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Programming Assignment Two

Turtle ---

#include <iostream>

#include <fstream>

using namespace std;

//prototypes

void movement(int, int& rows, int& columns);

int compassRight(int, int);

int compassLeft(int, int);

void print(int[8][60]);

int main() {

int turnCommand, spacesMoved, rows=0, columns=0, array[8][60], direction=1, pen = 0;

char command;

ifstream infile;

infile.open("turtle.txt");

if (!infile)

{

cout << "Error opening file." << endl;

cout << "Terminating Program..." << endl;

}

infile >> command;

/\*

COMMAND LIST

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U = pen up

D = pen down

R = right turn

L = left turn

F(x) = move forward x spaces

P = print array

Q = end

\*/

while (command != 'Q')

{

switch (command)

{

case 'U':

pen = 0;

break;

case 'D':

pen = 1;

break;

case 'R':

turnCommand = 1;

direction = compassRight(direction, turnCommand);

break;

case 'L':

turnCommand = 2;

direction = compassLeft(direction, turnCommand);

break;

case 'F':

infile >> spacesMoved;

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

{

movement(direction, rows, columns);

if (pen == 1)

{

array[rows][columns] = '\*';

}

}

break;

case 'P':

print(array);

break;

}

infile >> command;

}

}

void print(int array[8][60])

{

for (int i = 0; i < 8; i++)

{

cout << endl;

for (int j = 0; j < 60; j++)

{

switch(array[i][j])

{

case '\*':

cout << "\*";

break;

default:

cout << " ";

break;

}

}

}

cout << endl;

}

int compassRight(int direction, int turnCommand)

{

if (turnCommand == 1 && direction == 3)

direction = 0;

else if (turnCommand == 1 && direction != 3)

direction++;

return direction;

}

int compassLeft(int direction, int turnCommand)

{

if (turnCommand == 2 && direction == 0)

direction = 3;

else if (turnCommand == 2 && direction != 0)

direction--;

return direction;

}

void movement(int direction, int& rows, int&columns)

{

switch (direction)

{

case 0:

rows--;

break;

case 1:

columns++;

break;

case 2:

rows++;

break;

case 3:

columns--;

break;

}

}

