Grid World Part 1 Assignment Questions

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Set 1

1. If no objects that can block the bug’s path are created, the path the bug takes will always be the same as before. This means the bug will never move to a new location.
2. The bug always moves in the direction it faces.
3. If the bug does not move it instead rotates clockwise until it is able to move to the location ahead of it.
4. The bug leaves behind a flower when it moves, who’s colour darkens with each step the bug takes.
5. If the bug is at the edge of the grid, there are two cases. The first case is that the bug is not facing the edge of the grid, in which case it moves normally as explained in question 2. The second case is that the bug is facing the grid, in which case it will rotate clockwise until the grid cell ahead of it is free, the same motion as when facing an obstacle like a rock.
6. When a rock is immediately in front of the bug, it will rotate clockwise until there is a grid cell that is free ahead of it.
7. Flowers do not move during the step action and the run action.
8. The flower's colour darkens every time the bug takes a step.
9. The rock does not move and it's only behaviour is to prevent access into its grid cell.
10. No.

Exercises

| **Degrees** | **Compass Direction** |
| --- | --- |
| 0 | North |
| 45 | Northeast |
| 90 | East |
| 135 | Southeast |
| 180 | South |
| 225 | Southwest |
| 270 | West |
| 315 | Northwest |
| 360 | North |

1. The bug can be moved to anywhere within the 10 x 10 grid, up to coordinates (9,9). Attempting to move the bug outside the grid results in a pop-up message reporting an illegal argument exception.
2. The method used to change the colour of a bug, flower, and rock is the method setColor.
3. The bug is no longer there once the rock has been moved away from on top of it.