# Tic-Tac-Toe

Group 03: Bui Cong Thanh, Nguyen Quang Minh

Application description: Tic-Tac-Toe game for 2 persons

Game rule: Tic-tac-toe is a paper-and-pencil game for two players, X and O, who take turns marking the spaces in a 3×3 grid. The player who succeeds in placing three of their marks in a horizontal, vertical, or diagonal row wins the game.

Application architecture: TCP client-server, signal-driven I/O model, multithread TCP server

Functionality:

* Users login to play
* Join a game
* Play with each other in real time
* Quit

Working procedure:

* Login: User is a client connect to server, user input name and password, server checks if user exists and login.
* Join: User select play. Server will wait for another user connecting and assign these 2 users to play with each other.
* Play: While playing, client send its mark position to server and receive the other client position from server.
* Quit game: Log out and close client.

Message design:

* Message formats:
  + Client to server:
    - LOGIN <username> <password>: Send username and password from client to server
    - JOIN: Send message from client to server that user selects JOIN
    - POS <x\_position,y\_position>: Send position from client to server
    - QUIT: Send message from client to server that user quits
  + Server to client:
    - OK <req> <message>: Send successful message from server to client

(req is request name of which this message responses, e.g. OK LOGIN logged)

* + - FAIL <req> <message>: Send fail message from server to client
    - POS <x\_position,y\_position>: Send position of a client from server to the other client
* Message sequences in communication:
  + Login: LOGIN <username> <password> -> OK/FAIL LOGIN <msg>
  + Join: JOIN -> OK JOIN connected
  + Play: POS <position> -> …
  + Quit: LOGOUT