

**Running the program: Right click QuartoController in the project panel and run it.**

**Testing the name prompt:**

1. Load the program.
2. A an input prompt asking for Player0 and Player1 to input their names. Check for the following:
  - a. Leaving the prompt blank will default the name to Player0 or Player1 respectively.
  - b. Prompt should ignore trailing or leading spaces.
  - c. Multiple inner spaces will be collapsed to one space.
  - d. Name should be truncated to 12 characters if longer than 12.

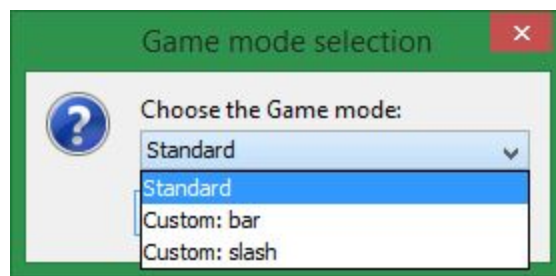
**Testing the initial window:**

1. Load the program.
2. Click any of the buttons and any of grid squares. An alert should pop up asking you to start a new game.

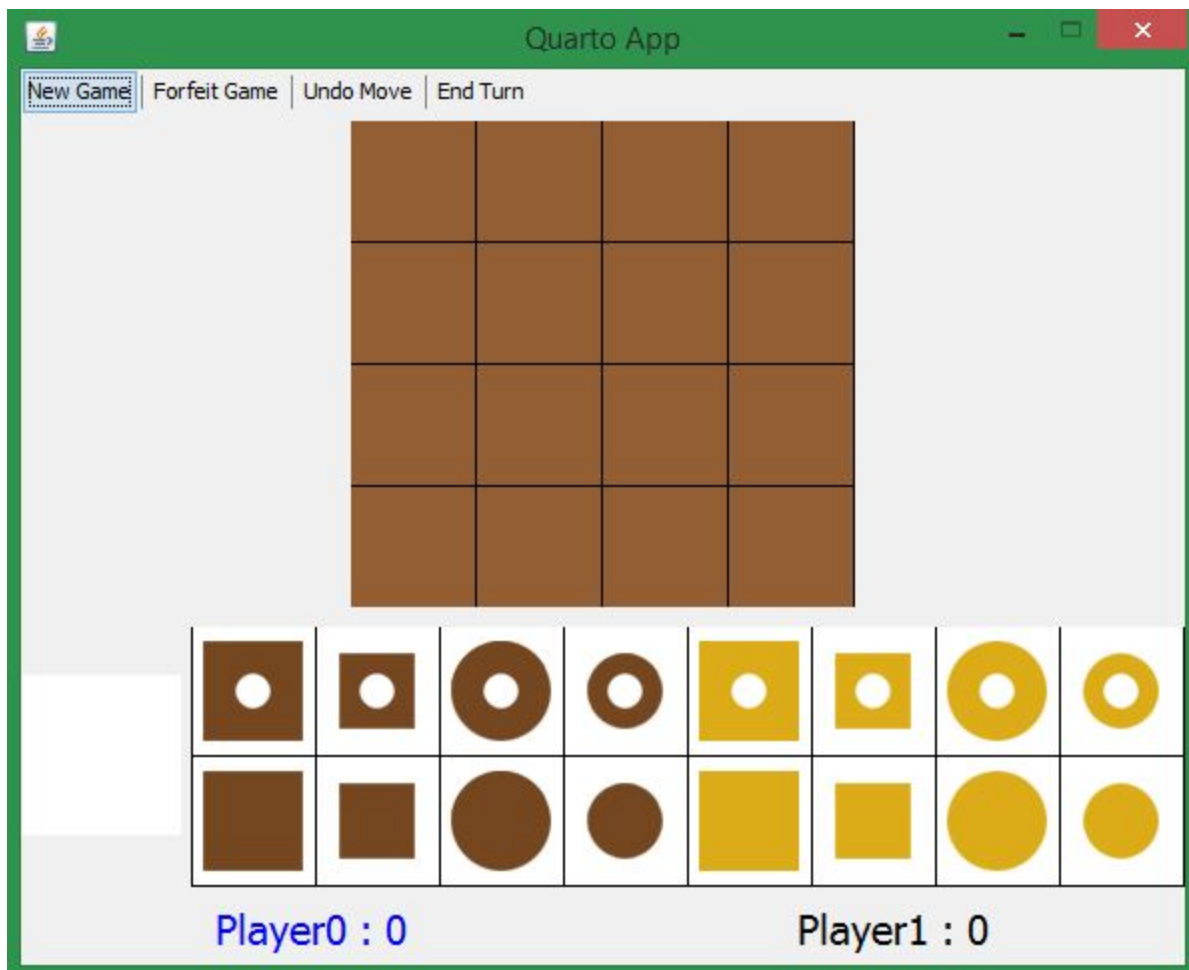
**Testing the New Game Button:**

1. Click the New Game button.
2. There should be a standard option and two custom options (bar and slash)
  - a. If you selected Standard, a 4x4 board and 16 pieces.
  - b. If you selected any Custom, you should see a 5x5 and 32 pieces.
3. Make sure the score stayed at 0-0 when you made a New Game.
  - a. The score should never change when starting a new game, regardless of score values.
4. Click New Game again.
5. A confirmation window for each player should appear this time.
  - a. A new game should not start unless both players click Yes.
6. After clicking Yes for both windows, the game mode prompt should appear
7. Verify that the board changes, that the setup is correct, and that the score has not changed after selecting a mode.

**For the following tests, it should not matter which game mode you select, the results should be the same (aside from the winning condition).**



Mode selection

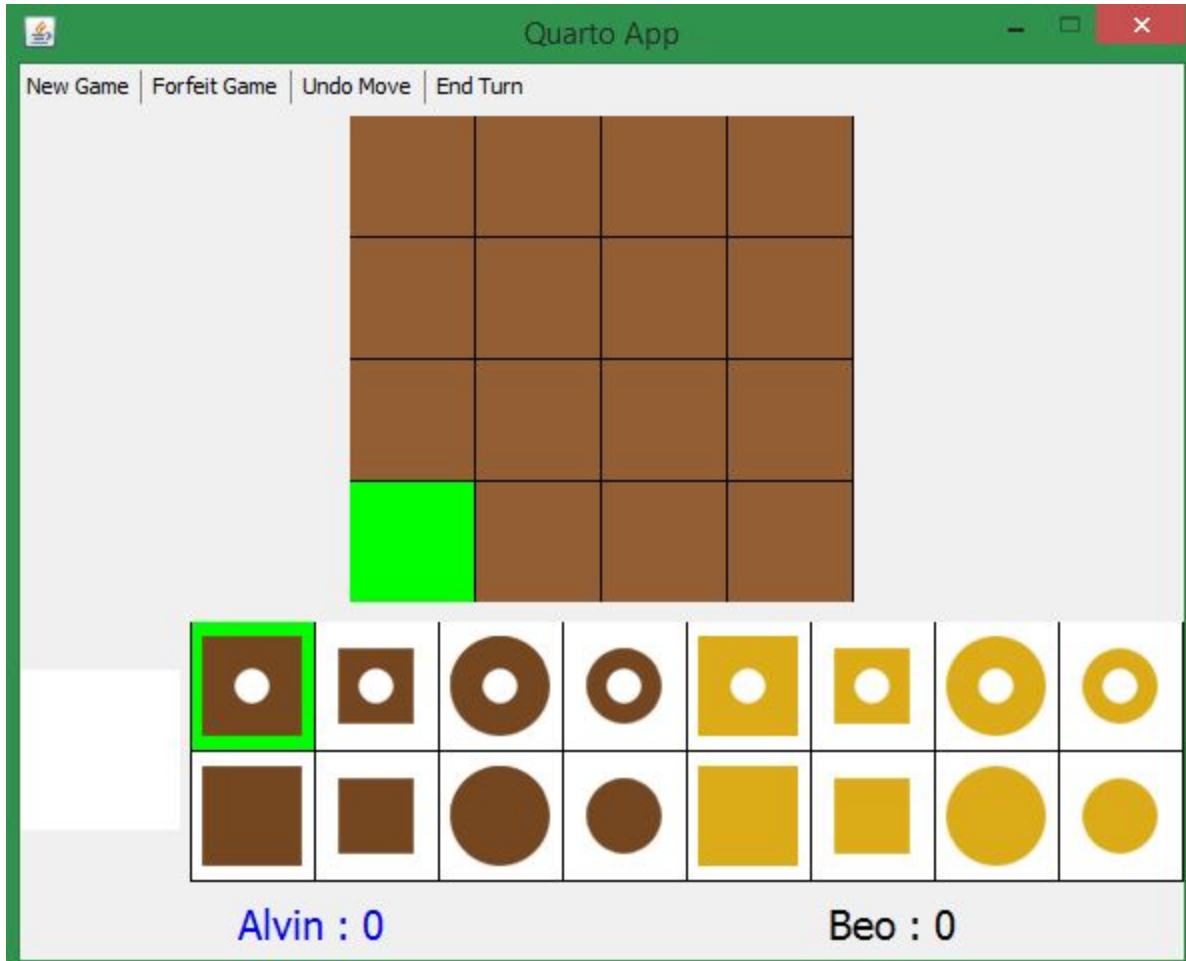


Standard Board



### Testing highlighting pieces and squares:

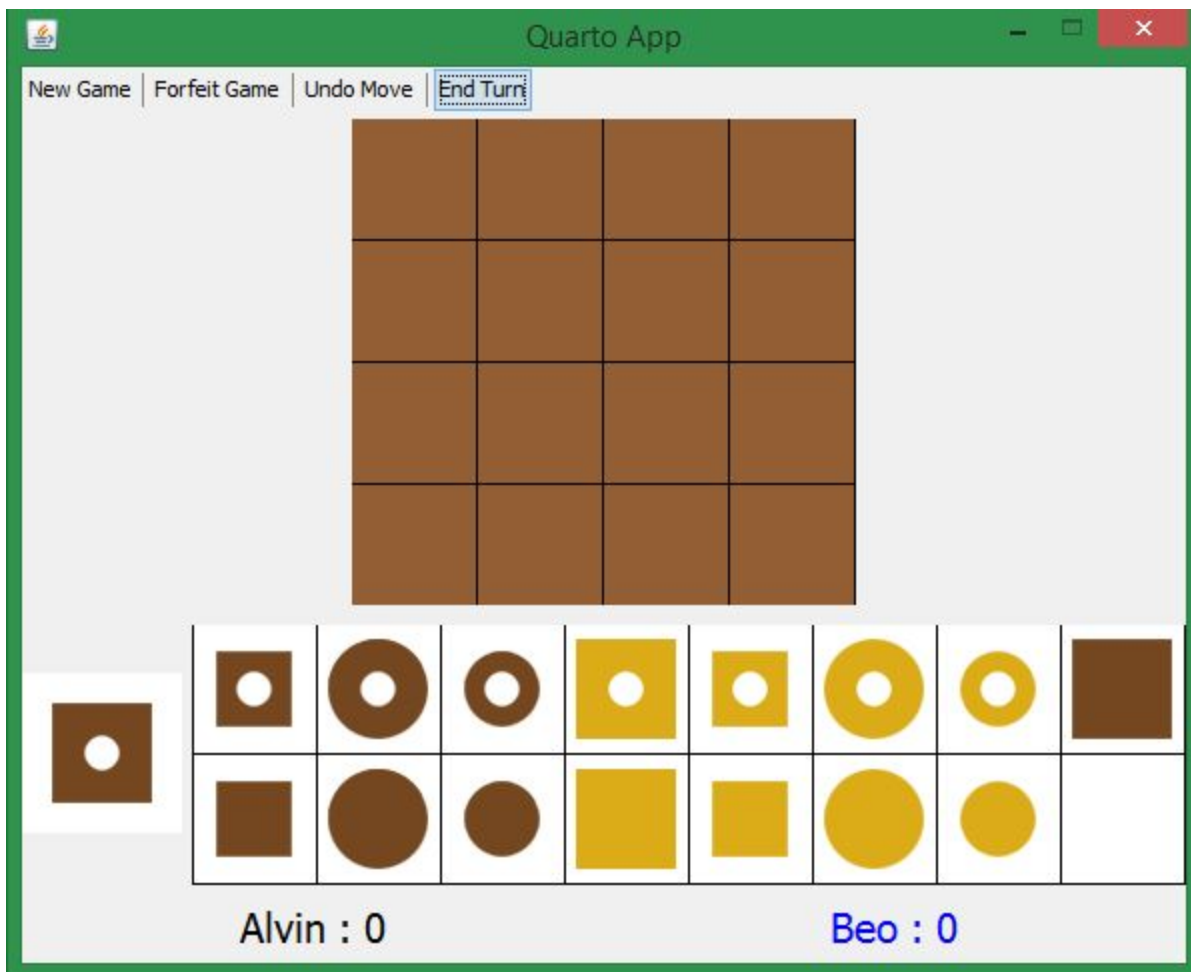
1. Start a new game.
2. Verify that the squares or pieces light up green when clicked
3. If clicking on the board while one square is lit up, the lit square should revert, and the last square clicked should light up.
4. The same should happen for pieces
5. Highlight some squares by clicking them.
6. While squares are still lit, start a new game.
7. Verify that the board is reset and no squares are left lit.



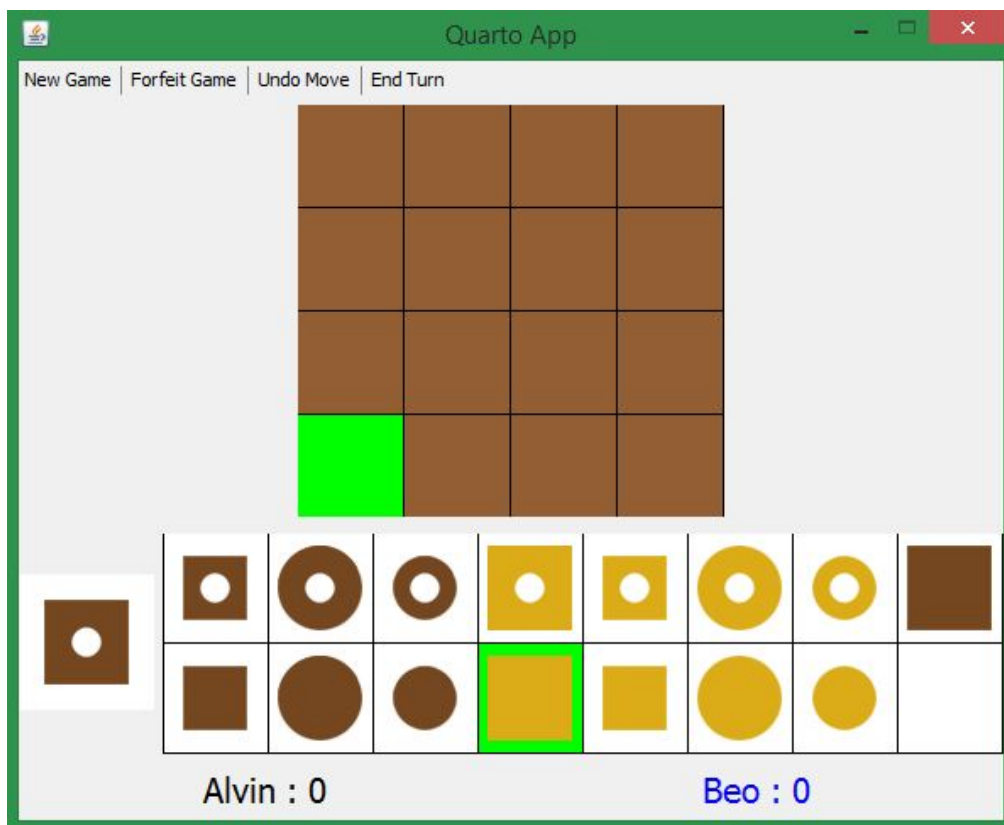
Highlighting pieces and squares

### Testing making a move:

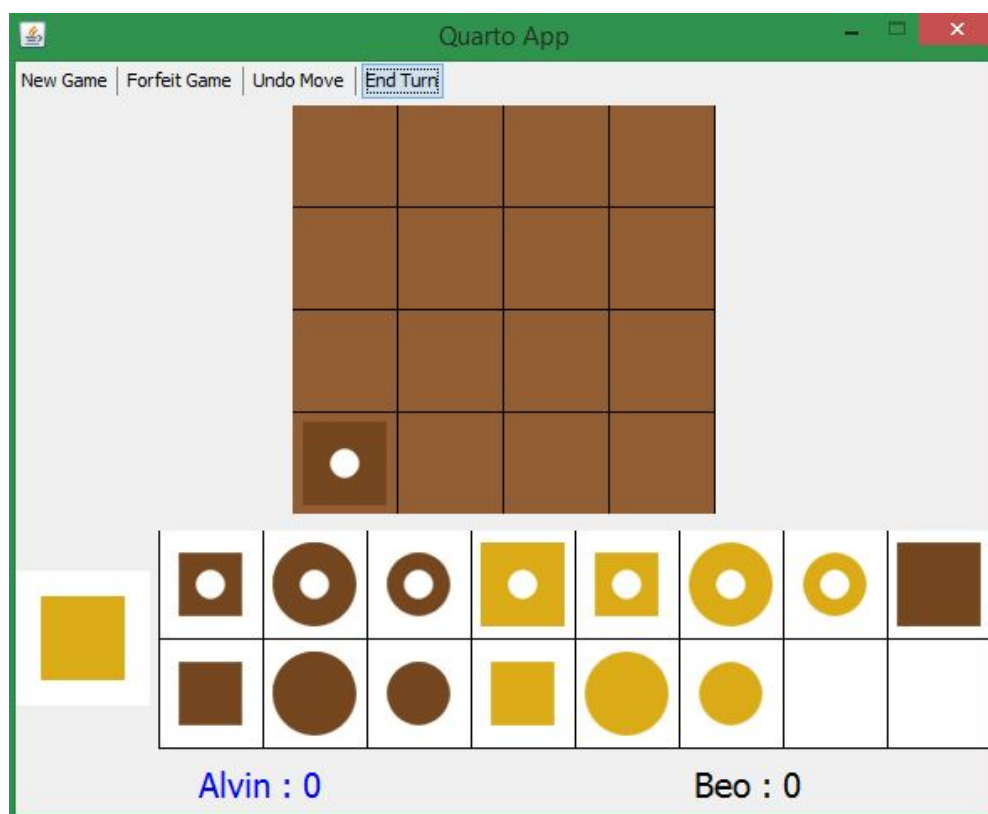
1. Start a new game.
2. Verifying the the first player's name is lit blue (the name on the left at the bottom).
3. Click any piece in the piece grid.
4. Hit End Turn.
5. Verifying the the second player's name is lit blue.
6. The piece should move to the lone square to the left of the piece grid.
7. Now select a piece and a board square.
8. Hit End Turn.
9. The piece in the lone square should move onto the board square you selected.
10. The piece you selected last should move into the lone square.
11. Repeat steps 5-8 for another round or two.
12. Verify the name highlighted switches each round. This is to indicate the turn.



The first move only moves the piece to the side square.



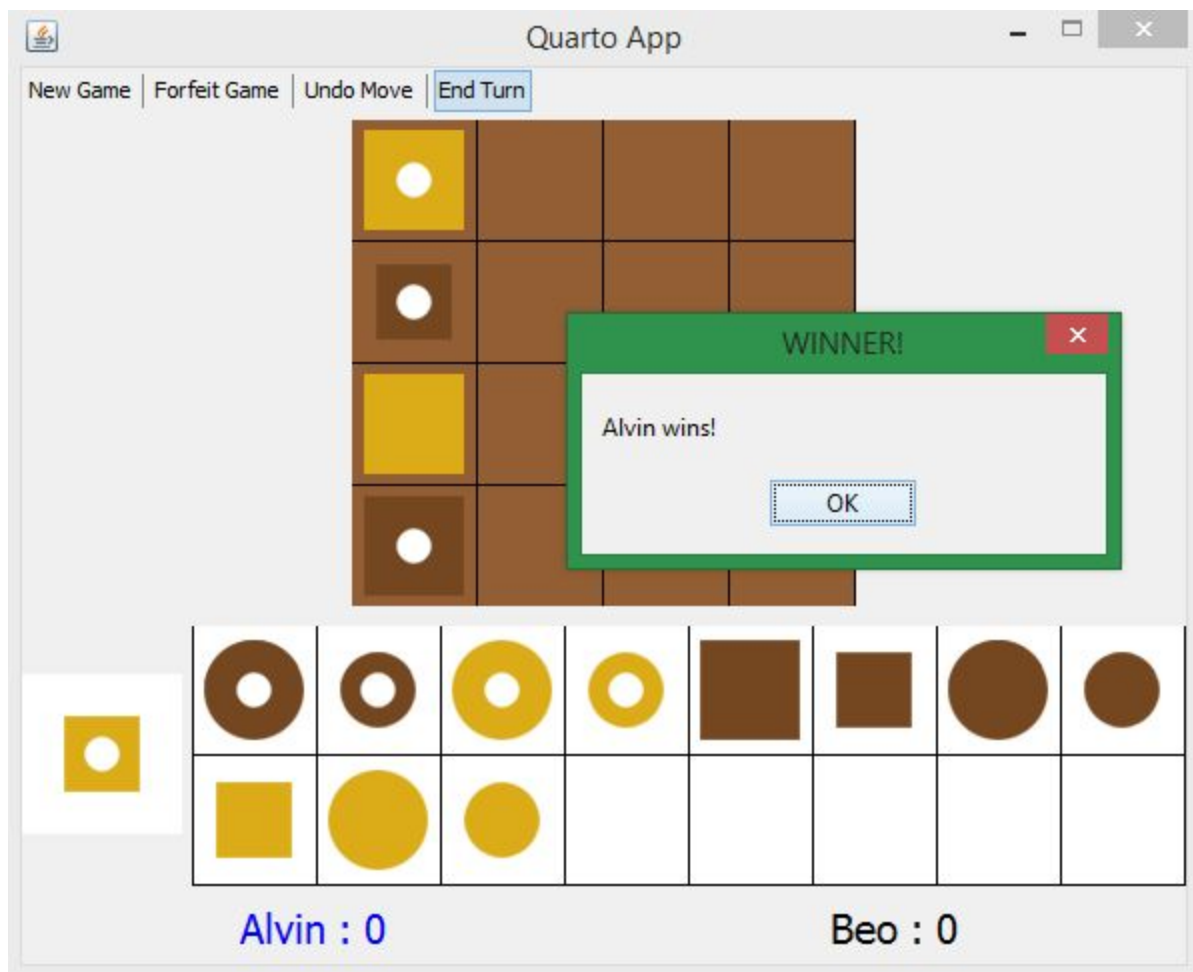
Selecting a piece and square.



Running the turn on those selections

### Testing a win:

1. Start a new standard game.
2. Select pieces that share at least one attribute (for example all square).
3. Place them in a straight line (vertical, horizontal, on the diagonal of the board)
4. If you line up 4 (5 if on custom) similar pieces, you should win.
5. Whichever player's turn it was when the winning piece was placed will have their score incremented.
6. Verify that the correct score increments.
7. Verify that clicking any button other than New Game or any square or piece asks you to start a new game.



Win with 4 squares (all 4 of large size)

**Testing a forfeit:**

1. Start a new game
2. Make any number of moves without winning
3. Hit Forfeit Game.
4. A message should appear saying the player whose turn it was had forfeited.
5. The opposing player's score should increment.
6. Start a new game and repeat these steps.

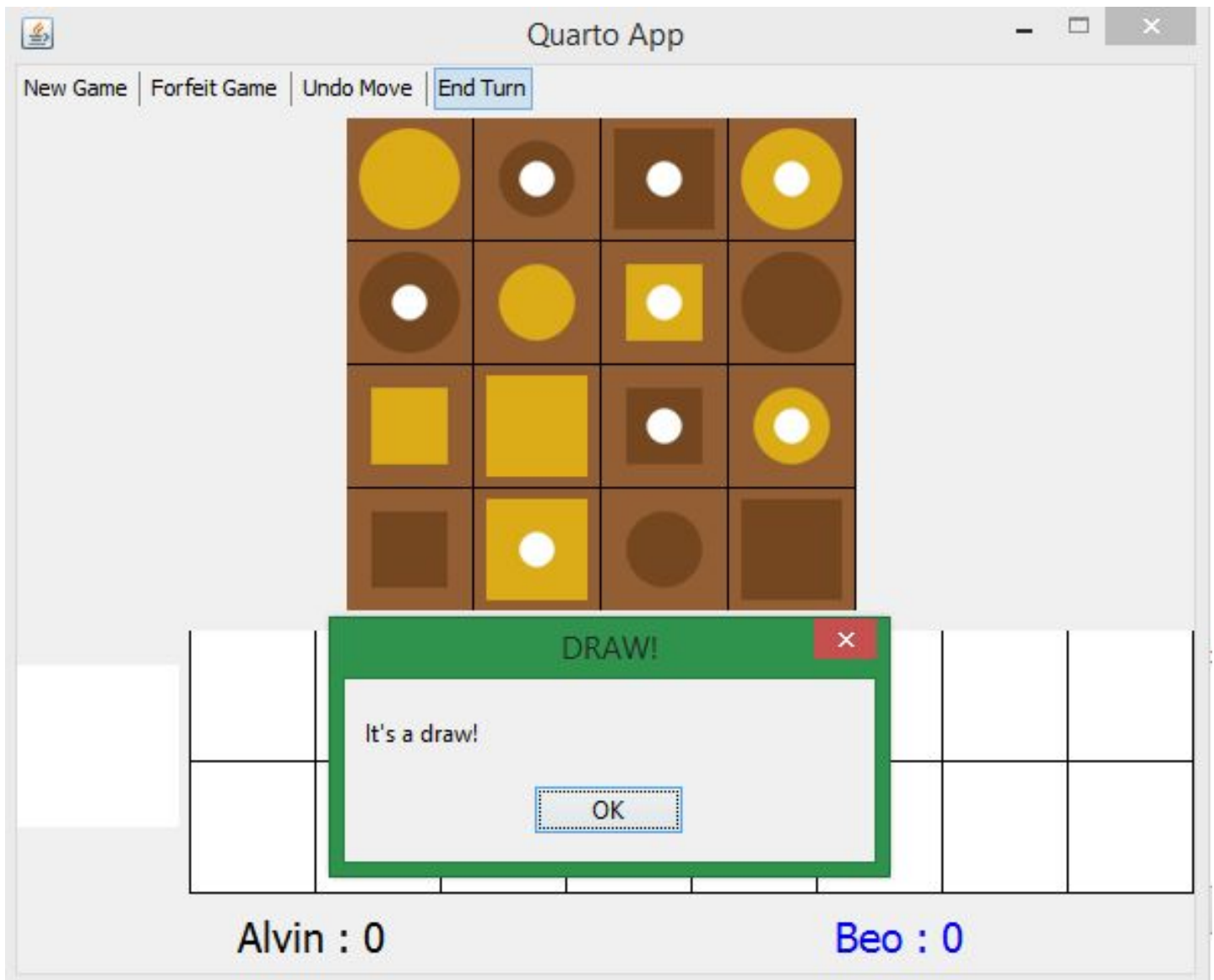
**Testing undo:**

1. Start a new game
2. Hit Undo Move.
3. A message stating there are no moves to undo should appear.
4. Make any number of moves.
5. Each time you press Undo, the last placed piece should move back into the lone square, and the piece in the lone square should move back into the roster
  - a. Note the the Undo button may not maintain the order of the roster
6. You can undo back to the very first move.
7. Repeat steps 4-5 for a few rounds.



### Testing draw:

1. Start a new standard game.
2. Place pieces in a way that leads to exhausting all pieces without anyone winning (example shown below).
3. An alert should pop up declaring a draw.
4. Neither score should increment.
5. Clicking anything other than new game (and the lone square) should alert the player to start a new game.



Getting a tie is surprisingly hard