

# BitTrivia

Team 105: Aditi Rathi, Alyssa Ybarra, Joel Bernardes, Christian Fitzpatrick

Link to GitHub Repo : <https://github.com/neu-cs4530/fall25-project-group-105>

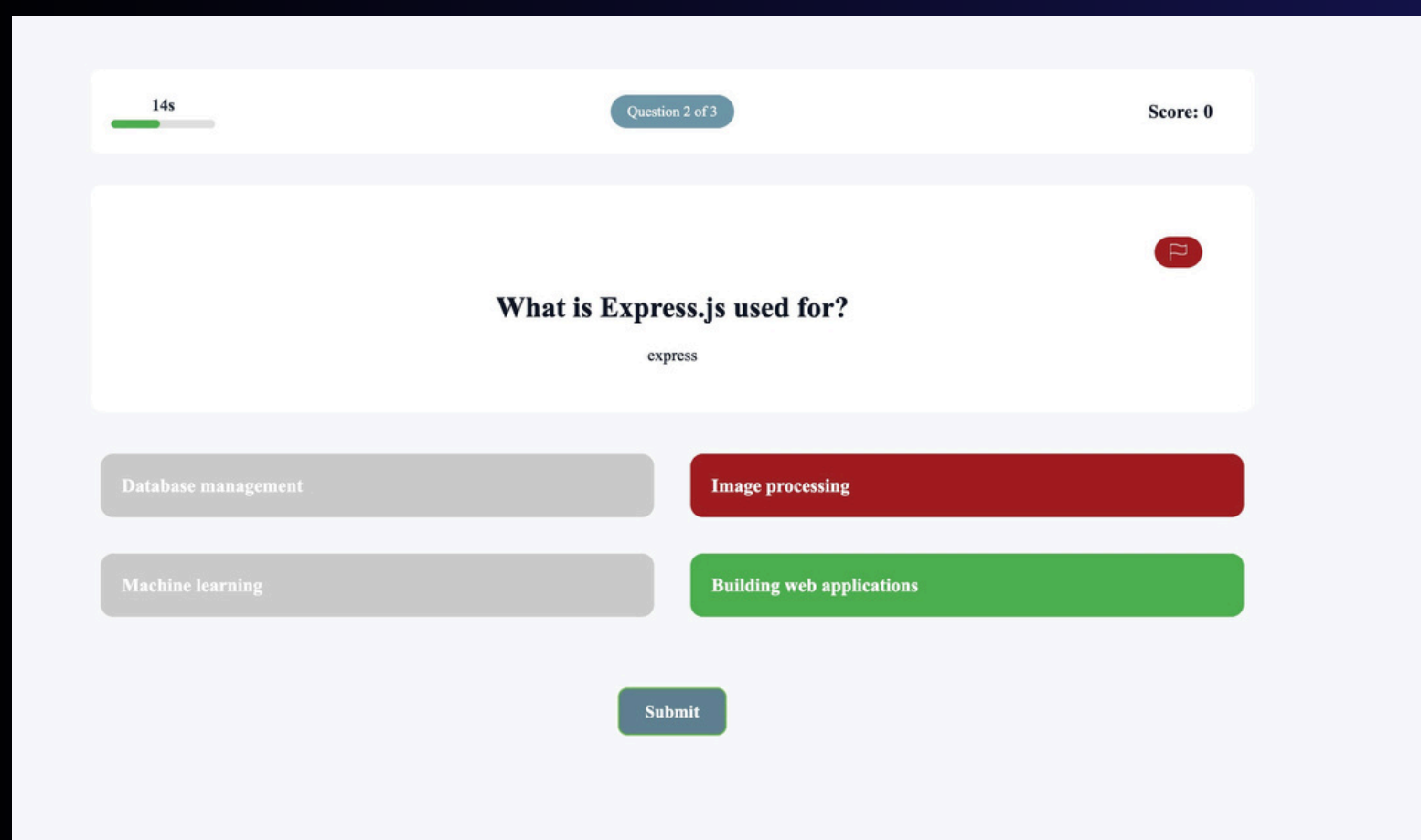
Link to Deployed Site : <https://fall25-project-group-105.onrender.com/>

## Bit Trivia, Achievements, Admin Dashboard

BitWise Trivia is an interactive, gamified learning experience built directly into the BitWise (FakeStackOverflow) platform. Players compete in timed trivia matches covering programming topics and receive instant feedback after every question. Each match updates the player's personal statistics, unlocks achievements, and contributes to weekly leaderboard ratings.

Gameplay rewards both consistency: streaks, high scores, and total wins all contribute to long-term progression. A personalized dashboard visualizes performance across multiple categories, showing growth over time and progress towards the next badges. Players can also add each other as friends in the user list and compare results on a global or friends-only leaderboard.

For administrators, a secure MFA-protected dashboard enables full control over the trivia ecosystem. Admins can add or edit questions, approve user submissions, tag questions by topic, archive outdated ones, and adjust global gameplay settings such as timer length and number of questions per match.



Gameplay: Timed Questions + Instant Feedback

## Technology overview

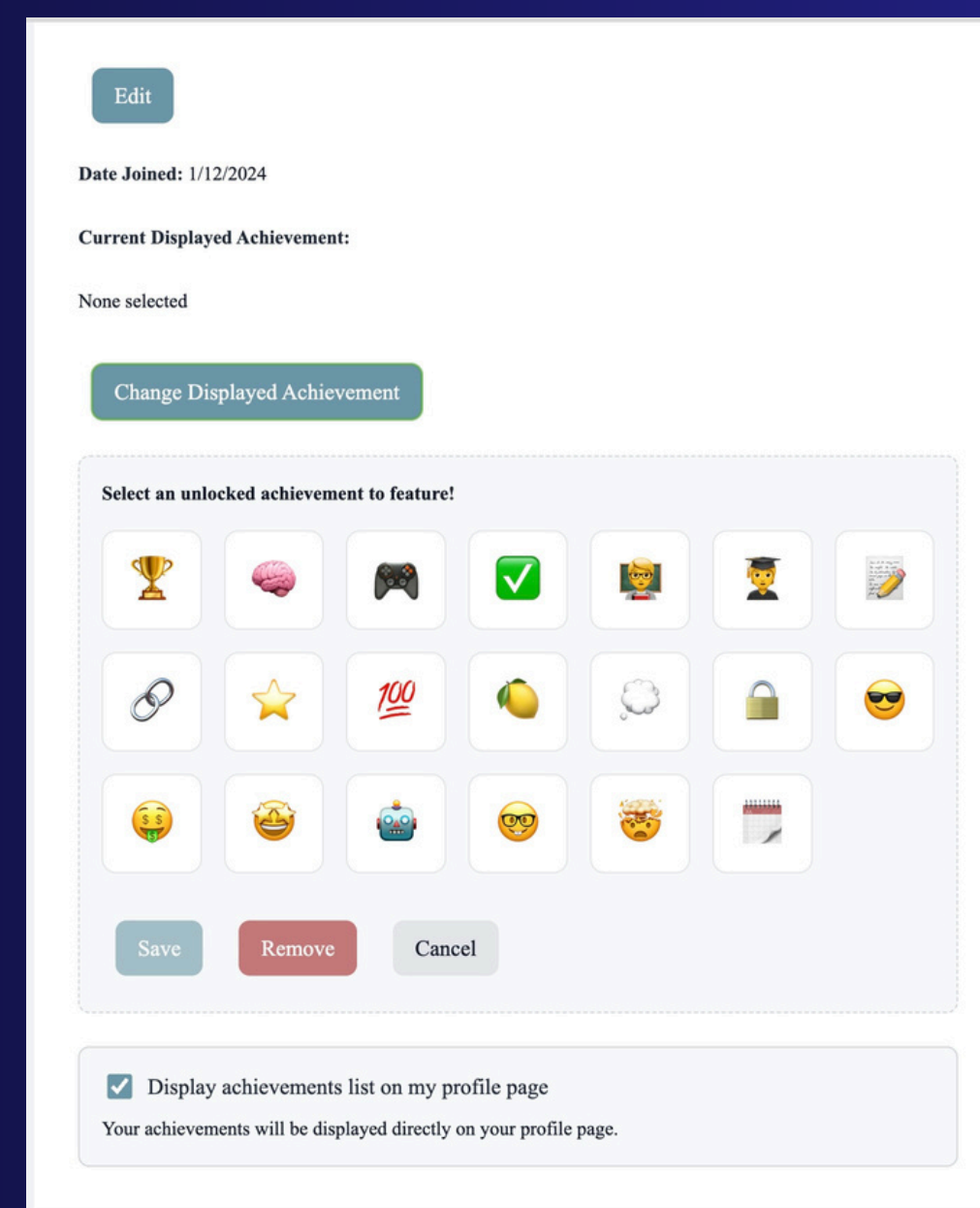
**Frontend:** React + TypeScript + CSS with real-time scoring, timer component, dashboard analytics, leaderboard filters, badge pop-ups, and achievements selection UI.

**Backend:** Node.js + Express handling scoring, validation, randomization, badge assignment, leaderboard updates, and admin question tools.

**Database:** MongoDB + Mongoose storing TriviaQuestion, TriviaGame, Achievement, Badge, and Leaderboard collections.

**Testing:** Jest backend unit/integration tests (95–100% coverage) and fully automated Cypress end-to-end gameplay tests.

**Security:** MFA for admins, server-side scoring and validation, answer protection (correct answers never sent to the client), session timeout enforcement.



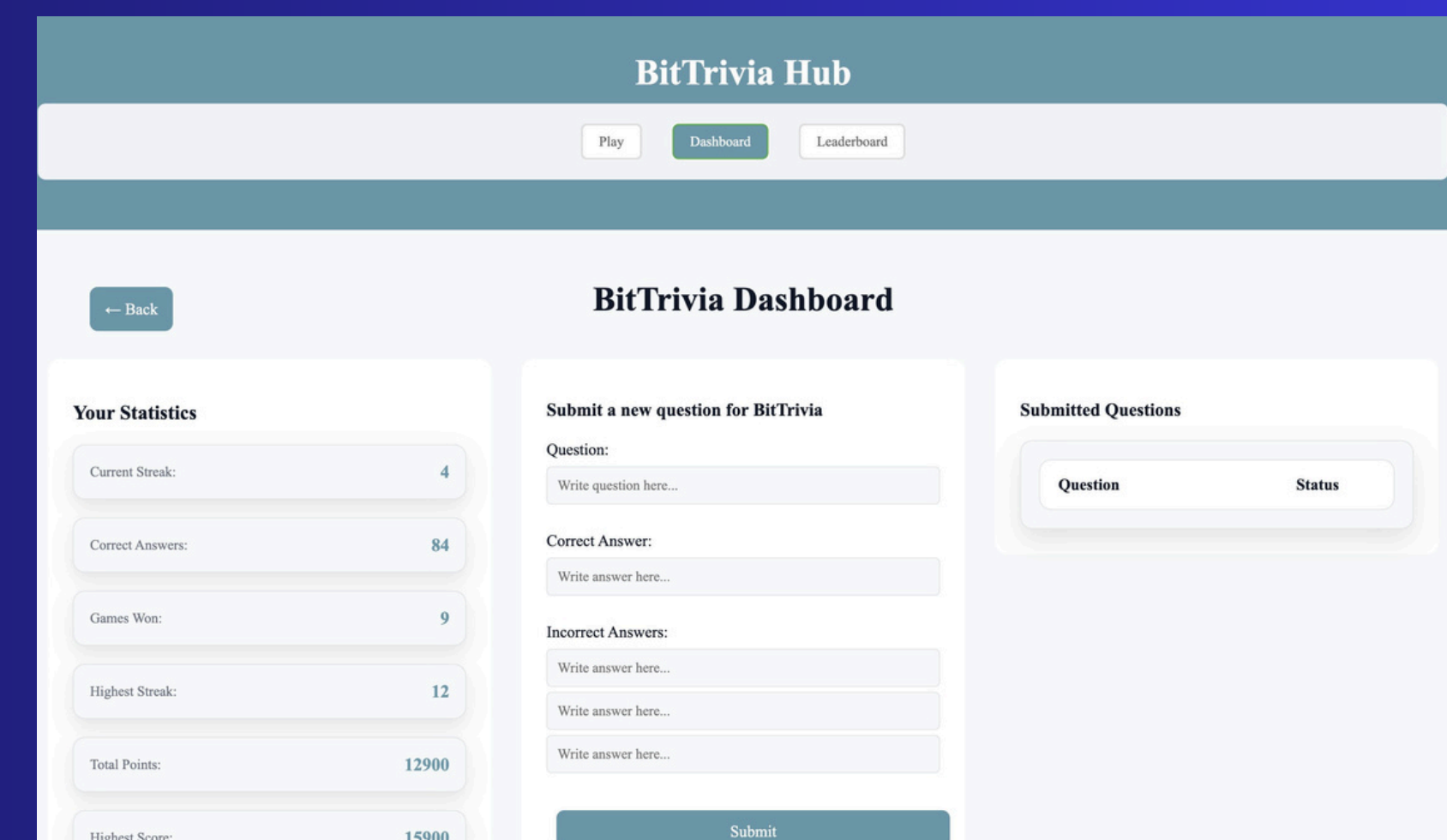
User Profile + Achievement Badges

## Core Features

- Timed multiple-choice trivia matches
- Instant scoring and feedback
- Achievements + holiday/seasonal badges
- Personal dashboard with exportable stats
- Weekly global & friends-only leaderboard
- Friend requests & friend-based competition
- Admin dashboard with question management and submissions review

## Future Directions

- Adaptive difficulty based on player performance
- AI-generated quizzes and explanations
- Global seasonal events and competitive trivia challenges



Dashboard: Stats + Question Submissions