Approach

Intuition

The core challenge is updating the board in-place without a second board. To solve this, we can encode state changes with temporary values. A live cell becoming dead can be marked as 2, and a dead cell becoming live can be marked as 3. This allows us to count neighbors based on original values (1s) while simultaneously marking changes. A second pass then finalizes the changes.

🚀 Approach

1. **First pass:** Iterate through the board. For each cell, count its live neighbors, considering both 1s and 2s as live. Based on the rules, mark cells that will change state with 2 (live to dead) or 3 (dead to live).
2. **Second pass:** Iterate through the board again. Convert all 2s to 0s and 3s to 1s to reflect the final states.

📈 Complexity

- **Time complexity:** *O(m * n)* — We perform two passes over the m x n board.
- **Space complexity:** *O(1)* — The modification is done in-place.