

Please also take a look at the below and aim to complete this prior to Tuesday's interview?

Using C# can you design an application to control the movements of the next rover to go up to Mars. You have been told that the surface area on Mars is 100m x 100m where they have numbered the areas 1 through to 100 (please see diagram 1). The rover starts facing south and can turn in the directions of left and right moving in metres taking a maximum of 5 commands at any time. The rover starts in number 1 and after each set of commands reports back its current position and direction it is facing.

e.g.

1. 50m

2. Left

3. 23m

4. Left

5. 4m

command input string() max length 5

validate inputs

output string or grid ref + direction or Lat, Long, Bearing degrees

0-9+m

'Left', 'Right'

assumed non negative distances.

The above set of commands would cause the rover to report back position 4624 north.

The next set of commands would then continue from this square. Please note that the rover cannot go out of this area so will halt all commands when it has reached its perimeter.

Diagram 1....

max

assume invalid commands ignored.

001	2	3	99
101	102	103	199
201	202	203	299
...	...	...	...

100

200

300

assume additional commands (b+) are ignored

9901/9902/9903/9999/10000  
Write unit test to prove your results.

for each command. remember gridref & direction  
validate command. OR validate all commands prior to execution.  
for each single movement in command.  
if check 'is still in Bounds'  
move →  
else  
halt = true. break loops / or return position.

## Tests

offset bounds - south perimeter 201, 100 = 100 S

" - north perimeter L, L, 1 = 100 N

" - East perimeter L, 101 = 100 E

" - west perimeter

invalid commands - too many commands

direction change  
~~invalid~~ commands L R L R L = same location  
Different Being  
L L L L L  
etc

distance commands 0, 0, 0, 0, 1 <sup>not necessary because variable commands 1 to 5</sup> ≠ 101 S

0, 0, 0, 1, 0 = 101 S

move in each direction S 2 = 301 S

E L, 2 = 3 E

W L, 10, L, L, 5 = 6 W

N 10, R, R, 5 = 601 N

1, 2, 3, 4, 5 = 1501 S

direction & distance L, 0, 0, 0, 0 = 2 E

multiple command sets {L, 1} {R, 2} = 202 S