Technical Assessment - Codifying a Word Problem

Demonstrate your ability to create a program for controlling robots that move on a table surface.

Implement the solution using the Object-Oriented programming language of your choice (Java, C++, C#, etc). You may use macOS, Windows, or Linux. Provide the source code, executable, and textual results data. You should provide sufficient evidence that your solution is complete by indicating, at a minimum, that it works correctly against the supplied test data.

Requirements:

Robots

- Two remote-controlled robots are placed on a rectangular table.
- The robots can be independently controlled to navigate the table surface.
- A robot's position and orientation are represented by the three values. The **X-Axis** and the **Y-Axis** coordinates, and the **Orientation** of the robot represented by one of the four cardinal compass points (N, S, E, W). Ex: "0 0 N"

Table

- The table is divided into a grid to simplify navigation.
- The lower-left (Southwest) coordinate of the table is (0, 0). Coordinate values increase by one to the North and to the East.

Controller

- A robot is controlled via a simple string of characters. The possible letters are 'L', 'R' and 'M'. The characters 'L' and 'R' make the robot spin 90 degrees left or right from its current orientation without moving from its current location. 'M' means move forward one grid point maintaining the same orientation.
- Each robot will be moved sequentially. This means the second robot won't start to move until the first robot has finished moving.

Data Input

- Data input is ASCII textual data. Each data value is separated by a space.
- Line 1 – Describes the upper-right (Northeast) coordinates of the table (zero-based).

- Line 2 – The starting location and orientation of robot #1.
- Line 3 – The starting location and orientation of robot #2.
- Line 4 – The commands for robot #1.
- Line 5 – The commands for robot #2.

Data Output

- The final position and orientation for each robot will be displayed after running the scenario.

Program

- Write a program that will control the robots on the table by parsing and executing Test Scenario #1 below.
- Verify the program works by confirming the results match the expected output provided.
- Write a program that will parse and execute Test Scenario #2 below.
- Provide the results for running both scenarios.

Test Scenario #1

Data Input:

```
1: 5 5
2: 1 2 N
3: 3 3 E
4: L M L M L M L M M
5: M M R M M R M R R M
```

Expected Output:

```
1: 1 3 N
2: 5 1 E
```

Test Scenario #2

Data Input:

```
1: 3 6
2: 0 2 S
3: 3 3 E
4: M L M M L M R M
5: M M L M R M L M
```