

# **SDP Graphics Preview Assignment**

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## **Define:**

Gomoku, also known as Five in a Row, is a traditional abstract strategy board game for two players. The goal is to get the first five( and who will win the game), which can be horizontally, vertically, or diagonally. The game is typically played on a 15x15 board, and it's easy to play.

I also draw a Matlab picture for further use:



Besides, how to play the game?

1. Prompt the user to click on the board for each move.
2. After each turn the user makes, the color of the chess will switch to another color.
3. If the player first obtains five (horizontally, vertically, or diagonally), the player will win the game and the game over.

## **Represent:**

1. Initial board:

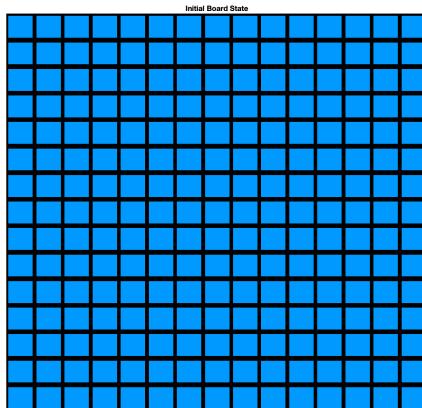


Figure 1 : Initial Board

2. This step is an example of the first move from the user clicking on the board, and the first move is for the black color.

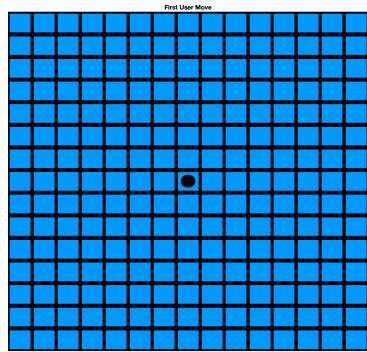


Figure 2 : The First Move

3. This example is for the next step, and the color has been switched from black to white.

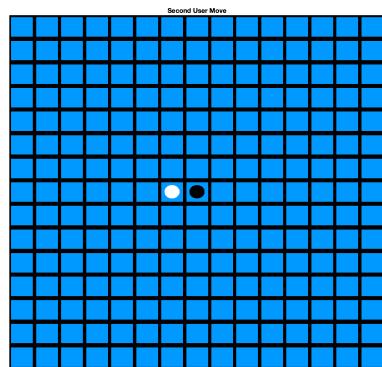


Figure 3: The Second Move

4. This example is the third move, and the color changed again to black.

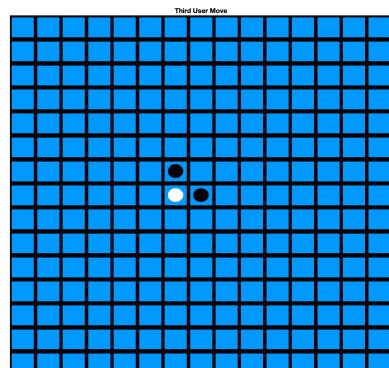


Figure 4: The Third Move

## **Evaluate:**

1. I think writing a loop to replace repeatedly prompting the user for input and making moves in the game is challenging. I decided to search for related videos online to learn and discuss solutions with my peers.
2. I also find that my program is not working as fast as expected, so maybe thinking about how to improve efficiency and clarity.
3. I plan to refine and decrease some extra and repeated code so that it improves efficiency.

```

clc;
clear;

% Load simpleGameEngine
% Initialize the scene
my_scene = simpleGameEngine('Gomoku.png', 79, 84);

% Set up variables for the sprites (three different)
empty_sprite = 1;
black_sprite = 2;
white_sprite = 3;

% Display initial board state
board_display = empty_sprite * ones(15, 15); % Create an 15x15 empty board
drawScene(my_scene, board_display);
title('Initial Board State');
saveas(gcf, 'move_0.png'); % Save the empty board image

% Define the first move as black
current_sprite = black_sprite;

% First move
disp('Please use the mouse to make the first move.');
[row1, col1] = getMouseInput(my_scene); % To get the first input(for first one)
if board_display(row1, col1) == empty_sprite
    board_display(row1, col1) = current_sprite;
    drawScene(my_scene, board_display);
    title('First User Move');
    saveas(gcf, 'move_1.png'); % Save the board after the first move
end

% Switch to white for the next move
current_sprite = white_sprite;

% Second move
disp('Please use the mouse to make the second move.');
[row2, col2] = getMouseInput(my_scene); % Second user input
if board_display(row2, col2) == empty_sprite
    board_display(row2, col2) = current_sprite;
    drawScene(my_scene, board_display);
    title('Second User Move');
    saveas(gcf, 'move_2.png'); % Save the board after the second move
end

% Switch back to black for the third move
current_sprite = black_sprite;

% Third move
disp('Please use the mouse to make the third move.');

```

```
[row3, col3] = getMouseInput(my_scene); % Third user input
if board_display(row3, col3) == empty_sprite
    board_display(row3, col3) = current_sprite;
    drawScene(my_scene, board_display);
    title('Third User Move');
    saveas(gcf, 'move_3.png'); % Save the board after the third move
end

disp('The board has been updated and saved at each move.');
```