# Lab 4-2:

## Problem:

Extend postal abbreviations into full state names.

## Source File:

/\*

Problem: Extend postal abbreviations into full state names.

Author: Andrew Naro

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Inputs: File from user with state abbreviations

Outputs: File with abbreviations now expanded

\*/

#include <iostream>

#include <fstream>

using namespace std;

int analyze(char input[64],char abbreviations[50][3]);

void expand(char expansions[50][32],char output[64],int location);

int main()

{

/\*Fills input[] with data from file. Sends input[] to analyze to determine if abbreviation. If abbreviation, expand is called. Printed out to external file.\*/

char input[64];

char output[64];

char abbreviations[50][3]={"AK","AL","AR","AZ","CA","CO","CT","DE","FL","GA","HI","ID","IL","IN","KS","KY","LA","MA","MD","ME","MI","MN","MO","MT","NC","ND","NE","NH","NJ","NM","NV","NY","OH","OK","OR","PA","RI","SC","SD","TN","TX","UT","VA","VT","WA","WI","WV","WY"};

char expansions[50][32]={"Alaska","Alabama","Arkansas","Arizona","California","Colorado","Connecticut","Delaware","Florida","Georgia","Hawaii","Idaho","Illinois","Indiana","Kansas","Kentucky","Louisiana","Massachusetts","Maryland","Maine","Michigan","Minnesota","Missouri","Montana","North Carolina","North Dakota","Nebraska","New Hampshire","New Jersey","New Mexico","Nevada","New York","Ohio","Oklahoma","Oregon","Pennsylvania","Rhode Island","South Carolina","South Dakota","Tennessee","Texas","Utah","Virginia","Vermont","Washington","Wisconsin","West Virginia","Wyoming"};

char destination[128];

int location=0;

cout<<"Please enter file path: ";

cin.getline(destination,128);

ifstream file(destination);

if(!file.is\_open())

{

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

exit(-1);

}

ofstream newfile("expanded.txt");

if(!newfile.is\_open())

{

cout<<"Error: The output file could not be created! Quitting program.";

exit(-2);

}

cout<<endl<<endl;

while(!file.eof())

{

file.getline(input,64,' ');

location=analyze(input,abbreviations);

if(location!=-1)

expand(expansions,output,location);

else

{

for(int i=0;i<64;i++)

output[i]=input[i];

}

newfile<<output<<" ";

}

return 0;

}

int analyze(char input[64],char abbreviations[50][3])

{

/\*Cross-references each input with list of abbreviations to determine if input is an abbreviation.

Returns position of abbreviation if it is an abbreviation or -1 if it is not an abbreviation.\*/

int tester=0;

int i;

for(i=0;i<50;i++)

{

tester=strncmp(input,abbreviations[i],2);

if(tester==0)

break;

if(i==49&&tester!=0)

return -1;

}

return i;

}

void expand(char abbreviations[50][32],char output[64],int location)

{

/\*Takes position determined by analyze to expand the output from an abbreviation to a full-state name.\*/

for(int i=0;i<32;i++)

{

output[i]=abbreviations[location][i];

}

}

## Input File:

Danil moved from Los Angeles, CA to Seattle, WA

## Output File:

Danil moved from Los Angeles, California to Seattle, Washington

## Sample Run:

Please enter file path: C:\Users\naroa\Desktop\TextFile3.txt

Press any key to continue . . .