Project Name: Multiplayer Checkers

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Project Description:

This project would be an implementation of checkers with multiplayer. The game itself would follow tournament rules outlined here. The point of this project is less about the game and more about the networking/backend portion of functionality. I would be using the TCP protocol for socket messaging. I will be using TCP since checkers is a turn-based game which is simple enough for TCP. If I would be doing something more demanding I would use UDP. There will be a single server that is meant for authentication (login, register, lobby listing, etc.) and will also act as a middleman for the P2P connections. P2P connections will be facilitated by TCP punch through between two different users with IPs provided by the middleman server and whoever hosted the lobby would be the game's "server". I have prior experience tinkering around with P2P connections using TCP punch through (see here) and using this knowledge I hope to go even further to create a more sophisticated P2P application.

I feel this project is quite reasonable for me. The game itself wouldn't take long to make using Canvas from C# WPF. I would more than likely go the route of having a user click on the checkers piece and be displayed with move options rather than the drag & drop method seen in the demo below. This would be easier to have server-side validation of move selections. The user side will simply display the game board, stats, and a chat along with sending movement & chat actions to the "server". The server would do all move validation and chat interfacing between the users.

In terms of hosting the middleman/auth server I would be using a simple windows instance on Amazon AWS. This would provide the needed hardware to have the server running 24/7 and the eventual database if I get that far.

Here is a quick video I put together running through a demo of an almost finished checkers game I whipped together in a few hours on Sunday: https://vimeo.com/279177948

In the video I show the feasibility of the project and explain how I would lay things out for the game UI wise.

Features: (that I can think of)

Base Features (bare minimum) - First 2 days, running off demo I already made:

- Checkers game (local) between two players

- Has winning conditions

- Implements all the rules listed above

Expected Features (expect to get done) – Next half week -> full week:

- Lobby system

- Chat system (in lobby/game)

- Hook up the base game from above to work with multiplayer

Stretch Features (High-bar features) – Rest of the time I have:

- Authentication (Login/Register)

  o   Encryption - http://nugetmusthaves.com/Package/BCrypt.Net-Next

- Stat tracking across games

- Needs database (use amazon aws? SQL)

I hope to finish this as fast as possible while still having good code quality. Along with having two other 4000 level IT courses this summer and a full time software development job, I'll be hard pressed for time. So, sleep forbid, the faster I can get these goals finished, the better.