

Mentorship Hub

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Project Overview

People often run into problems that are larger than can be solved by a simple question, or they need a more in-depth solution than can be provided by a simple answer. At the same time, there are experienced developers who are willing to provide more ongoing guidance than simple posts allow.

We address these problems with a mentorship hub that enables mentors and mentees to match based on the mentee's needs and the mentor's areas of expertise. There are four main features here: (1) a mentor hub for managing a mentor profile and mentorship activities, (2) a mentee hub with a browsable mentor directory, (3) a chat platform for private communication, and (4) a mentor verification system that establishes trust and safety through profile vetting.

Technology Stack & Design

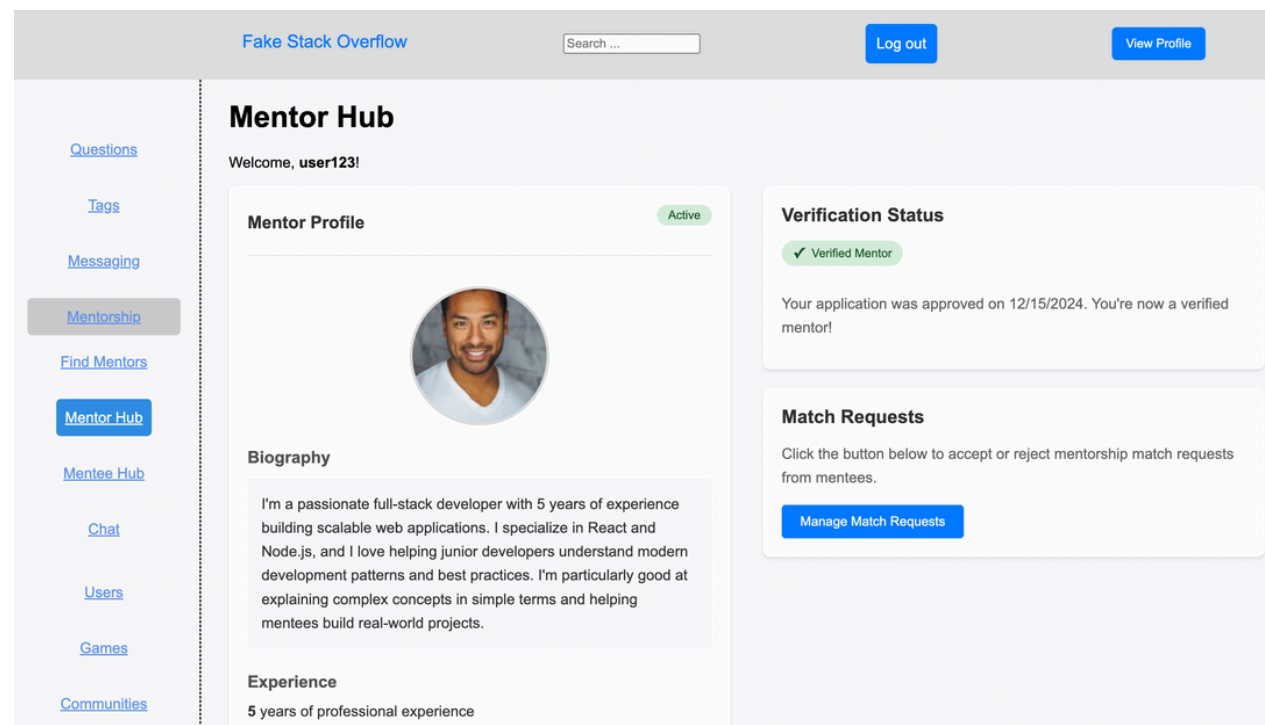
We built the Mentorship Hub as a full-stack web application using React and TypeScript for the frontend, with a Node.js/Express backend connected to MongoDB for data persistence.

When mentors create their profiles, they fill out forms built with React that submit data to our REST API endpoints, storing the information in MongoDB collections. The mentor directory uses filtered queries to MongoDB, allowing mentees to filter mentees in real-time. When a mentee sends a match request, the system creates a MentorMenteeMatch document that tracks the request status through its lifecycle (pending → accepted/declined). Once matched, users gain access to the chat interface, which fetches conversation history via REST endpoints and then relies on Socket.io for real-time message delivery without page refresh. Admin users can access a separate dashboard where pending mentor applications are displayed, and their approval decisions trigger updates to the mentor's verification status across the platform. Our continuous integration pipeline runs Cypress tests on the frontend and automated test suites on the backend, then deploys using Render for hosting.

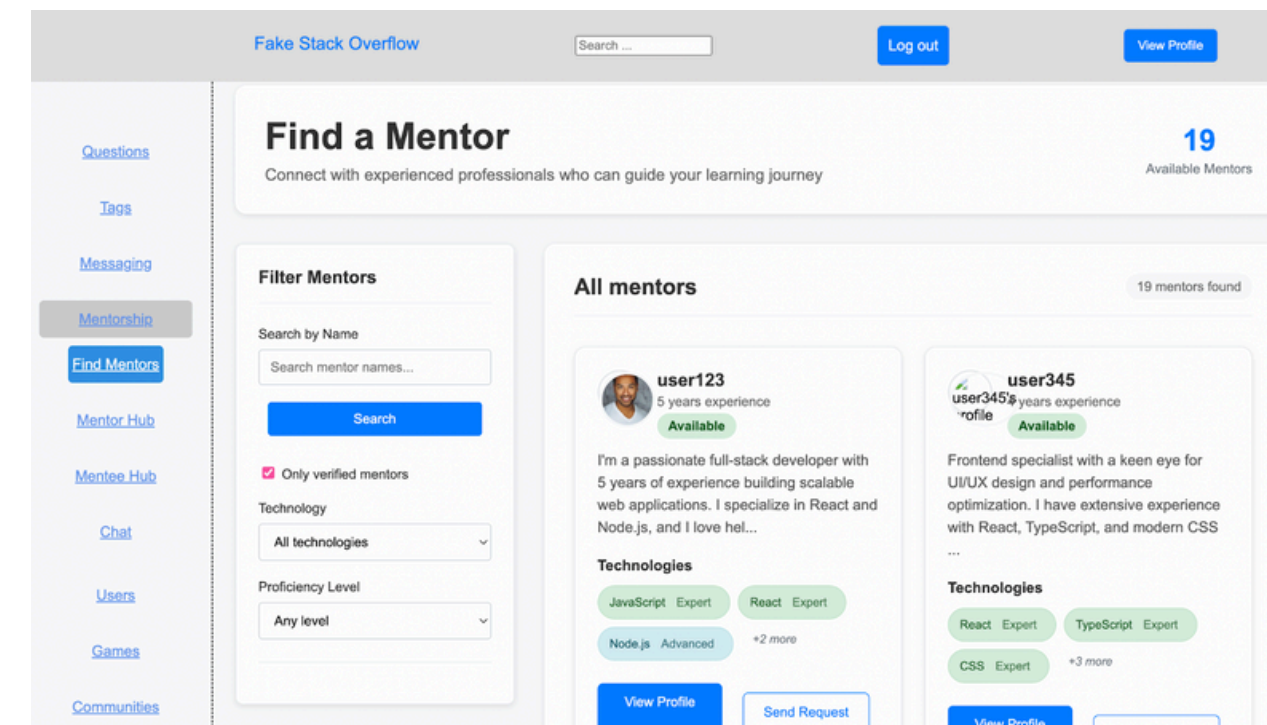
Future Work

Verified Mentor Endorsements: Building on our basic verification system, we could introduce peer referrals, allowing established mentors to vouch for new mentors and reducing the workload for site administrators. We could also implement a rating/review system where mentees provide feedback on their mentorship experience. These reviews would appear on mentor profiles, helping mentees make informed decisions about which mentors to work with.

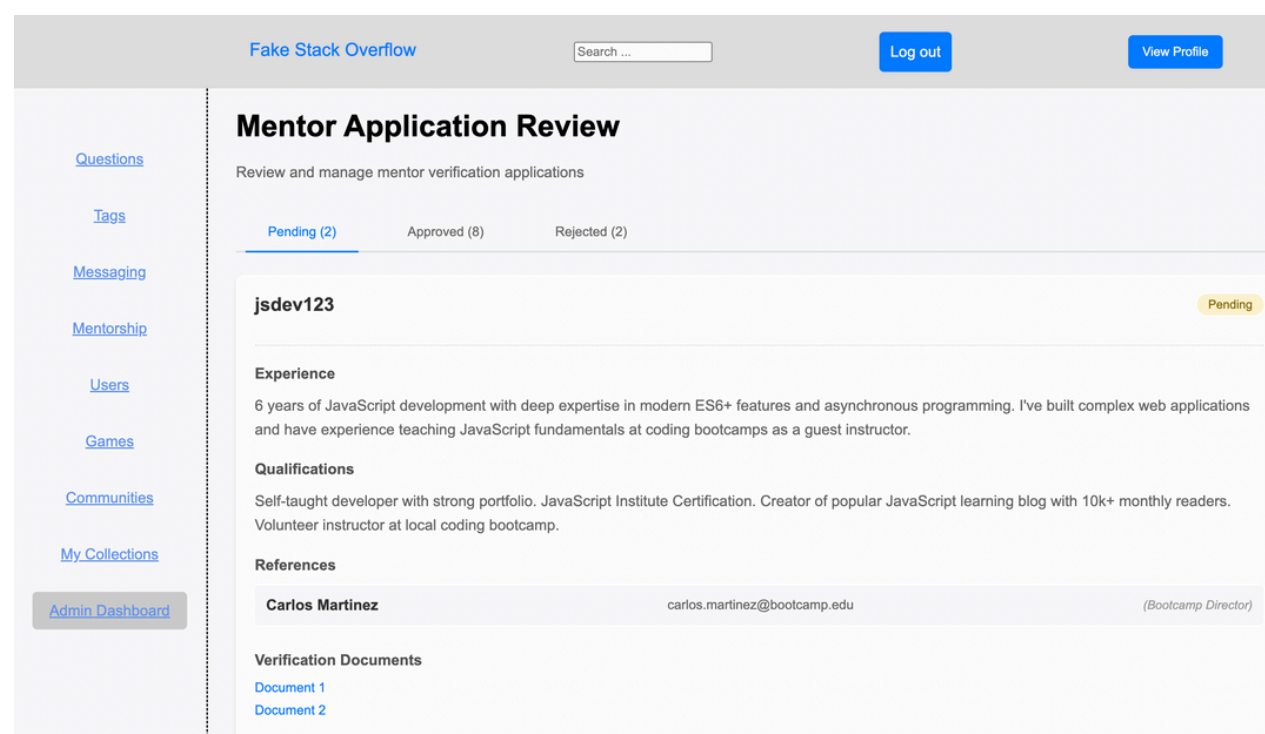
Enhanced Chat Functionality: Our current chat platform supports basic text messaging, but technical mentorship often requires more than this. Adding support for code snippet attachments with syntax highlighting (similar to StackOverflow's code blocks) and file attachment capabilities would enable better technical discussions. Furthermore, integration of voice and video calling would eliminate the need for external tools and support real-time pair programming sessions, particularly valuable for complex debugging or white boarding system designs.



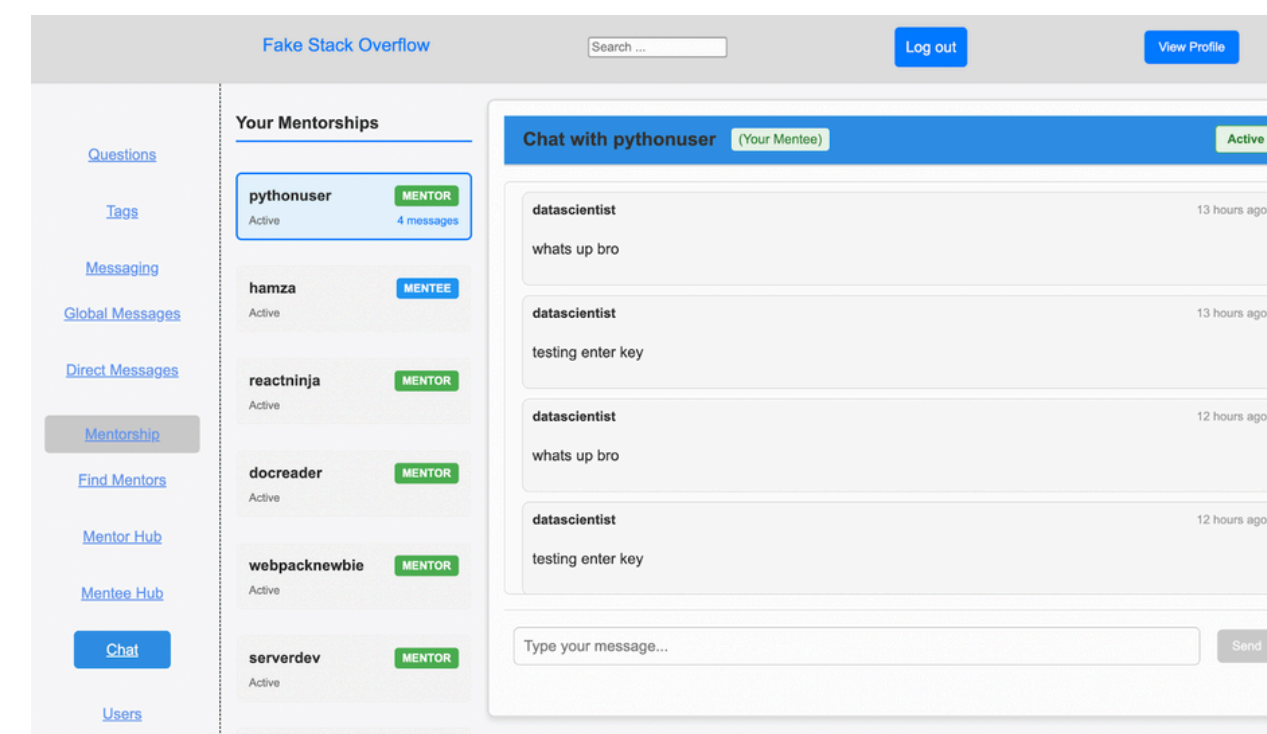
Mentor hub
Create/edit/delete mentor profile, submit application with experience/qualifications for admin review, and manage match requests from mentees



Mentor Directory
Browse all mentors filtering by name, technology, and skill level, view mentor profiles, and send match requests



Mentor Application Review
View all pending mentor applications and accept/decline applications with optional feedback notes



Mentorship Chat
View all active mentorship relationships in one place and start a chat with any of the active matches