

Assignment #4 Design/Testing

Understanding the Problem

This problem is asking me to create a program that simulate three different types of algorithms of a simulated Roomba. There will be an entire dirty floor, where a programmed Roomba will completely clean it. The Roomba can only move left, right, up, and down from its current location. There is a battery life for the Roomba that will be simulate as a maximum number of moves the Roomba is allowed to move, and the Roomba can also be placed anywhere on the floor to start. As a programmer, we are required to use classes with a template, “Is a”, “Has a”, and “Uses” relationships. We are also to file i/o to simulate a floor plan as an indication on the current states of the overall floor plan used in the program and visually to the user.

Devising a Plan/Design

Create a Room header and cpp combination file containing the template for this program.

Create a room header file which will contain the class named Room, along with its room cpp file.

Create a Floor header file which will contain the class named Floor, along with its Floor cpp file.

Create a Roomba header file which will contain the class named Roomba, along with its Roomba cpp file.

Create a RandomRoomba header file which will contain the class named RandomRoomba, along with its RandomRoomba cpp file.

Create an AverageRoomba header file which will contain the class named AverageRoomba, along with its AverageRoomba cpp file.

Create a SmartRoomba header file which will contain the class named SmartRoomba, along with its SmartRoomba cpp file.

Create the main file named simulate_roomba.cpp.

Create a Makefile for these files in order to run the entire program.

Testing

In making my program, I used the help of information learned from lectures, lab, internet, teacher assistants, and peers, but it didn't work the way it is supposed to be, so all that my program actually does is checks the command line inputted by the user, outputs the results back to the user, and it also outputs a brief message on why this program does not do what it should do.

Input Values	Expected Output	Did Actual Meet Expected?
prog.exe -f floorplan.txt -b 100 -r 0 -c 0 -v 1	Prints back to the user its inputs and the brief explanation message.	Yes
prog.exe -f floorplan.txt -b 100 -c 0 -v 1	Outputs an error message and then exits out of the program.	Yes
prog.exe -g floorplan.txt -z 100 -l 0 -p 0 -y 1	Outputs an error message and then exits out of the program.	Yes