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% Vacuum Cleaning Agent in a Grid
clc;
clear;
close all;

% Grid dimensions (5x5 grid)
gridSize = 5;

% Initialize the grid - 0 means dirty, 1 means clean
vacuumGrid = zeros(gridSize); % Changed the variable name to 'vacuumGrid'

% Define the initial position of the vacuum (agent) in the grid
agentPos = [1, 1]; % Starting at top-left corner

% Create the figure for visualization
figure;
axis([0 gridSize+1 0 gridSize+1]); % Set axis limits
hold on;
grid on;

% Plot the grid
for i = 1:gridSize
    plot([i, i], [0, gridSize], 'k'); % Vertical lines
    plot([0, gridSize], [i, i], 'k'); % Horizontal lines
end

% Mark the initial position of the agent with a blue square
agentMarker = plot(agentPos(2), agentPos(1), 'bs', 'MarkerSize', 10,
'LineWidth', 2);

% Mark the goal area (e.g., the bottom-right corner)
goal = [gridSize, gridSize];
goalMarker = plot(goal(2), goal(1), 'go', 'MarkerSize', 10, 'LineWidth', 2);

% Simulate the vacuum cleaning process (left to right, top to bottom)
% Move the agent over the grid and clean (set grid cells to 1)
for row = 1:gridSize
    for col = 1:gridSize
        % Update the agent's position
        agentPos = [row, col];

        % Clean the current position (set it to 1)
        vacuumGrid(row, col) = 1; % Use 'vacuumGrid' instead of 'grid'

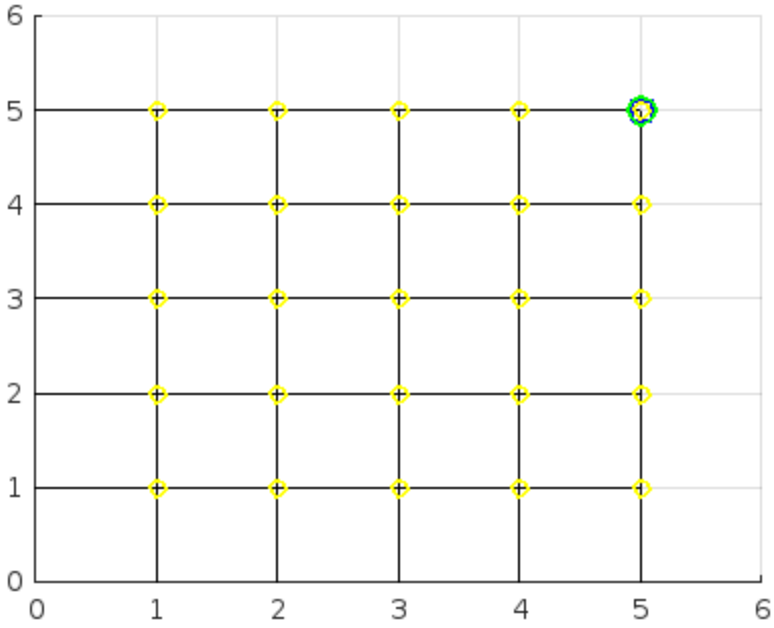
        % Update the position of the agent on the plot
        set(agentMarker, 'XData', agentPos(2), 'YData', agentPos(1));
```

```
        % Update the cleaned area (color it yellow)
        plot(col, row, 'yo', 'MarkerSize', 6, 'LineWidth', 2);

        % Pause to visualize the cleaning process
        pause(0.2);
    end
end

% Display a message when the cleaning process is done
disp('Cleaning completed!');
```

```
Cleaning completed!
```



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