TAI Lab Assignment - 3

Design and simulate a cleaning agent in a **9×9 grid**:

a. **Initial dirt:** Randomly 20% dirty cells.

b. **Moves:** Left/Right/Top/Bottom/Diagonal by 1 step (no out-of-bounds). **Actions**: Clean if dirty, else No Action.

*c. **View:** The agent can see and detect the state (dirty or clean) of cells within a **Manhattan distance of 2** from its current position in any direction. Cells outside this range remain unknown until the agent moves closer, at which point they become visible.*

d. **Run:** 100 steps.

e. **Metrics:** P1 – Tiles cleaned, P2 – Tiles cleaned/total steps, P3 – percentage of dirty tiles cleaned.

f. **Comparison:** Test against a random agent starting from **(row 1, col 5)** for:
i. 20% dirt anywhere.
ii. 20% dirt only in lower half.

Hint: You may use visited-cell memory in your strategy.