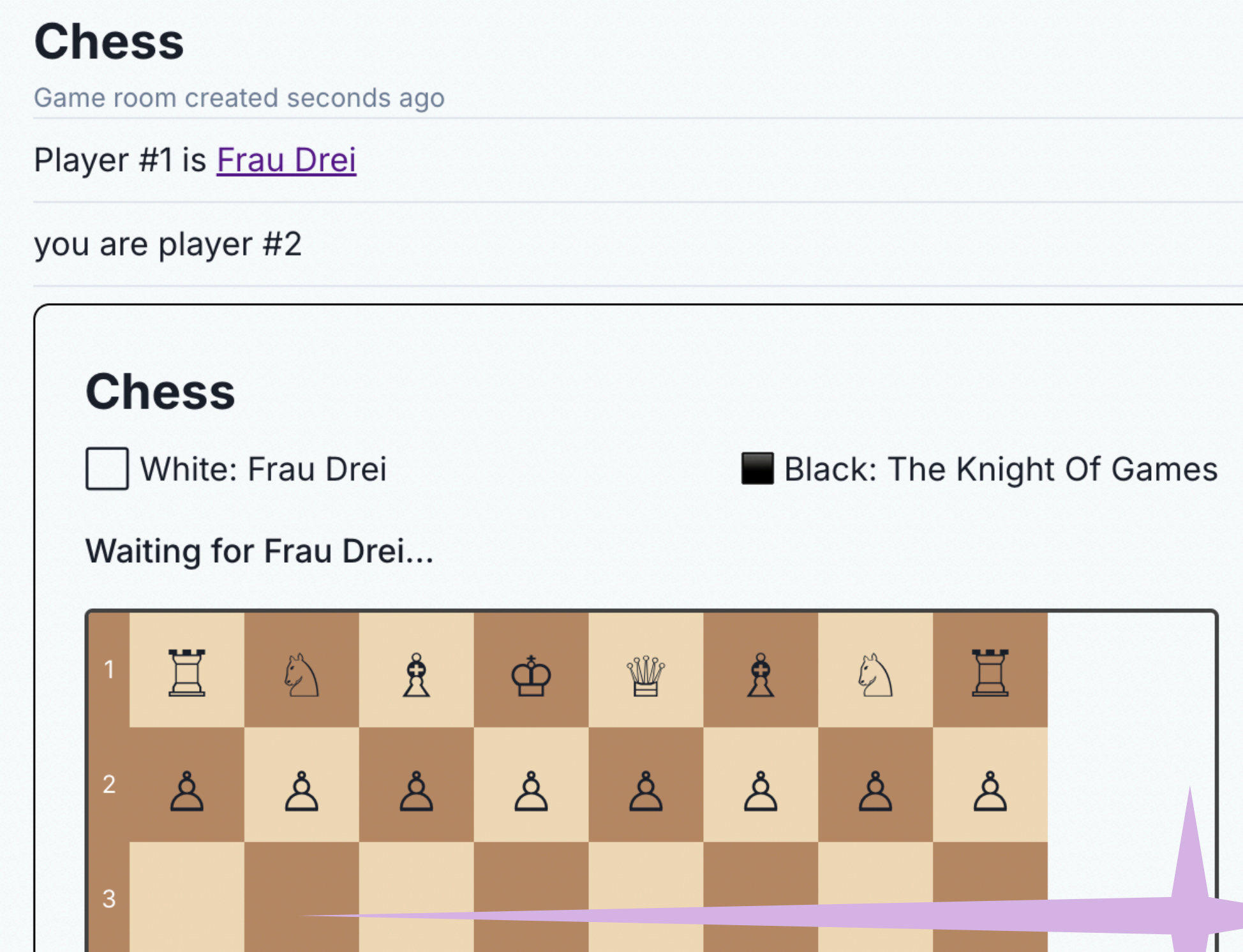
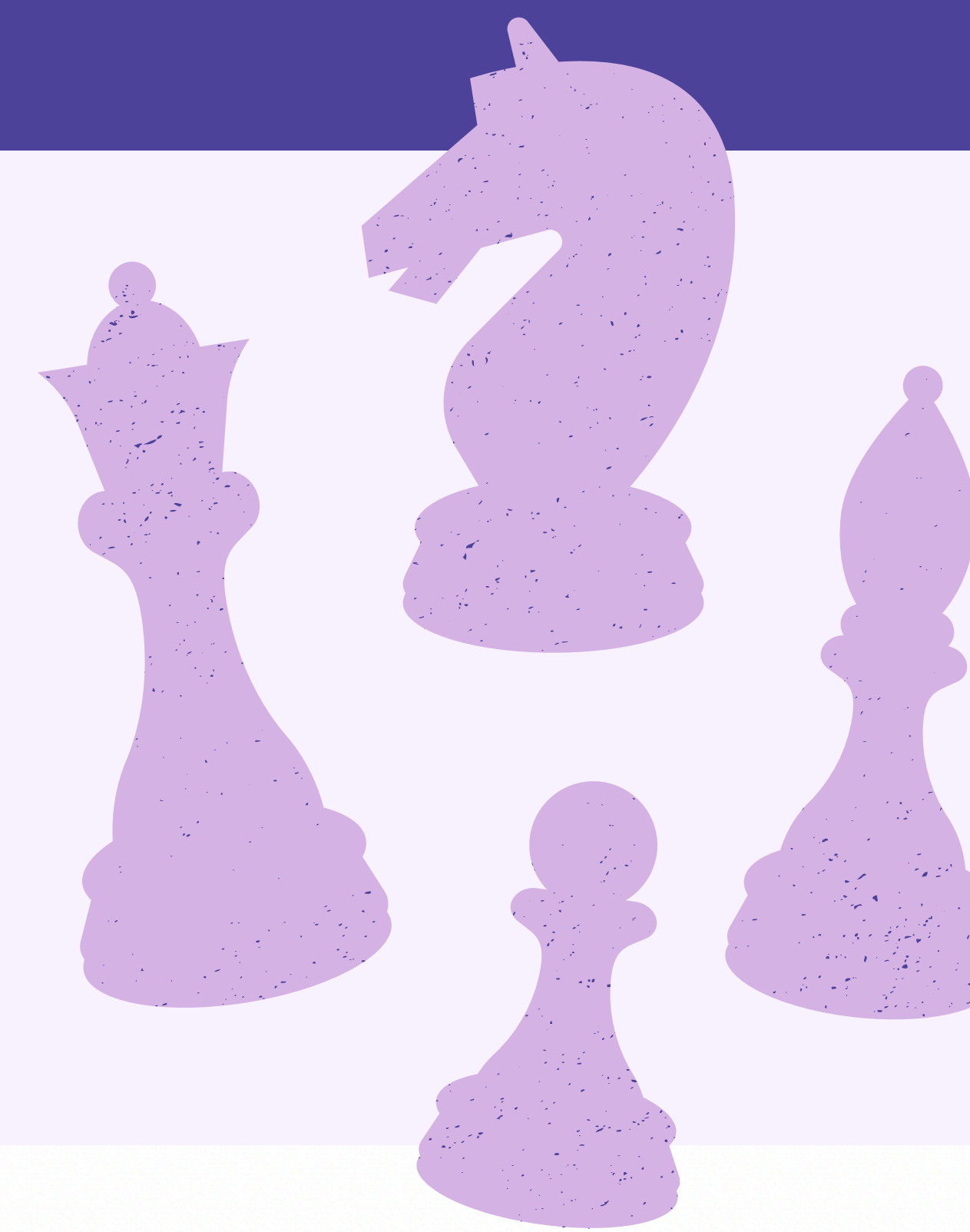
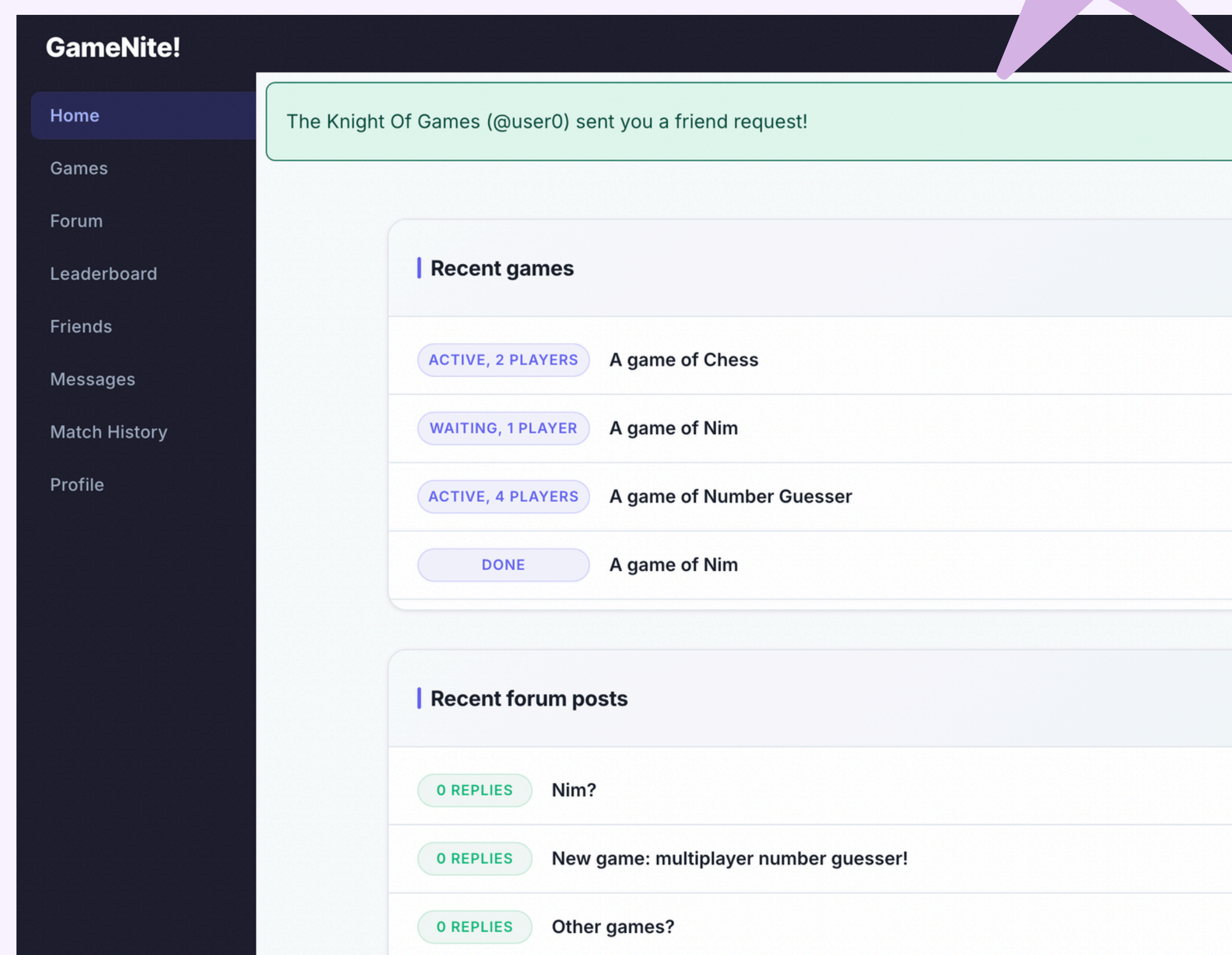


# CS4530 FINAL PROJECT: GAMENITE!

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## OUR FEATURES

GameNite is a gaming platform that allows users to play games but it lacks the infrastructure needed for competitive and social interaction. Our project enhances GameNite by transforming it into a more engaging, community-driven experience. Inspired by platforms like Chess.com, we introduce features that promote competition and social connectivity. These include real-time leaderboards that allow users to track their rankings globally and among friends, a friend system that enables users to connect and play together, and detailed match history tracking that provides insight into player performance over time. We also implemented a skill-based rating and league system using an Elo-based model, allowing users to compete with others at similar skill levels and track their progression through leagues such as Bronze, Silver, and Gold. Additionally, enhanced user profiles allow players to showcase their achievements, statistics, and activity, helping foster a stronger sense of identity and community within the platform. We also integrated Single Sign-On (SSO), allowing users to securely log in and maintain a consistent identity across sessions. We also implemented a full Chess experience including an AI opponent with three difficulty levels, timed matches with 5, 10, or 30 minute controls, post-game statistics tracking captures and time used, move-by-move game replay accessible from Match History, and the ability to resign at any point during a match.



## Welcome back!

Sign in to continue to GameNite.

user0

.....

Show Password

Log In

or

Continue with Google

Don't have an account? [Create New Account](#)

GameNite stores passwords in plaintext — please don't reuse passwords here.

## DEMO

Our demo (<https://spring26-project-group-204-lonrender.com/login>) showcases the full user experience of the enhanced GameNite platform. Users can play chess against human opponents or an AI at varying difficulty levels, use timed matches with automatic time-loss detection, and review completed games move-by-move in Match History. The demo also highlights the friend system, real-time leaderboard updates, league placements, player profiles, and the ability to compete in both public and private matches.

## FUTURE WORK

In the future, we aim to expand the platform with additional features to further enhance user engagement and gameplay experience. We plan to introduce additional game types beyond Chess, Nim, and Number Guesser to grow the platform's variety. Additional improvements include a more robust notification system to alert users of friend requests, game invitations, and match results in real time. We would also like to improve mobile responsiveness and expand privacy controls, giving users more flexibility over how they interact with the platform. Further chess enhancements could include opening book analysis, endgame tablebase integration, and tournament-style brackets. These enhancements will help continue evolving GameNite into a fully featured competitive and social gaming environment.

## OUR TECHNOLOGY STACK & DESIGN

We implemented our features within the existing GameNite codebase using a modern full-stack architecture. Our frontend is built with React, enabling a dynamic and responsive user interface, while the backend uses Node.js and Express to handle API requests and business logic.

We designed scalable database schemas to support leaderboards, match history, user ratings, and the friend system, ensuring efficient data storage and retrieval. Real-time updates were incorporated into the leaderboard and notification systems to reflect changes immediately after matches are completed. Chess move validation, rule enforcement, and PGN generation are handled using the chess.js library, ensuring accurate and efficient game logic on both the client and server.

In addition, we improved the overall user interface by introducing a more cohesive color scheme and cleaner visual design, making the platform more intuitive and visually appealing. Our system follows a modular design, allowing different components such as profiles, leaderboards, and game logic to interact seamlessly.

## Leaderboard

Chess Nim Guess

All Players All Leagues Bronze Silver Gold

Chess Leaderboard

RANK	PLAYER	RATING	LEAGUE
#1	Frau Drei @user3	1016	bronze
#2	You @user0	984	bronze