# Coding Challenge 1: Toy Robot

## Requirements

The application is a simulation of a toy robot moving on a square tabletop, of dimensions 5 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 form:

- `PLACE X,Y,F`
- `MOVE`
- `LEFT`
- `RIGHT`
- `REPORT`

`PLACE` will put the toy robot on the table in position `X`,`Y` and facing `NORTH`, `SOUTH`, `EAST` or `WEST`.

The `origin(0,0)` can be considered to be the `SOUTH WEST` most corner.

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

`LEFT` and `RIGHT` will rotate the robot 90 degrees in the specified direction without changing the position of the robot.

`REPORT` will announce the `X`,`Y` and `F` of the robot.

### Expectations of your application:

- The application must be a Spring-Boot-Application
- Input must be realised over the REST-API, take care when designing the REST-API
- The robot that is not on the table can choose the ignore the MOVE, LEFT, RIGHT and REPORT commands.
- The 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.
- It is not required to provide any graphical output showing the movement of the toy robot.

## Conceptual Example from CLI implementation:

*Note: Your Rest API does not need to mirror this exactly.*

```
PLACE 0,0,NORTH MOVE REPORT
Output: 0,1,NORTH
```

```
PLACE 0,0,NORTH LEFT REPORT
Output: 0,0,WEST
```

```
PLACE 1,2,EAST MOVE MOVE LEFT MOVE REPORT
Output: 3,3,NORTH
```

```
MOVE REPORT
Output: ROBOT MISSING
```