

## Advanced Java Programming

### Project on TIC TAC TOE MULTIPLAYER GAME

Karan Chauhan ( kc2083 )

#### **Abstract –**

This Java project implements the TIC TAC TOE multiplayer game. TIC TAC TOE is a simple game for two players, who take turns marking the spaces in a 3×3 grid. The player who succeeds in placing three respective marks in a horizontal, vertical, or diagonal row wins the game. This game often leads to a draw. The proposed application will implement Tic Tac Toe game using three java concepts mainly -

1. Java Swings - for Graphical User Interface
2. Networking - for implementation of multiplayer functionality using client-server
3. Multithreading - for handling the moves for both the players.

#### **Working and Functionality of the project –**

The code consists of two parts – The Client side and the server side. Using socket programming, we establish a connection using port between client and the server. As soon as the server is connected using TicTacToeServerTest, one thread opens the window for player one when we run the TicTacToeServerTest file. Another thread is used to open another window for player 2. This begins the game as each player enters 'X' or 'O' respectively based on their alternate turns. The isgameOver() method checks for the win condition. If any player manages to get three consecutive 'X' or 'O' in horizontal, vertical or diagonal position, he wins the game. Otherwise, if the above criteria is not satisfied for both players, then the game will end in a draw after checking the condition that the grid is full and none of the players have won the game. The user controls the game and his actions using mouse – to enter 'X' and 'O'. This is implemented using mouse handling events like mousePressed and mouseClicked. Using Java Swings, the main 3x3 grid is created and the text field functionality enables to display messages between client, server and both the players.

To conclude, the TIC TAC TOE multiplayer game has been successfully implemented using advanced java concepts including multithreading, networking, socket programming and java swings that enables the multiple players to play the game.