Design Notes:

# Design Choices

## Many Users:

This design allows for lots of users to all play. The server matches them up. However they do not get to choose which colour they will be once they connect. The player that starts the game is random.

## Persistence

In memory rather than persist games. Persistence was not specified, and I need to avoid scope creep. Focus on good rest interface and such.

## REST vs Connection

Considered the possibility of using an open HTTP stream as a channel between server and client. This is more responsive and will detect when a player leaves without polling or timeouts. However this would cause performance issues on the server

## Frameworks

Spring Rest Server, simple client.

I haven’t used spring boot before for an actual project, so this was a good chance to play with it. I have also done a ‘simple java’ client, to show I can do that too. I have not used shared classes between server and client, the client uses raw JSON manipulation instead. This emulates a situation where clients are not sharing code with the REST server.

# Packaging and Running

Build is packaged with maven.

Run as:

java -jar Connect5-service\target\rest-service-0.0.1-SNAPSHOT.jar

java -jar Connect5-client\target\rest-client-0.0.1-SNAPSHOT-jar-with-dependencies.jar

# Open Issues:

The following are the next things to work on, if this was to be turned into a full production ready application.

Storage: This implementation doesn’t have any storage, it is all in memory. Next step would be to back it by some sort of permanent storage, to allow it to scale.

Identity: Currently this only uses name as identity, and basically trusts the client. Clearly this is insufficient. This needs Authentication, and session management to tie to the session

Client JSON validation: In the interests of speed, I have not done as much validation of the JSON from the server as there should be.

Input Validation: The client doesn’t do much input validation, it assumes the user is well behaved. Obviously input validation would be needed to push this forward as a project, but it has been left as a TODO in the interests of time

Other Servers: This currently just connects to local host. The user could select the host. Or maybe have a known server really when this goes into production.

Choose a colour: I didn’t do that. The colour is chosen based on who is first to the game. And the colours are X and O