Introduction:

The objective of this assignment was to develop a Tic-Tac-Toe game using Java Graphics. This report describes my implementation of the game, challenges faced during development, and how they were overcome.

Objective:

The goal of this assignment was to create a graphical version of the Tic-Tac-Toe game using Java Graphics. The objective was to design and develop a game that allows two players to play against each other using a user-friendly graphical interface.

Approach:

To achieve this goal, four classes were implemented: Game, Player, Board, and GUI. The Game class was responsible for managing the game flow, Player class represented the players, Board class represented the game board, and GUI class was responsible for managing the game board and user input.

The game board was displayed on the screen using Java Graphics, and it consisted of a 3x3 grid of cells where players could click to place their marks (X or O). After each move, the game checked for a winner, and if a player won, the game displayed a message indicating who won. If there was no winner, the game displayed a message indicating that the game ended in a draw.

To ensure that players could not make invalid moves, error checking was implemented. If a player attempted to place their mark on an occupied cell or an out-of-bounds cell, an error message was displayed.

Challenges:

The main challenge faced during the development of the game was managing user input. The GUI class was responsible for interpreting and passing user input to the game logic, and it was necessary to ensure that this was done accurately. This was addressed by implementing event listeners that detected user input and forwarded it to the game logic.

Another challenge was implementing the game logic to check for a winner. It was necessary to consider all possible combinations of X's and O's on the game board to determine if a player had won. This was addressed by using nested loops to examine all the possible winning combinations.

Conclusion:

In conclusion, a graphical version of the Tic-Tac-Toe game was successfully developed using Java Graphics. The game included error checking to prevent invalid moves, and it accurately displayed the game's outcome when a player won or when the game ended in a draw. The primary challenges were related to managing user input and implementing the game logic to check for a winner, but they were successfully overcome. Overall, the development of this game was an informative and educational experience that improved my understanding of Java Graphics and game development.