Trustworthy Artificial Intelligence
Assignment II : Introduction

1. Design and simulate a simple cleaning agent operating in a 9x9 grid environment.
    a. There are randomly p% of the grids which are dirty. Write a function which assigns a grid to be dirty or clean. For the initial setup, you can keep p% as 20%.
    b. Actions permitted by your cleaning agent are
        i. Move Left/Right/Top/Bottom/Diagonal by 1 step only.
            1. It can not go beyond your grid environment, the design of your environment should guide the agent accordingly.
        ii. Cleanup/No Action.
            1. The agent ‘cleanup’ if it finds the grid to be dirty
            2. The agents performs ‘no action’ if it finds the grid to be clean
    c. Performance Measure
        i. P1: Number of dirty tiles cleaned
        ii. P2: Number of dirty tiles cleaned and number of steps required
        iii. Anything else you would like to integrate or incorporate
    d. The simulation runs for 100 steps and you show the performance score of the cleaning agent.
    e. Now, replace values of p to 5%, 10%, 40%, 70%., respectively and show the performance scores of the agent for the same performance measure. Is your agent better when it's clean or when it's more dirty?
        i. Traverse the path followed by the agent. How many times does it revisit a grid? Any suggestions on how to make it more intelligent?
        ii. Did it finish before 100 steps? What according to you would have made this easier?