x-1]);

strcpy\_s(names[x-1],names[x]);

strcpy\_s(names[x],placeholder);

numholder=gpas[x-1];

gpas[x-1]=gpas[x];

gpas[x]=numholder;

}

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

{

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

{

strcpy\_s(placeholder,names[x-1]);

strcpy\_s(names[x-1],names[x]);

strcpy\_s(names[x],placeholder);

numholder=gpas[x-1];

gpas[x-1]=gpas[x];

gpas[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 . . .