SE 210: Software Specification and Design I

OnlineChess

Behavior Model

13 November 2016

Introduction:

OnlineChess is an online chess playing platform that allows chess players to square off in friendly or competitive games through the web browser. Upon Starting a game, the user will be prompted to select an opponent and a time range of each turn. An *OnlineChess* match will be created and play continues until there is a winner selected, or a User concedes or forfeits the match is paused. The purpose of this document is to evaluate a behavioral model for *OnlineChess*. This includes a section that documents the sequence diagram for the selected scenarios:

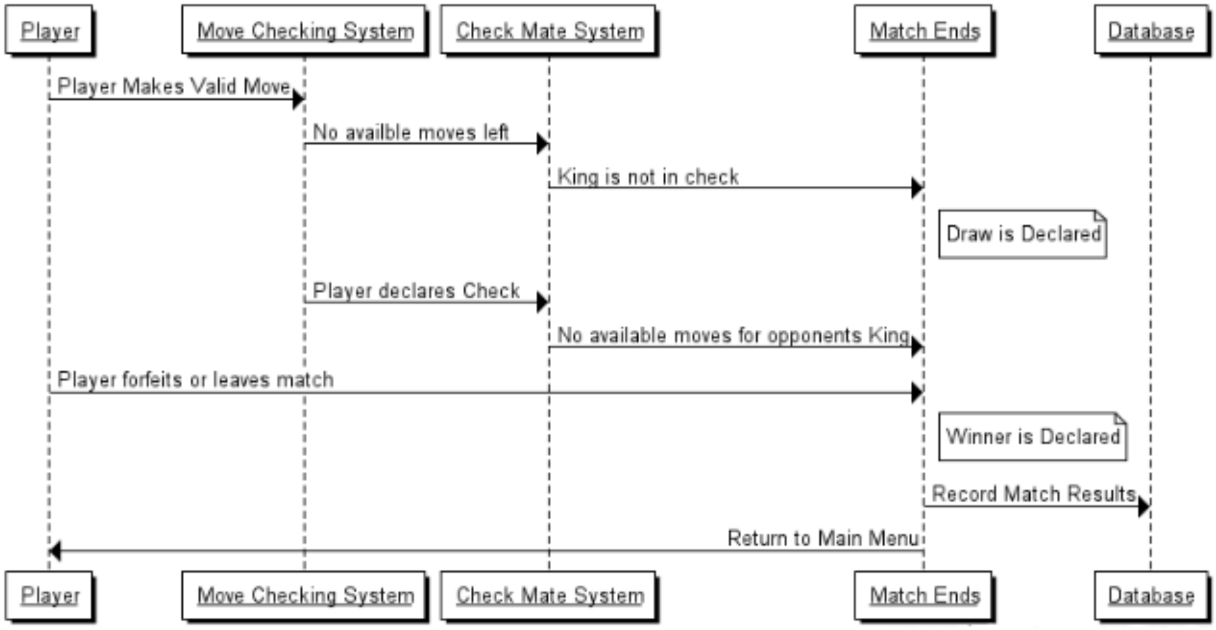
1. *Match is Declared Over*
2. *User Playing their Teacher*
3. *User Playing a Move*
4. *Starting a Game* with a random user

Followed by a section that documents the look and feel of the proposed User Interface, and a conclusion section that summarizes lessons learned from completing the *OnlineChess* assignment.

Sequence Diagrams:

The goal of a game in *OnlineChess* is to checkmate the other king, the following sequence diagram illustrates how a match would be declared over.

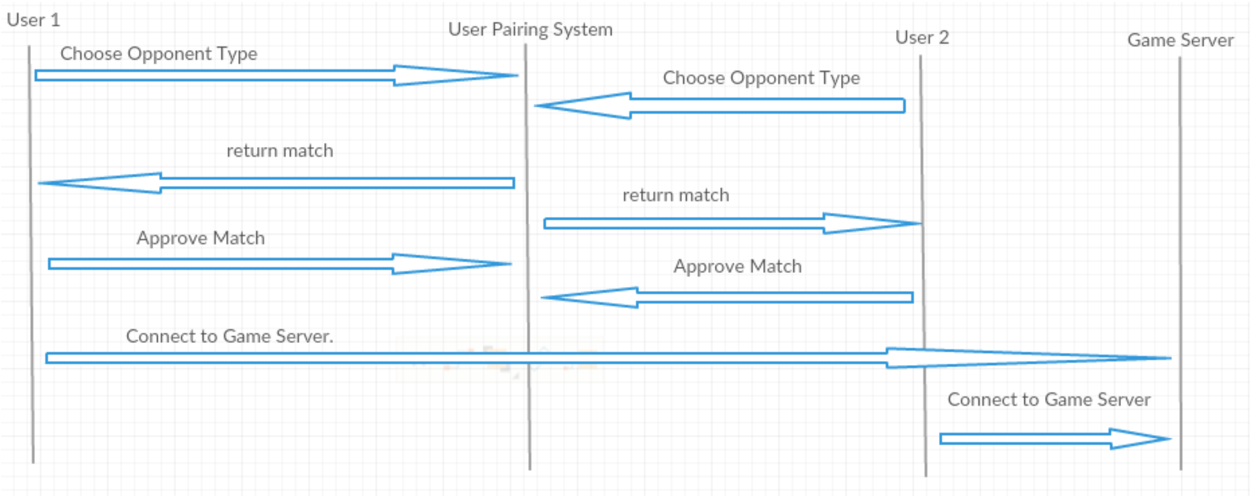
Match is Declared Over



There are several ways a match can be declared over. The first instance is a draw being declared where a player makes a move and there is no available moves left and the king is also not in check. This will result in a draw recording for the user's record. A second scenario is a player declaring checkmate where there are no available moves for an opponent's King, and has already declared check. The final scenario is a player forfeits or leaves the match. Each scenario results in a match being declared over, and the results of the winner/loser or draw is recorded in the database.

Starting game with random user:

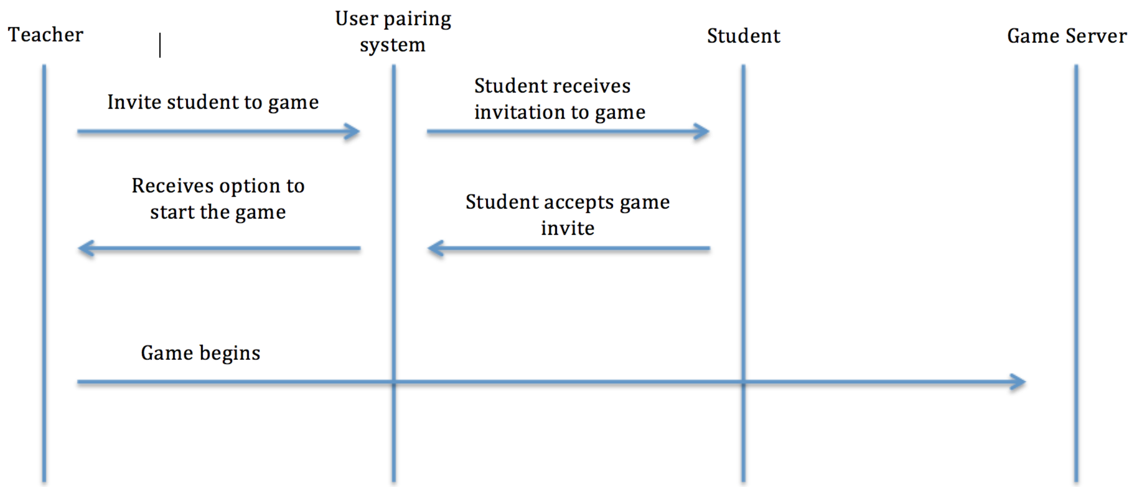
This Diagram shows the interaction between the users, the pairing system, and the game server.



This system matches two users who are looking for games against random opponents. After one user checks in, the system finds another user who has also checked in, and it returns the matches to both of the users. Once the users approve the matches, they are connected to the game server, and they can begin their game.

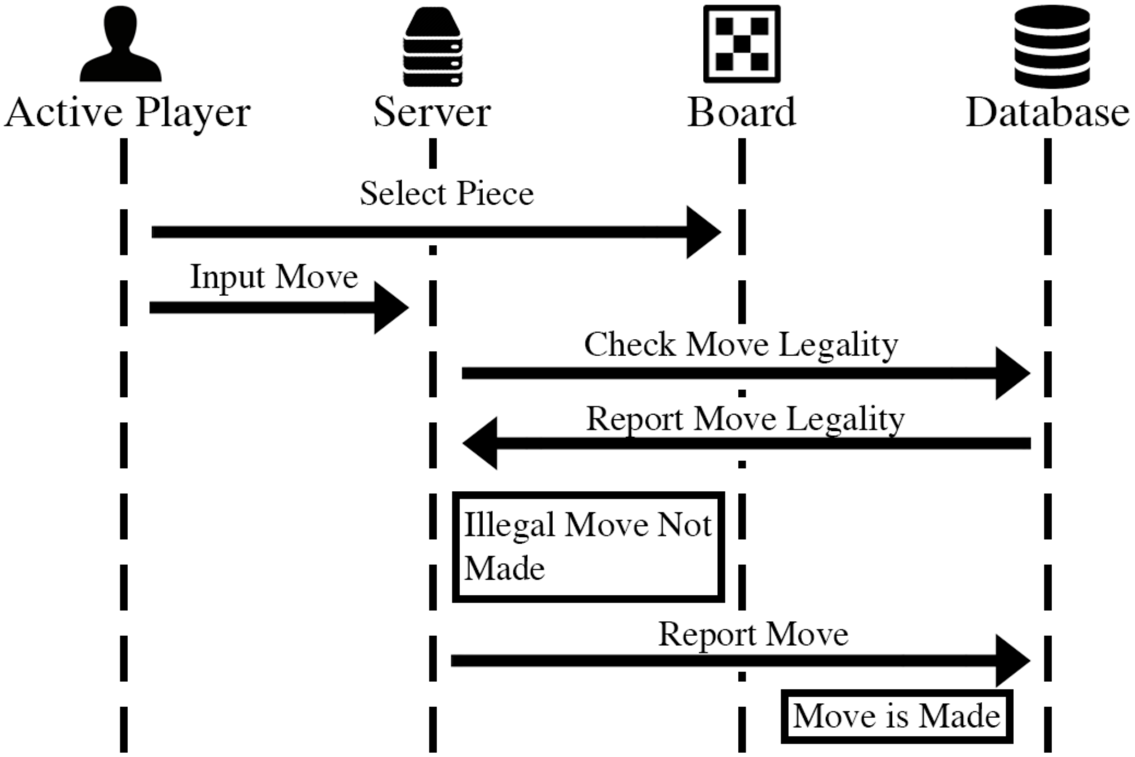
User playing their teacher:

This diagram shows the interactions between a teacher and a student to start and Online Chess game between the two of them.


Teacher
User pairing system
Student
Game Server
Invite student to game
Student receives invitation to game
Receives option to start the game
Student accepts game invite
Game begins

User Playing a Move:

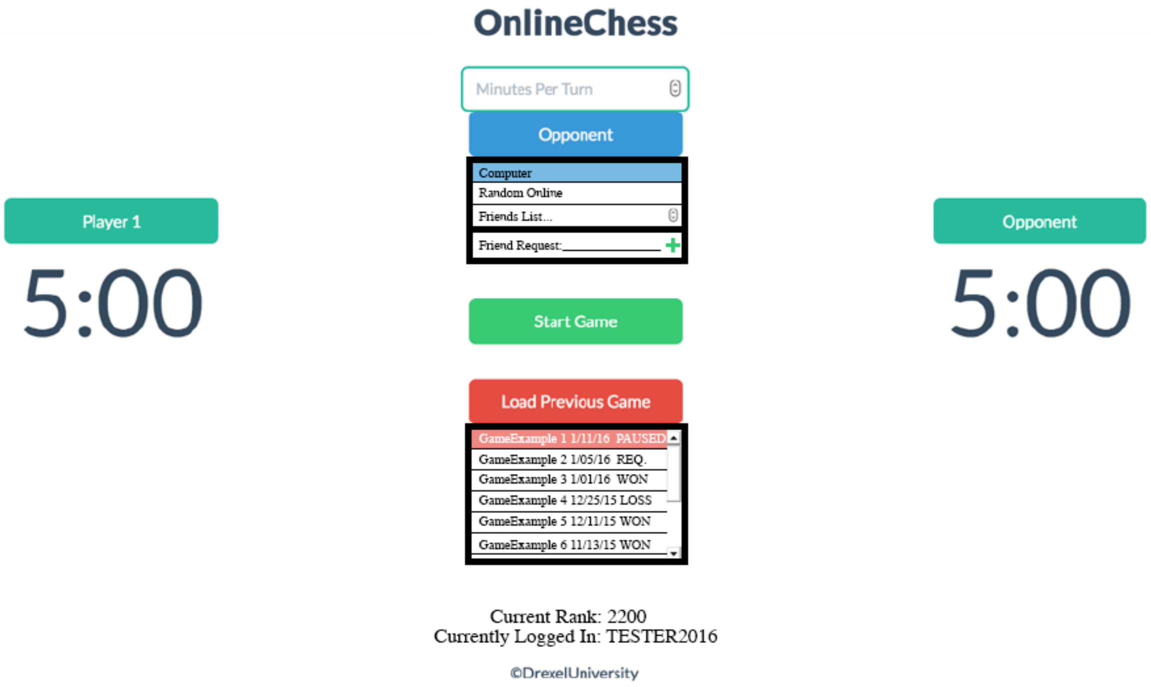
While in-game, the user will move their pieces in order to win the game, the following sequence diagram illustrates a move of a piece.



A user will select a piece and then input where the piece will request to move. The server will communicate with the database to check for move legality. If the move reports turns out illegal, the move will not be made. If the move is legal, the server will store the move in the database under the game’s record. The move is then made on the board.

User Interface:

Start Screen Interface for User:



5:00

5:00

Computer
Random Online
Friends List...
Friend Request:_______________ +

GameExample 1 1/11/16 PAUSED
GameExample 2 1/05/16 REQ.
GameExample 3 1/01/16 WON
GameExample 4 12/25/15 LOSS
GameExample 5 12/11/15 WON
GameExample 6 11/13/15 WON

Current Rank: 2200
Currently Logged In: TESTER2016

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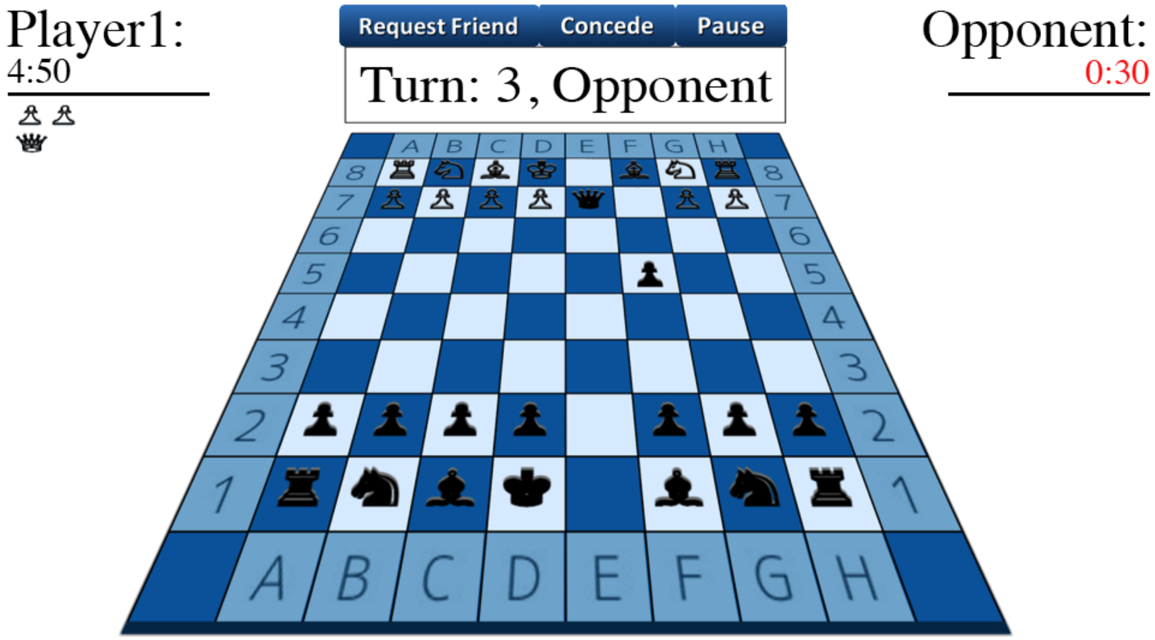
This interface welcomes every user on program launch. The user is able to see their current rank along with confirmation of their account log in towards the bottom. Several fields will be prefilled or selected and displayed which include: user's time, opponent's time, current opponent type, last game played. Every game in the 'Load Previous Game' list will have a date which signifies the start or end date of the game along with the outcome of the game (won, loss, paused, requested).

The user is able to set several settings for their game which include: minutes per turn, time per player, opponent type, and or a previous game. By clicking on the arrow icon in 'Minutes Per Turn' field a list of times will appear. By clicking the arrow icon in 'Friend List' field a list of current friends will appear. The list of opponent types and previous games demonstrate current selections with backfilling. By default the computer and the last game will be selected in their respective fields.

Board Interface for User:



Player1:
4:50

Turn: 3, Opponent

Opponent:
0:30

This interface is where users will play out their games. The board is displayed with all the active pieces in the game in their respective positions. The name of the user is displayed on the top left while the opponent's is mirrored on the right. Remaining time for each user is displayed underneath their name. If a player falls below one minute in game time remaining, their time will be colored red. Pieces captures are also displayed under the user's name. On top of the board is a box outputting the current turn number alongside the active player's name.

On top of the board lay three buttons: Request Friend, Concede and Pause. If 'Request Friend' is hit, a friend request will be created for the current opponent in the game. If the 'Concede' button is hit, the user will forfeit the game and be directed to the home screen. If the 'Pause' button is hit, the user will be directed to the home screen and the game is marked as paused.

Conclusion:

This project taught us useful skills for developing software. Although we had already learned about the basics of sequence diagrams in class, we had not learned about the best way draw them. In order to complete the sequence diagrams, we needed to find the proper software. There are both desktop and web based tools for doing this work. In order to plan out the structure of the *OnlineChess* application, the structure of multiplayer games like *League of Legends* and *DOTA 2* were reviewed. In those systems, all users involved need to confirm that they are ready for the upcoming game. This project has taught us about planning software projects.

SE 210 – Software Specification and Design I
Fall 2016

Assignment #3

A. Introduction

Now that you have a good handle on the capabilities and usage scenarios for the *OnlineChess* application, it is a good time to focus on creating a behavioral model for your project. This assignment will give you the opportunity to work on sequence diagrams for selected usage scenarios, and to develop a prototype for the User Interface component.

B. What To Do

Select 4 different scenarios (from the one specified in Assignment #2) and create corresponding sequence diagrams. Consider including scenarios that deal with some "special" aspect of the game, such as performing a special move (e.g., pawn promotion), or resuming a game.

Create a prototype for the User Interface of the *OnlineChess* application. Make sure to clearly specify the UI from the perspective of each player, and show how it evolves as the game progresses.

Write a report that includes the following sections:

1. An introduction section that briefly introduces the project.
2. A section that documents the sequence diagram for the selected scenarios.
3. A section that documents the look and feel of the proposed User Interface.
4. A conclusion section that briefly summarizes lessons learned from doing the assignment.

C. What, When, and How to Submit

This assignment is a team effort. Each team will submit a single report.

Assignments will be judged on the basis of and quality of writing, as well as their contents.

Therefore, grammatical correctness and overall organization and presentation are very important. Please make sure that drawings used are clear and legible.

Your report should include a cover page indicating the names of team members, title of work, course, and date.

Submit an electronic copy of your document **via Blackboard**, by Sunday, November 13, 2016, **11:59pm**.

There will be a 10% (absolute value) deduction for each day of lateness, to a maximum of 3 days; assignments will not be accepted beyond that point. Missing work will earn a zero grade.

To DO:
Diagram 1-rob
DIagram 2 joe
Diagram 3-Nick
Diagram 4
An introduction section that briefly introduces the project. --joe
A section that documents the sequence diagram for the selected scenarios. (should have someone in charge of organizing all the diagrams in order)
A section that documents the look and feel of the proposed User Interface.-Nick
A conclusion section that briefly summarizes lessons learned from doing the assignment.- Rob