

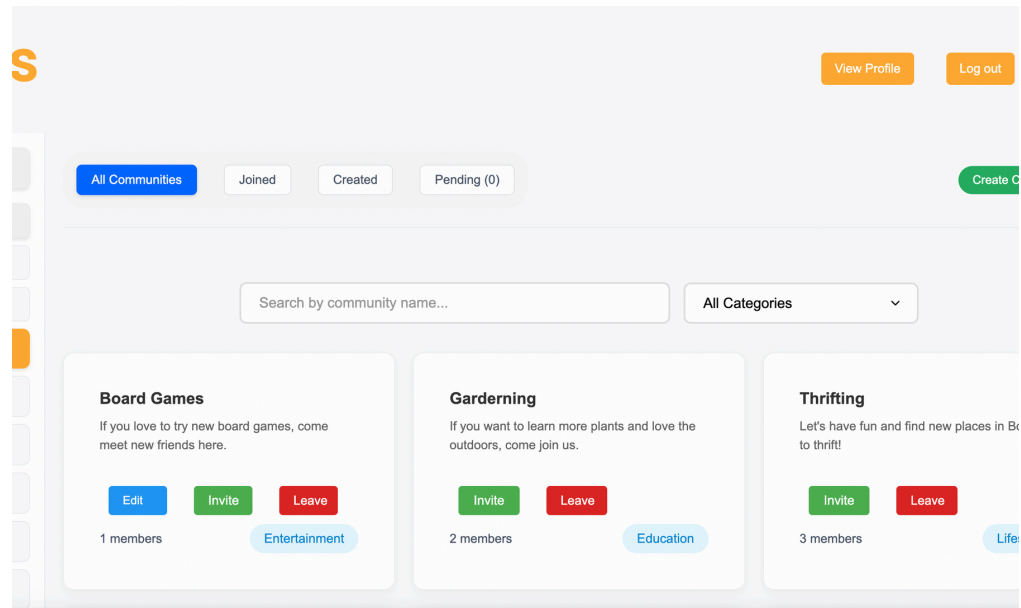
CS4530 FINAL PROJECT: "NEXUS"

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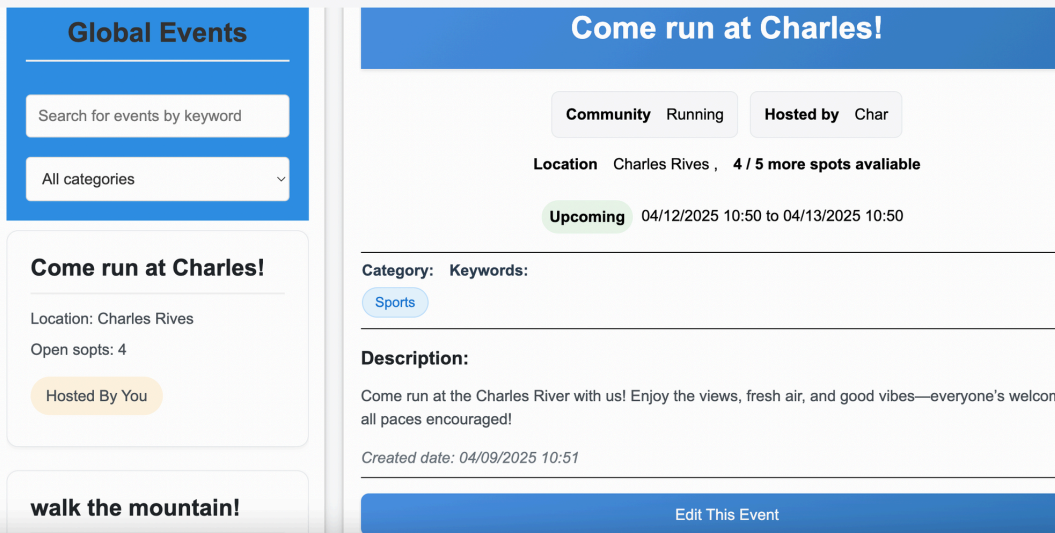
OUR FEATURE

Nexus is a modern full-stack social collaboration platform designed to bring users together through communities, messaging, Q&A interactions, and event planning. Our platform integrates real-time communication, user personalization, and interactive features such as a game space and StackOverflow-like knowledge sharing. Our goal was to build a platform that centralizes multiple collaborative needs in one place, ideal for remote teams, student groups, or niche communities. The system is powered by strong real-time capabilities and a modular design that supports scalability and future features.

DEMO & SOURCE



you can edit if admin, and join communities



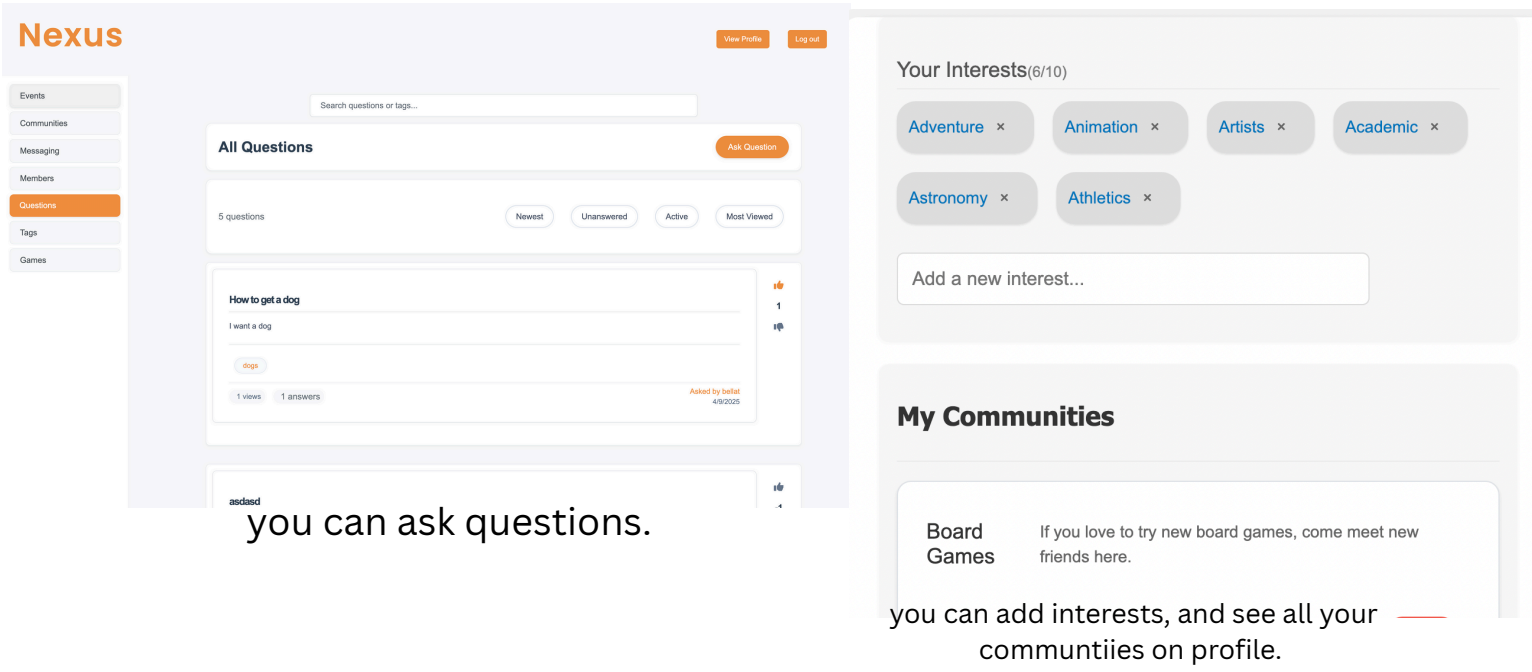
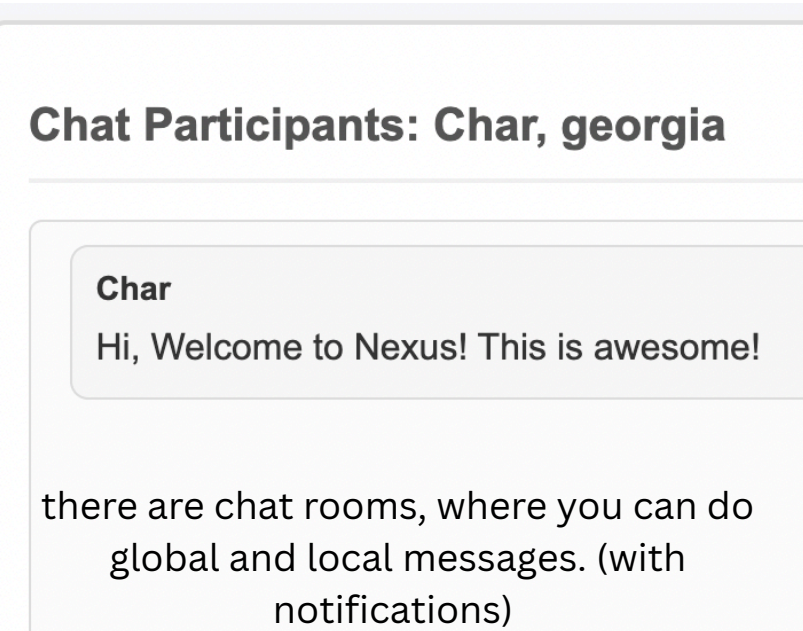
admins can make events, and members can join them

TECHNOLOGY STACK & DESIGN

Nexus is built using a modern full-stack architecture that emphasizes modularity, real-time communication, and scalability. On the frontend, we used React with TypeScript to ensure type safety and robust component organization. We implemented Chakra UI for consistent, accessible styling and a clean user experience. For real-time features like messaging and notifications, we integrated Socket.io on the client side. Navigation is managed using React Router, which helps keep the interface dynamic and responsive. The backend is powered by Node.js with Express, and our database is MongoDB, chosen for its flexible document structure, which fits well with Nexus's diverse data models (like users, messages, events, and questions). We use Socket.io server-side for live updates, and our RESTful API is secured through middleware that handles authentication and route protection. TypeScript is used throughout the backend to maintain consistency and reduce bugs. We also set up a Jest testing infrastructure to support unit and integration tests, ensuring feature reliability across the platform. Deployment is managed with support for Render.com, and environment variables allow for secure configuration. Altogether, our tech stack prioritizes a smooth development experience while delivering a feature-rich, real-time platform.

FUTURE WORK

Looking ahead, there are several opportunities to expand Nexus and improve its functionality. One major area is enhancing the notification system to support more customizable, context-aware alerts, such as activity-based reminders or digest summaries. We also see potential in building a mobile application to make the platform more accessible on-the-go, especially for community-based interactions. Additionally, integrating third-party tools like calendar sync, social media sign-in, or mental health resources could add value to users. Another important direction is implementing advanced analytics to help users and community moderators understand engagement trends, group dynamics, and activity levels. Lastly, we hope to develop community moderation tools that allow for reporting, content filtering, and user role management to keep Nexus a safe and welcoming space for all. These improvements would deepen user engagement and broaden the platform's applicability across different social and professional contexts.



you can ask questions.

you can add interests, and see all your communities on profile.