**Final Project Proposal: Real-Time Multiplayer Tic Tac Toe**

* Create a server to store game logic and state (taken/open spaces)
* Allow multiple clients to connect with TCP
  + clients can choose to join a game
  + clients can receive the state of the game from the server
  + clients can send the players’ actions to the server
* The server will know when someone has won or there are no open spaces left
  + notifies clients when the game is complete
  + gives them an option to play again

Networking challenges involved:

* creating a protocol for the client/server communication
* determining how to format the data in messages between the server and clients
  + there is a new move, the game ended, why the game ended
* validating client messages to server (i.e. if the space is available)
* allowing multiple clients to connect to one server
  + pair them off into games with two players

**Grading Rubric**

40 points total

* (10 points) server can send game state to all clients
* (5 points) server can determine if a move is valid
* (5 points) server notifies clients when the game is over
* (5 points) client can connect to server
* (7 points) client can send players’ actions to server
* (5 points) client can receive game state from server and display it to the players
* (3 points) create a lobby system for players waiting for an opponent