CE303

Advanced Programming

Assignment Report

Student: Litcan Nicolae-Gabriel

Registration Number: 1903165

Email: nl19102@essex.ac.uk

Module Supervisor: Dr. Michael Kampouridis

**Implemented functionality table**

|  |  |
| --- | --- |
| **Function** |  |
| Client establishes a connection with the server | yes |
| Client is assigned a unique ID when joining the game | yes |
| Client displays up-to-date information about the game state | yes |
| Client allows passing the ball to another player | yes |
| Server manages multiple client connections | yes |
| Server accepts connections during the game | yes |
| Server correctly handles clients leaving the game | No, the player is removed, but I can’t figure a way to pass the ball to a different player.  LATER EDIT: I managed to crop a solution |

**Protocol**

*Opening sequence*

1. ServerProcess.java file needs to run beforehand, while client can join by running the ClientProgram.java file.
2. Client sends an ID to the server. In order to advance to the game, the ID needs to be unique, otherwise an exception will be thrown.
3. Server will display people who just joined the game and active players.

*Client Commands*

The only command that clients can send to the server is the player ID that client wants to send the ball to. This player ID can be client’s ID as requested in the brief.

In case of success, all clients receive a response where the current holder of the ball is shown.

In case of failure, an exception will be thrown and ClientProgram will be closed.

*Server event-triggered commands*

**Event Message from server**

Client Joins “Player <playerID> joined the game!“

“Active players: [list of Active Players IDs]”

Client leaves “Player <playerID> left the game.“

& doesn’t have the ball “Active players: [list of Active Players IDs]”

Client leaves “Player <playerID1> left the game.“

& has the ball The ball has been passed to Player <playerID2> after Player <playerID1> left the game.

“Active players: [list of Active Players IDs]”

Client passes the ball Ball passed from player <playerID1> to player <playerID2>

**Project Review**

The project required some Java knowledge about how servers and threads worked. I have followed the labs code and watched the lectures in order to understand how it works.

I have managed to implement most of the key features best way I could and tried to explain as best I could in comments.

For me, the most difficult part was to correctly handle the server when players are leaving the game, while they have possession of the ball; the player is removed but the ball is given to a non-existent “Player 0”. At the moment of writing this report the error is not fixed.

LATER EDIT: I managed to fix the error, by removing case “remove\_player” from the switch statement and adding it to the finally try method, where the ball will be received by the first player in the TreeMap after current holder of the ball left the game.

As for the project management, I have worked over a period of almost one week for the assignment and I could say that I am happy with the result, ~~except for the missing feature~~. Also, I would like to mention that I have focused on the code part, explaining it, fixing errors, and I forgot to write this report.

If I would have done something different would be to finish perhaps 2-3 days faster, so I could have time to refactor the code, oh and take a better look over Assignment details (including the report).