Team ESTEVAN
Design Documentation

WEC 2021 Programming

Project Overview

Team ESTEVAN was tasked to build a Chess game with modified board sizes and chess pieces. The pawn, knight, and queen pieces were changed to fit the program criteria, as well as the addition of a new piece called a vanguard piece.

Workflow

The team initially sought out to create a functional normal chess game with the scalability to add the required modifications later. One group member worked on the GUI and server/client model, while the others worked on the Chess Engine to support the backend requirements of the game.

Technologies

The main technologies used were python, pygame, node, express, mongodb. Our frontend and logic was handled by python and pygame, while our sessions were handled by node and express. The database was provided by mongodb. Our data path starts with the pygame gui where data is displayed and manipulated. All the game logic is done client side to decrease the load on the server. We chose python because of the flexibility of designing the game logic which we knew we needed with the game being different from On the other hand we decided to use node with express to handle the server as it is fast and lightweight. Mongodb was chosen as it was an easy database to

Data Structures and Algorithms

We approached the algorithm to solve all possible chess moves naively. For each piece on the board, our algorithm calculates all possible moves for that piece in accordance to each piece’s rules. The most frequently used data structures were arrays to store the position and possible positions of pieces.

Bugs

- Queens don’t meet the requirement of waiting 5 turns after a move.
- Vanguards don’t meet the requirement of moving in an L shape
- Redo move button doesn’t function
- Online play will occasionally crash