Report: Developing Tic-Tac-Toe Game using Java Graphics

Introduction:

People all across the world have enjoyed playing the game of tic tac toe for many years. Typically, a piece of paper or a board is used to play this game. I have to utilize Java Graphics to create a graphical user interface (GUI) for the game as part of this project. Two players can compete against one another at the game. This report's goal is to outline my implementation, any difficulties I encountered, and how I dealt with them.

Implementation:

In order to get started, I made four classes in class: Game, Player, GameBoard, and GUI. The two participants in the game are represented by the Player class, while the Game class manages the game's overall flow. The logic for determining if there is a winner is handled by the GameBoard class, which also represents the game board. The graphical user interface for the game is handled by the GUI class.

The Java Graphics JFrame and JPanel classes were used to build the GUI. The 3x3 grid of cells was made using the GridLayout. The participants may place their marks on the cells by clicking on them since they were implemented as JButtons. I ran the makeMove() function in the Game class when a cell was clicked using the ActionListener interface to track the event.

I added a function to the GameBoard class that looked for three consecutive events in each row, column, and diagonal to determine the winner. The game would show a message identifying the winner if a winner was discovered.

As I was creating this game, I ran across a lot of obstacles. Implementing the logic to determine whether a winner existed was the first obstacle to overcome. It was challenging to check every winning combination, but I was able to accomplish it by dividing the issue into smaller subproblems and checking each one separately.

Implementing error checking to make sure players could not perform erroneous movements was another difficulty I encountered. Before enabling a player to move, I checked a boolean array that I used to keep track of which cells were occupied. This made it impossible for players to leave their mark on an occupied cell.

Conclusion:

In conclusion, I was able to use Java Graphics to create a Tic-Tac-Toe game. I created a graphical user interface (GUI) that allowed two players to compete against one another and had error checking to stop players from making incorrect plays. During the development process, I ran into a number of obstacles, but I was able to get beyond them by splitting the issue into smaller subproblems and testing each one separately. Overall, I learned a lot from this project, and I now have more faith in my ability to write in Java.