Data

How data is handled and stored by the server

- User Accounts
    - A list of all users and their passwords is stored in an unencrypted .csv on the machine running the server
    - They are stored as username,password pairs; one per line
- Game Data
    - Each active game has associated with it a gameID
    - The data associated with a given game is stored in one of two places
    - There's the "active_games.csv" file, which contains a list of every gameID, and stores information like who the players are, who's Black, who's White, whose turn it is, etc
    - Secondly, each game has associated with it a .txt file, with name "gameID.txt". This .txt file contains the "board-level" data: what the board looks like at this point in the game, whose turn it is (again), and other details relating to the actual game of chess being played
    - The format of these game files is as follows:

The first 4 lines contain booleans necessary for implementing castling. Since castling is only allowed in chess if both one's King and the concerned Rook haven't moved yet this game, and this information can't always be gleaned by simply analyzing the board (for example, a piece can move and then return to its original spot), we need to store it somewhere that it will persist. The information is stored in the first 4 lines as follows:

whiteCanQueensideCastle

whiteCanKingsideCastle

blackCanQueensideCastle

blackCanKingsideCastle

where <colour>CanQueensideCastle means that <colour>'s King hasn't moved this game, and neither has its Queenside Rook, so <colour> may be able to queenside castle. Same thing for Kingside.

Next, the actual state of the board is stored. It is stored right-side up. That is, so that someone looking at the file is looking at the board from White's perspective. The following characters represent the chess pieces:

P – Pawn

R – Rook

N – Knight

B – Bishop

Q – Queen

K – King

White pieces display as upper case, while black pieces display as lower case. An empty square is displayed as an X.

If the last move made was by a pawn, who made its first move by moving two squares forward, an “E” marks the square that an enemy pawn can move to if it wants to execute an en passant capture.

Finally, the last line of the file contains either a 0 or 1; 0 if it’s currently White’s turn, and 1 if it’s currently Black’s turn

For example, this is what the board looks like before any moves have been made.