

CS 4530 Final Project: OnlyGames

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What is OnlyGames? OnlyGames is an online game hub that extends of GameNite by adding Replay functionality to review previous games, a new game called Go, and Leaderboards. It allows users to meet up online and play games together.

Game GO:

Get ready for a new game coming to OnlyGames! Featuring Go, straight from Ancient China! Choose between three board sizes depending on game length, and start placing tiles and dominating the battlefield. The game handles enforcing rules, capturing pieces, and calculating the score, so there's no fighting or cheating, just strategy.

Replay:

Missed what just happened? Use the Replay panel to scroll back through earlier moves, step forward/back, and see the game exactly as it was at any moment. Want a do-over? Pick a move and hit Fork to start a new game from that point and try a different strategy.

Leaderboard:

Getting a little competitive? Check out our leaderboard. Rankings are based on a custom ELO formula which weighs wins against higher ranked players more heavily. For each game we track weekly, monthly, yearly, and all-time rankings. When in game, a player's ranking will also be shown alongside their name. For less competitive players or players taking a break, we provide an unranked mode.

Technology Stack

The backend is powered by typescript via Node.js, with database storage using mongoDB. The server is hosted on onRender.

The frontend is powered by React and typescript. Socket.io is used for updating the client

The codebase is built with Vite, with testing via Vitest and Playwright. Formatting was handled by ESLint and Prettier.

Links & Demos

Live Demo:

<https://cs4530-405.onrender.com/>

Source:

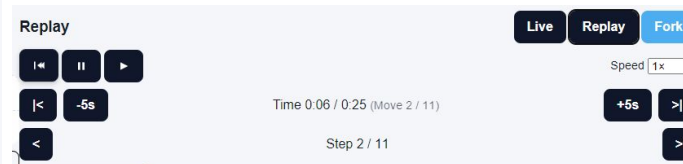
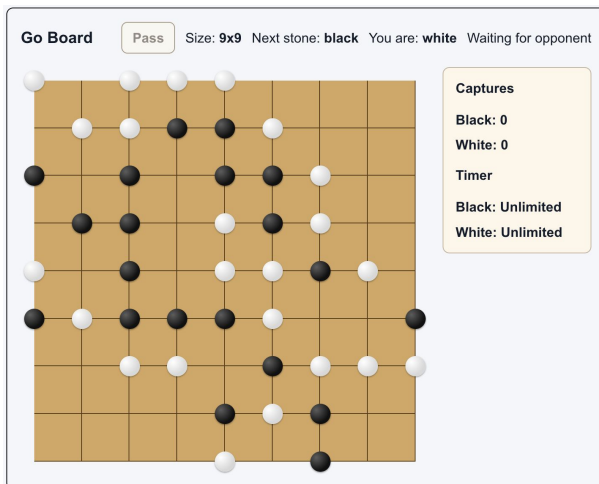
<https://github.com/neu-cs4530/spring26-project-group-405>

Design Decisions

The replay system reconstructs game state by reapplying the first k moves on the server and returning the appropriate view, with previous games stored in MongoDB. The leaderboard stores timestamps for everything but offloads all calculations to the client side, also using MongoDB for storage. Go follows the same client-controller-server model as the other games but with more complex board state and a custom worker for tracking game time out behavior.

Future Work

One day, we would love to add a more robust messaging service to our games platform. This would be similar to sub-Reddits for each game, allowing like minded users to discuss strategy and learn from each other. The goal of a messaging service would be to allow users to form long term, meaningful bonds with each other, while also maintaining a level of moderation.



Leaderboard

Rankings are sorted by ELO and can be viewed by weekly, monthly, yearly, or all-time splits. Rank movement reflects the last 24 hours within the selected period.

GuessGame		NimGame		GoGame			
Weekly	Monthly	Yearly	All-Time				
RANK	PLAYER	ELO	RANK CHANGE (24H)	WINS	LOSSES	TIES	WIN %
1	gooner123	111	0	3	2	0	60.0%
2	Yão	106	0	3	3	0	50.0%
3	0	100	0	0	0	0	0.0%
4	1	100	0	0	0	0	0.0%