Nikeem Dunkelly-Allen, ECE318 Assignment 3, Fall 2022

#include <string>

#include <iostream>

#include <fstream>

#include <cstdlib>

#include <vector>

using namespace std;

struct connect

{

int start, end;

double dist;

string name, kind;

connect(string n, string k, int s, int e, double d)

{

start = s;

end = e;

name = n;

kind = k;

dist = d;

};

};

struct node

{

int index;

string state, name;

double longi, lati, dist;

vector<connect> connects;

node(int i, double lo, double la, double d, string s, string n)

{

index = i;

longi = lo;

lati = la;

dist = d;

state = s;

name = n;

};

void add(connect c)

{

connects.push\_back(c);

};

};

int main()

{

vector<node> nodes;

double longi, lati, dist;

string state, name, kind, ignored;

int start, end, index = 0;

ifstream myfile("/home/www/class/een318/intersections.txt");

while (myfile >> longi >> lati >> dist >> state)

{

getline(myfile, name);

node node(index, longi, lati, dist, state, name);

nodes.push\_back(node);

index++;

}

myfile.close();

ifstream myfile1("/home/www/class/een318/connections.txt");

while (myfile1 >> name >> kind >> start >> end >> dist)

{

connect connect1(name, kind, start, end, dist);

connect connect2(name, kind, end, start, dist);

nodes[start].add(connect1);

nodes[end].add(connect2);

}

myfile1.close();

//cout << "File successfully opened" << endl;

cout << "Which location would you like to start at: ";

cin >> index;

if (index < 0 || index >= nodes.size())

{

cout << "Number must be greater than 0 and less than " << nodes.size() << endl;

return 0;

}

cout << endl;

for (;;)

{

vector<connect> connect = nodes[index].connects;

cout << "Location " << nodes[index].index << ", " << nodes[index].dist;

cout << " miles from " << nodes[index].name << ", " << nodes[index].state << endl;

cout << "roads leading away:" << endl;

for (int j = 0; j < connect.size(); j ++)

{

cout << " " << j + 1 << ": " << connect[j].name << ", " << connect[j].dist;

cout << " miles to node " << connect[j].end << endl;

}

int k = 0;

while (k < 1 || k > connect.size())

{

cout << "Which road would you like to take?, (If you'd like to exit enter 0)" << endl;

cin >> k;

if(k == 0)

{

cout << "Exiting, navigation has ended." << endl;

return 0;

}

else if (k < 1 || k > connect.size())

{

cout << "Road does not exist, choose one that is listed" << endl;

}

/\*else if(k == '0')

{

cout << "Exiting, navigation has ended." << endl;

return 0;

}\*/

cout << endl;

}

index = connect[k - 1].end;

}

}

Text

Description automatically generated