

## Connect Four Main Code

```
%Calls the function to create a board
board = zeros(6,7);
%Will record if the game is still running
game = true;
%tells if it is player 1 or player 2's turn
playerturn = 0;
turncounter = 1;

while (game == true)
    %Player 1's Turn
    if playerturn == 0
        selectedcol = input('Player 1, please select the column you want to
play (1 -> 7)');
        if check_location(board,selectedcol)
            row = next_row(board,selectedcol);
            board = place_piece(board, row, selectedcol, 1);
            board
        end

        %Checks for horizontal win
        for r=1:6
            for c=1:4
                if (board(r,c) == 1 && board(r,c+1) == 1 && board(r,c+2)
== 1 && board(r,c+3) == 1)
                    fprintf('Player 1 Wins!!!!!!!!!!!!!!!!!!!! \n')
                    game = false;
                end
            end
        end

        %Checks for vertical
        for r=1:3
            for c=1:7
                if (board(r,c) == 1 && board(r+1,c) == 1 && board(r+2,c)
== 1 && board(r+3,c) == 1)
                    fprintf('Player 1 Wins!!!!!!!!!!!!!!!!!!!! \n')
                    game = false;
                end
            end
        end

        %Checks for positive diagonal (/)
        for r=4:6
            for c=1:4
                if (board(r,c) == 1 && board(r-1,c+1) == 1 && board(r-
2,c+2) == 1 && board(r-3,c+3) == 1)
                    fprintf('Player 1 Wins!!!!!!!!!!!!!!!!!!!! \n')
                    game = false;
                end
            end
        end
    end
end
```

```

end

    %Checks for negative diagonal (\)
    for r=1:3
        for c=1:4
            if (board(r,c) == 1 && board(r+1,c+1) == 1 &&
board(r+2,c+2) == 1 && board(r+3,c+3) == 1)
                fprintf('Player 1 Wins!!!!!!!!!!!!!!!!!!!! \n')
                game = false;
            end
        end
    end

    if (turncounter == 42)
        fprintf('The game is a TIE!!!!!!!!!!!!')
        game = false;
    end

    turncounter = turncounter + 1;

end

if playerturn == 1
    selectedcol = input('Player 2, please select the column you want to
play (1 -> 7)');
    if check_location(board,selectedcol)
        row = next_row(board,selectedcol);
        board = place_piece(board, row, selectedcol, 2);
        board
    end

    % Checks Horizontal
    for r=1:6
        for c=1:4
            if (board(r,c) == 2 && board(r,c+1) == 2 && board(r,c+2)
== 2 && board(r,c+3) == 2)
                fprintf('Player 2 Wins!!!!!!!!!!!!!!!!!!!!')
                game = false;
            end
        end
    end

    %Checks fo vertical
    for r=1:3
        for c=1:7
            if (board(r,c) == 2 && board(r+1,c) == 2 && board(r+2,c)
== 2 && board(r+3,c) == 2)
                fprintf('Player 2 Wins!!!!!!!!!!!!!!!!!!!! \n')
                game = false;
            end
        end
    end
end

```

```

    %Checks for positive diagonal (/)
    for r=4:6
        for c=1:4
            if (board(r,c) == 2 && board(r-1,c+1) == 2 && board(r-
2,c+2) == 2 && board(r-3,c+3) == 2)
                fprintf('Player 2 Wins!!!!!!!!!!!!!!!!!!!! \n')
                game = false;
            end
        end
    end

    %Checks for negative diagonal (\)
    for r=1:3
        for c=1:4
            if (board(r,c) == 2 && board(r+1,c+1) == 2 &&
board(r+2,c+2) == 2 && board(r+3,c+3) == 2)
                fprintf('Player 2 Wins!!!!!!!!!!!!!!!!!!!! \n')
                game = false;
            end
        end
    end

    %checks for tie
    if (turncounter == 42)
        fprintf('The game is a TIE!!!!!!!!!!!!')
        game = false;
    end

    turncounter = turncounter + 1;
end
playerturn = playerturn +1;
playerturn = mod(playerturn,2);
end

```

## -----Connect Four Function- Next Location-----

```

%Check to see if the column the user selected is open
function output = check_location(board, selectedcol)
    output = (board(1,selectedcol) == 0);
end

```

## -----Connect Four Function- Next Row-----

```

%Finds the next available row in the users selected column
function row = next_row(board, selectedcol)
    for r=1:6
        if board(r,selectedcol) == 0
            row = r;
        end
    end
end

```

## -----Connect Four Function- Place Piece-----

```
%Places piece in the calculated next open row and users selected column
function board = place_piece(board, row, selectedcol, piece)
    board(row,selectedcol) = piece;
end
```