Source Code:

```
package application;


import javafx.application.Application;

import javafx.scene.Scene; import

javafx.scene.control.Button; import

javafx.scene.layout.GridPane; import

javafx.scene.text.Font; import

javafx.stage.Stage;


public class TicTacToe extends Application {


   private String currentPlayer = "X";     private

Button[][] buttons = new Button[3][3];


   @Override     public void start(Stage

primaryStage) {

       GridPane grid = new GridPane();


       // Initialize the grid with buttons

for (int row = 0; row < 3; row++) {

for (int col = 0; col < 3; col++) {
```

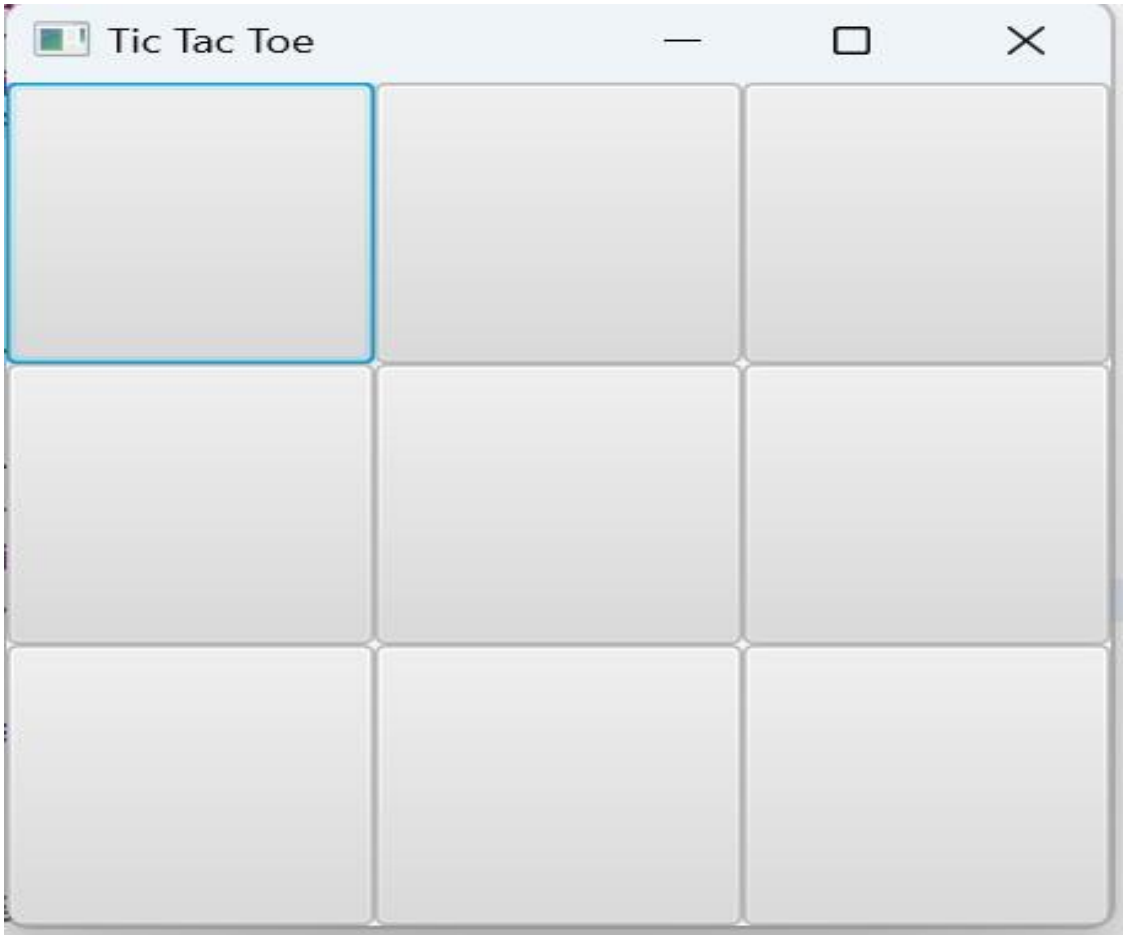
```
Button button = new Button();
button.setFont(new Font(24));
button.setPrefSize(100, 100);
buttons[row][col] = button;
button.setOnAction(e ->
makeMove(button));
grid.add(button, col, row);
            }
        }

        Scene scene = new Scene(grid, 300, 300);
primaryStage.setTitle("Tic Tac Toe");
primaryStage.setScene(scene);         primaryStage.show();
    }

    private void makeMove(Button button) {
// If button is already clicked, do nothing
if (!button.getText().isEmpty()) {
            return;
        }

        // Set the current player's mark
button.setText(currentPlayer);
```

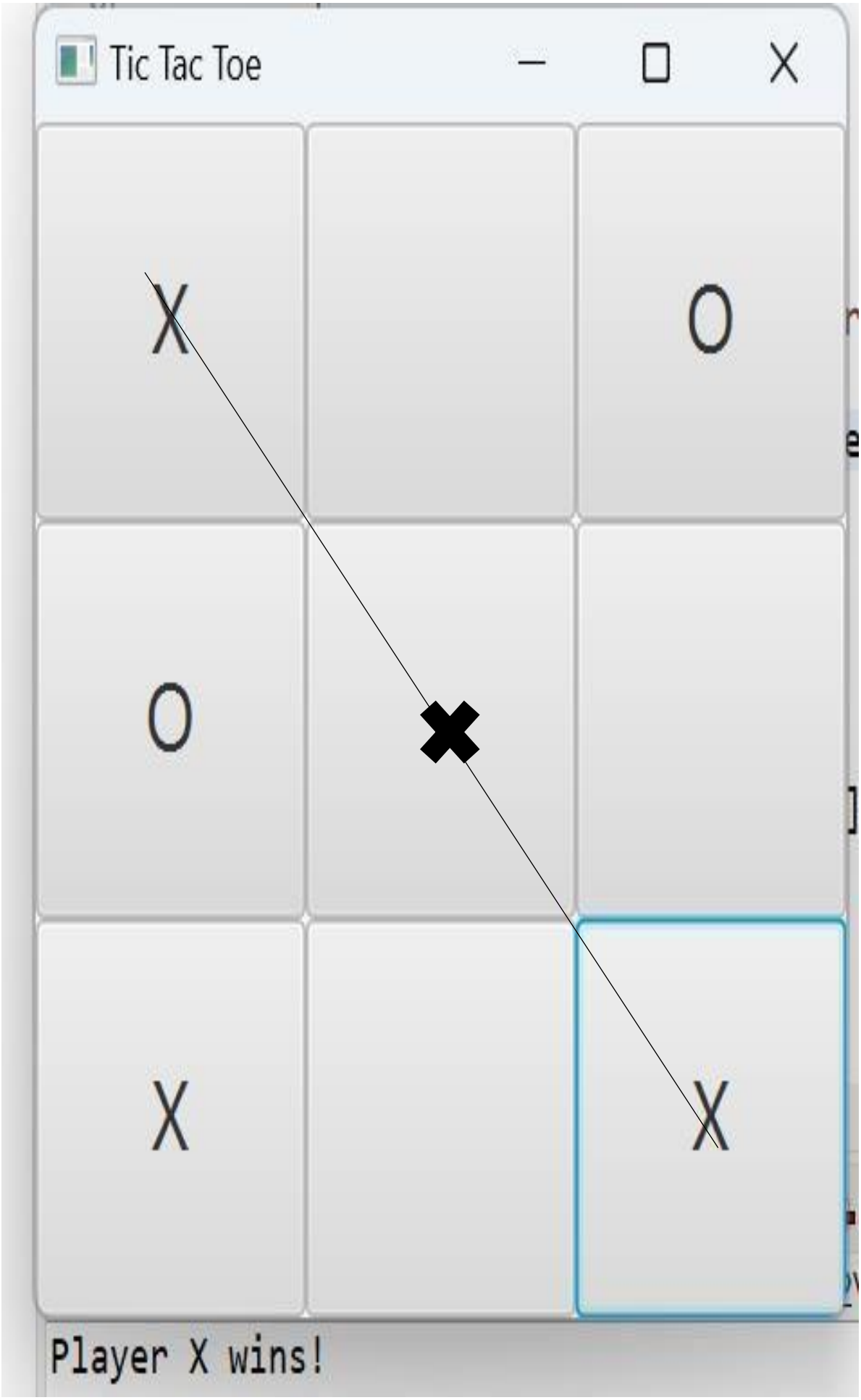
```
        // Check for win
if (checkWin()) {
System.out.println("Pla
yer " + currentPlayer +
" wins!");
resetBoard();
        } else if (isBoardFull()) {
            System.out.println("It's a draw!");
resetBoard();         } else {
            // Switch player             currentPlayer =
currentPlayer.equals("X") ? "O" : "X";
        }
    }

    private boolean checkWin() {
        // Check rows, columns, and diagonals         for (int i = 0; i < 3; i++) {
if (checkLine(buttons[i][0], buttons[i][1], buttons[i][2]) || // Row
checkLine(buttons[0][i], buttons[1][i], buttons[2][i])) { // Column
                return true;
            }
        }
```

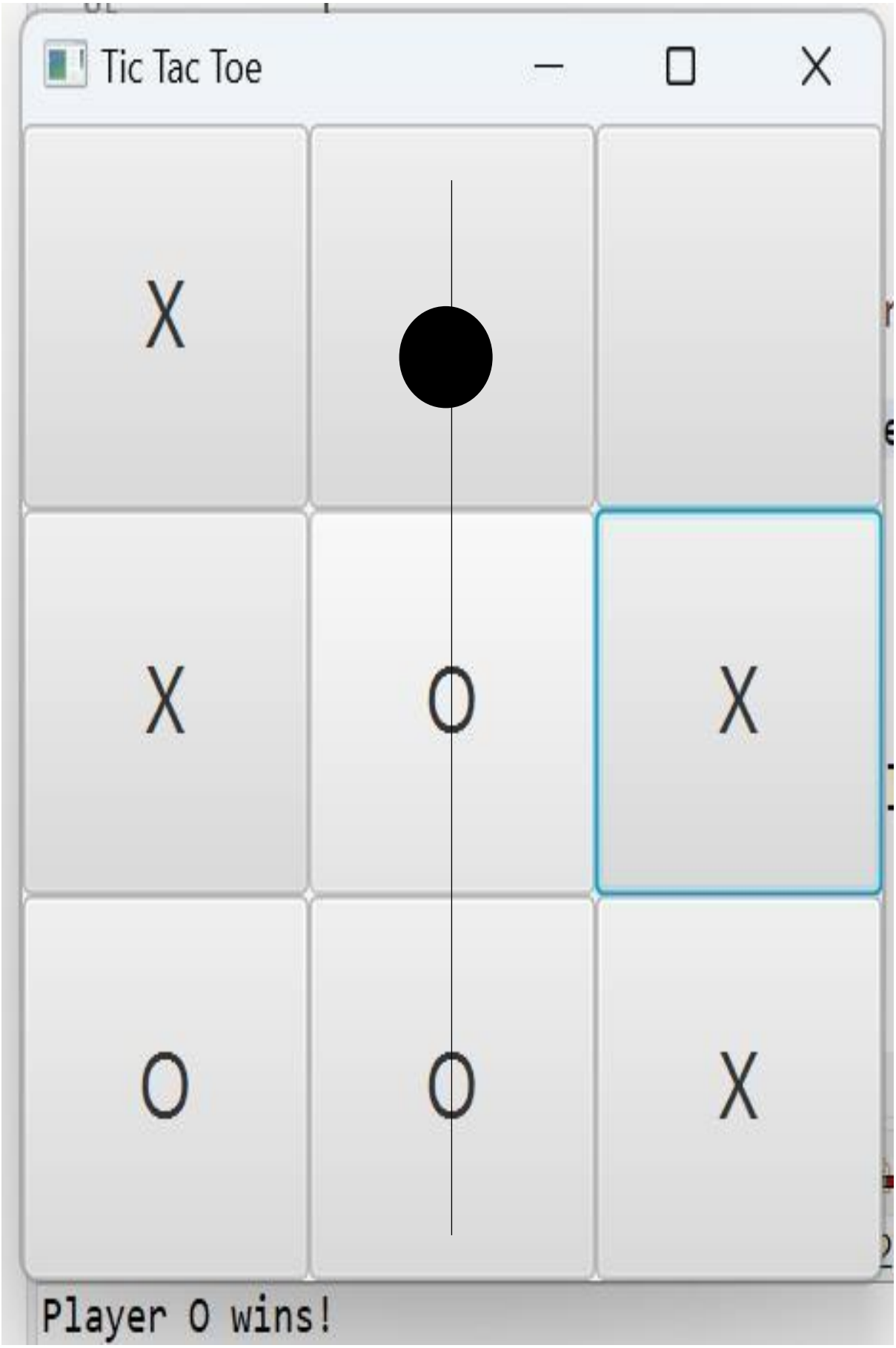
```
        // Check diagonals         return checkLine(buttons[0][0],
buttons[1][1], buttons[2][2]) ||                checkLine(buttons[0][2],
buttons[1][1], buttons[2][0]);
    }

    private boolean checkLine(Button b1, Button b2, Button b3) {
return !b1.getText().isEmpty() &&
b1.getText().equals(b2.getText()) &&
b2.getText().equals(b3.getText());
    }

    private boolean isBoardFull() {         for (int row =
0; row < 3; row++) {             for (int col = 0; col < 3;
col++) {                 if
(buttons[row][col].getText().isEmpty()) {
return false;
                }
            }         }
return true;
    }

    private void resetBoard() {         for
(int row = 0; row < 3; row++) {
```

```
for (int col = 0; col < 3; col++) {

buttons[row][col].setText("");

            }

        }

        currentPlayer = "X";
    }


    public static void main(String[] args) {

launch(args);

    }

}
```

Output:


Tic Tac Toe


Tic Tac Toe
X
O
O
X
X
Player X wins!


Tic Tac Toe
X
X
O
X
O
O
X
Player O wins!


Tic Tac Toe
X
X
O
O
X
X
O
O
It's a draw!