

CSCI 4311/5311

Socket Programming

Programming Assignment 2

Due Date: Monday, November 08, 2021, 11:59 PM

Goal of the assignment

In this assignment, we build a Multiplayer game.

- Choose a game which can be played with at least 2 players.
- You can choose any game you want. It is totally up to you.
- Example games that you can implement: Chess, Backgammon, GO, UNO, Poker
- I give Tic Tac Toe (XOX) game as an example below. You are NOT allowed to implement that game. Choose another game.
- You can modify the multithreaded server that you implemented in Assignment 1.

Rules:

- The server must be able to monitor and handle messages from multiple clients simultaneously. Therefore, your server needs to be multithreaded.
- Do NOT implement a peer-to-peer application. E.g., clients talk directly to each other.
- The architecture here is server-client. All messages and actions from the clients go through the server. The server distributes the messages to all other clients who have a connection to the server.
- Implement the assignment with Java
- You need to write a report to explain your code, put some screenshots for your outputs, etc. Save your report in PDF format.
- Without the report, you don't get any points.
- GUI is optional with 20 bonus points. If you implement the GUI version well, you will get an additional 20 points.
- Put your code and report in a folder, Compress the folder and submit the compressed folder. Do NOT submit separately.

Here is an Example GAME: Tic Tac Toe (XOX)

- 1- Start the Server which listens port number 5000.
- 2- Server waits 2 users. When the user joins the game, server asks a username.
- 3- Start client 1, provide a username. E.g. Player X
- 4- Client 1 waits until the second player joins the game.
- 5- Client 2 enters, provide a username, e.g. Player O
- 6- Server sends the initial table to both players

```
1  | 2  | 3
```

```
4  | 5  | 6
```

```
7  | 8  | 9
```

```
Player X choose a position
```

- 7- Assume that player X choose 5, X sends a message to the server. Server sends updated table to both players.

```
1  | 2  | 3
```

```
4  | X | 6
```

```
7  | 8  | 9
```

```
Player O choose a position
```

8- Assume that player O choose 1;

0 | 2 | 3

4 | X | 6

7 | 8 | 9

Player X choose a position

9- The game continues until one of the player wins or draw case.

10- If a player sends a position without his/her turn, server sends an error message to the player "It is not your turn".