



CS 4530 Final Project: "Chess Garden"

Group 411- Alex, John, Jonathan, Tehani



Project Feature Description

In the initial version of Covey.Town, showcased at <https://spring2021.covey.town>, users join a virtual "Town." This online space features a 2D, arcade-style map where users can navigate and explore. We noticed that while the initial spawn had a games room, users might benefit from a different setting where they could relax and play a game of chess similarly to the chess areas seen in parks.

In our final project, we introduced a new feature to Covey Town: the Chess Garden. This engaging addition transforms Covey Town into a more interactive and social platform by allowing users to engage in chess games either against an AI with varying difficulty levels or with other players. The Chess Garden, accessible through a beautifully designed butterfly garden, includes six distinct game areas for users to choose from. This feature not only enhances the social experience by supporting spectator interactions through a chat system but also enriches the gaming functionality with multiplayer and competitive elements.

Technology Stack & Design Decisions

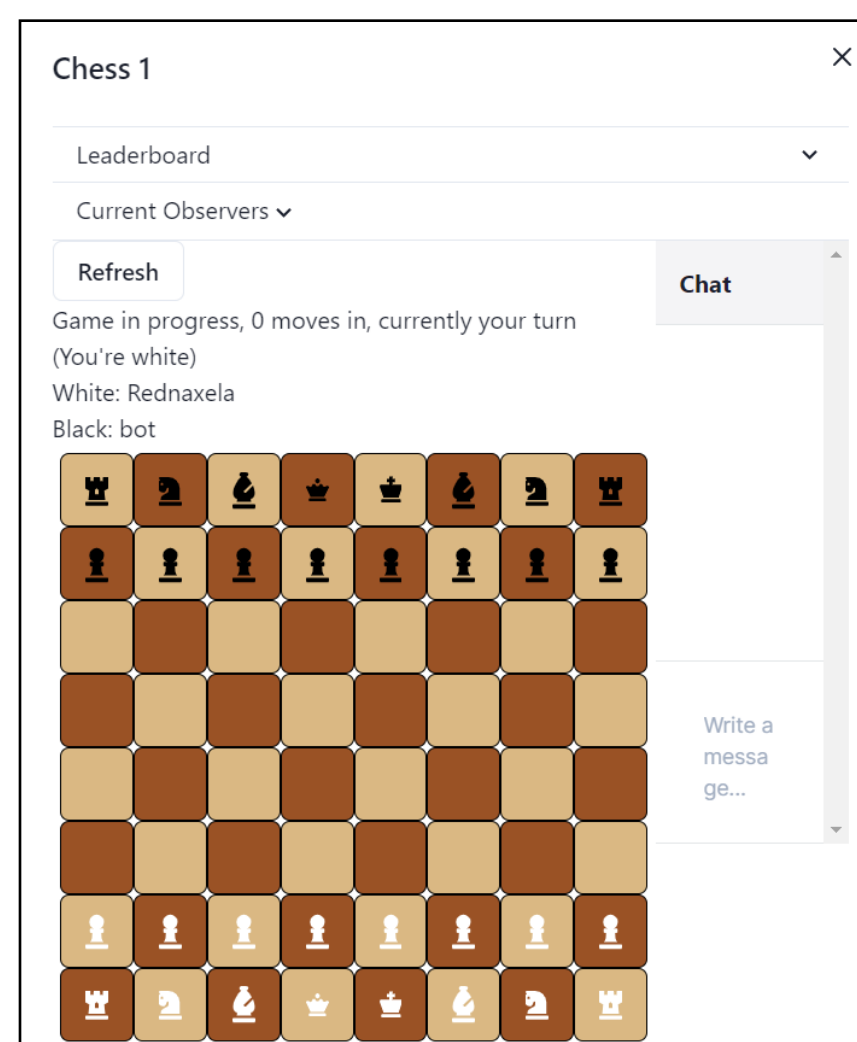
Our project builds upon Covey Town's existing infrastructure, incorporating both frontend and backend advancements to implement the Chess Garden feature. Frontend enhancements include a chess board component, multiplayer and single-player game modes, video call integration, and a spectator chat system. The backend is augmented with a chess engine and a connection to a chess bot API, enabling gameplay against AI.

We utilized React for the UI, along with a robust backend framework that includes Twilio for real-time interactions. The project emphasizes seamless integration between the game logic and user interface, ensuring a cohesive and enjoyable user experience. To update the tilemap and create a new area with chess game objects the map editor, Tiled, was used.

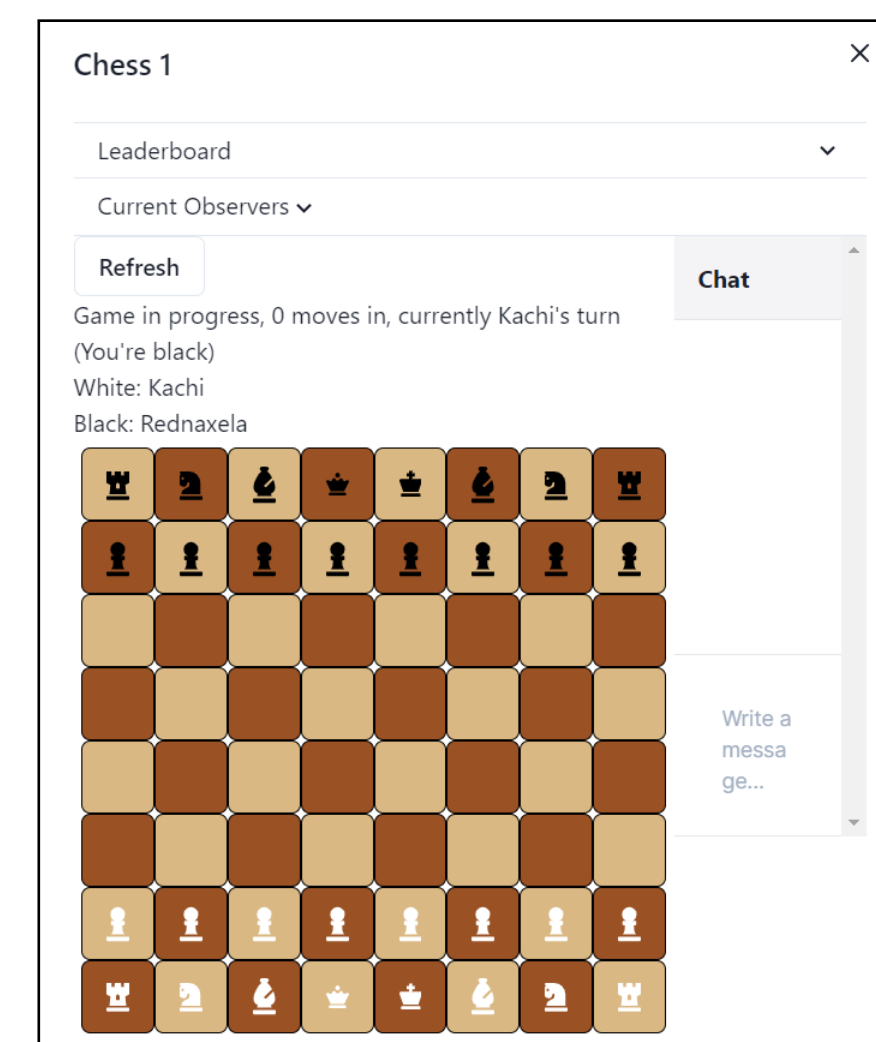
Through our continuous development pipeline, an automated test suite is run on both the frontend and backend components of the app. Only after those tests pass is the app then deployed using Heroku and Render.



The chess garden is accessible in the top right corner of covey town



One can join the game solo and play against a bot with varying difficulties



One can also play against another user in the area, with chat features and leaderboards available

Future Work

Future enhancements could include expanding integrating more social features, refining the UI/UX for even smoother gameplay as long as adding to the environment differentiating it from other areas in covey town. Additionally, exploring more advanced game strategies and incorporating user feedback to tailor the chess garden's features more closely to user preferences would further enrich Covey Town's offering.

We planned on making the chess games more like face to face interactions, however we fell short in manipulating the video chat to create that feel. Possible implementation of a conversation area to our chess area to allow better control over who can join the video chat is a consideration that we would explore going forward.

Also creating a more calming feel by adding sound/music to the area is something we would have liked to do given more time/hindsight.

Demo and Source

Experience our Covey Town Chess Garden live at <https://covey-chess-garden.onrender.com/>

Explore our project source code at <https://github.com/neu-se/covey.town/>