#include <iostream>

#include <fstream>

#include <string>

#include <vector>

#include <iomanip>

#include "ArgumentManager.h"

using namespace std;

string Spiral(string\*\* mat, int, int, int, int, int, int, string, string&, int);

void Reverse(string, string, string);

int main(int argc, char\* argv[])

{

ArgumentManager am(argc, argv);

const string input = am.get("input");

const string output = am.get("output");

ifstream inputFile;

ofstream outputFile;

string target = "start";

outputFile.open(output.c\_str());

outputFile.close();

Reverse(target, input, output);

}

string Spiral(string\*\* \_mat, int x, int y, int lrowbound, int lcolbound, int row, int col, string output, string& temp, int count) {

if (count == ((row + lrowbound) \* (col + lcolbound))) {

return temp;

}

else if ((x == lrowbound) && (y != col - 1)) {

temp += (\_mat[x][y]);

count++;

return Spiral(\_mat, x, y + 1, lrowbound, lcolbound, row, col, output, temp, count);

}

else if ((x != row - 1) && (y == col - 1)) {

temp += (\_mat[x][y]);

count++;

return Spiral(\_mat, x + 1, y, lrowbound, lcolbound, row, col, output, temp, count);

}

else if ((x == lrowbound + 1) && (y == lcolbound)) {

temp += (\_mat[x][y]);

count++;

row--;

col--;

lcolbound++;

lrowbound++;

return Spiral(\_mat, x, y + 1, lrowbound, lcolbound, row, col, output, temp, count);

}

else if ((x != lrowbound) && (y == lcolbound)) {

temp += (\_mat[x][y]);

count++;

return Spiral(\_mat, x - 1, y, lrowbound, lcolbound, row, col, output, temp, count);

}

else if ((x == row - 1) && (y != 0)) {

temp += (\_mat[x][y]);

count++;

return Spiral(\_mat, x, y - 1, lrowbound, lcolbound, row, col, output, temp, count);

}

return temp;

}

void Reverse(string target, string input, string output) {

if (target == "finish") {

return;

}

ifstream inputFile;

ofstream outputFile;

inputFile.open(input.c\_str());

string srow, scol;

string word = "";

string output = "";

int lrowbound = 0;

int lcolbound = 0;

int count = 0;

string temp = "";

while (word != target) {

inputFile >> word;

}

inputFile >> word;

srow = word[0];

scol = word[2];

int row = stoi(srow);

int col = stoi(scol);

string\*\* mat = new string \* [row];

for (int i = 0; i < row; i++) {

mat[i] = new string[col];

}

for (int i = 0; i < row; i++) {

for (int j = 0; j < col; j++) {

inputFile >> mat[i][j];

cout << mat[i][j];

}

}

string outtext = Spiral(mat, 0, 0, lrowbound, lcolbound, row, col, output, temp, count);

inputFile.close();

Reverse(outtext, input, output);

outputFile.open(output.c\_str(), ios\_base::app);

outputFile << target << endl;

outputFile.close();

for (int i = 0; i < row; ++i) {

delete[]mat[i];

}

delete[]mat;

}



