

Toy Robot Simulator – Assessment

Description

- The application is a simulation of a toy robot moving on a square tabletop, of dimensions 5 units x 5 units.
- There are no other obstructions on the table surface.
- The robot is free to roam around the surface of the table but must be prevented from falling to destruction. Any movement that would result in the robot falling from the table must be prevented, however further valid movement commands must still be allowed.

Create an application that can read in commands of the following (textual) form:

Command: **PLACE X,Y,F**

PLACE will put the toy robot on the table in position X,Y grid coordinates and facing (F) NORTH, SOUTH, EAST or WEST.

- The origin (0,0) can be considered to be the SOUTH WEST most corner.
- The first valid command to the robot is a PLACE command, after that, any sequence of commands may be issued, in any order, including another PLACE command. The application should discard all commands in the sequence until a valid PLACE command has been executed.

Command: **MOVE**

MOVE will move the toy robot one unit forward in the direction it is currently facing.

Command: **LEFT**

LEFT will rotate the robot 90 degrees counter-clockwise without changing the position of the robot.

Command: **RIGHT**

RIGHT will rotate the robot 90 degrees clockwise without changing the position of the robot.

Command: **REPORT**

REPORT will announce the X,Y and F of the robot. This can be in any form, but standard output is sufficient.

A robot that is not on the table can choose to ignore the MOVE, LEFT, RIGHT and REPORT commands.

Input can be from a standard input, as the developer chooses, but must also be able to accept command from a text file.

Constraints

- The toy robot must not fall off the table during movement. This also includes the initial placement of the toy robot.
- Any move that would cause the robot to fall must be ignored.

Example Input and Output

Example a

PLACE 0,0,NORTH

MOVE

REPORT

Expected output:

0,1,NORTH

Example b

PLACE 1,2,EAST

MOVE

MOVE

LEFT

MOVE

REPORT

Expected output:

3,3,NORTH

Deliverables

Provide your source code, and any test code/data you use in developing your solution.

Please engineer your solution to a standard you consider suitable for production. It is the developer's choice for user interface or providing any graphical output.

Do not put your name in any of the submitted code as this your submission will be assessed anonymously.

Provide your name, and the time spent in developing your solution with a link to download your source code as an email for your submission.

Keep in mind that while there is no time constraint for this assessment, the time recorded on developing the solution will be used as a measure of how much or to what quality you can perform on task.