Tutor Verse

Problem Definition

In traditional educational environments, students often struggle to find personalized, peer-to-peer tutoring that aligns with their specific learning needs. There is a gap between students seeking help and those who can offer expertise in various subjects or skills within a college community. Additionally, there is a lack of a structured system for faculty to oversee and facilitate the quality and integrity of peer tutoring.

Purpose

Tutorverse aims to bridge the gap between students seeking academic assistance and peers capable of providing specialized tutoring within the same college. The platform seeks to create a vibrant, interactive learning community, enhancing the educational experience through collaborative knowledge sharing and peer support.

Proposed Solution

Tutorverse provides a web-based platform where students can connect with peer tutors, manage skills, and receive or give tutoring within their college community. The application facilitates the verification of tutors by faculty, ensuring quality and reliability. By integrating a system for feedback and ratings, the platform maintains high tutoring standards and continuous improvement.

Use Cases

1.   **Peer Tutoring**: Students struggling with certain subjects can find and connect with peer tutors who have proven expertise in those areas.
2.   **Becoming a Tutor**: Students with expertise in specific subjects can apply to become tutors, gaining an opportunity to share their knowledge and enhance their teaching skills.
3.   **Faculty Involvement**: Faculty members play a crucial role in verifying tutor applications and monitoring the tutoring process to maintain educational standards.
4.   **Skill Management**: Both students and tutors can list and update their skills, aiding in effective matchmaking and profile enhancement.

Features of Tutorverse

1.   **Peer Tutoring**: Enables students to find and connect with tutors within their college who have expertise in specific subjects, facilitating personalized learning experiences.

2.   **Tutor Registration**: Allows students to apply to become tutors, enhancing their teaching skills and academic profile once approved by faculty members.

3.   **Skill Management**: Both students and tutors can list and manage their skills on their profiles, improving matchmaking and showcasing their expertise.

4.   **Faculty Verification**: Faculty members verify tutor applications, maintaining high educational standards and ensuring qualified tutoring services.

5.   **Ratings and Feedback**: Students can rate and provide feedback on their tutoring sessions, promoting quality and accountability in the tutoring process.

Technical Specification

Frontend

•   **EJS (Embedded JavaScript)**: Used for server-side rendering to generate HTML markup with plain JavaScript. It provides a simple templating language that allows embedding JavaScript code in HTML pages, enabling dynamic content rendering based on the application's state.

Backend

•   **Node.js**: A JavaScript runtime built on Chrome's V8 JavaScript engine, allowing for the development of fast, scalable network applications. Node.js facilitates non-blocking, event-driven architecture, suitable for real-time applications like Tutorverse.

•   **Express**: A minimal and flexible Node.js web application framework that provides a robust set of features for web and mobile applications. It simplifies the routing and middleware integration, making it easier to develop the server-side logic.

Authentication

•   **JWT (JSON Web Tokens)**: A compact, URL-safe means of representing claims to be transferred between two parties. In Tutorverse, JWT is used for securely transmitting information between clients and servers as an authentication token.

Database

•   **PostgreSQL**: An open-source, powerful, and advanced relational database system. It provides strong consistency, reliability, and a feature-rich set of tools for managing structured data. Hosted on AivenDB, it ensures scalability, high performance, and availability for Tutorverse's data storage needs.

Deployment

•   **Heroku**: A cloud platform as a service (PaaS) that enables developers to build, run, and operate applications entirely in the cloud. Heroku simplifies the deployment process, allowing for easy scaling and management of applications like Tutorverse.

Conclusion

Tutorverse stands out as a specialized web application designed to enhance the academic environment within colleges by streamlining the process of peer tutoring. Its technical architecture leverages modern web technologies to create a seamless, interactive platform where students and faculty can engage in a productive educational exchange.

In summary, Tutorverse is more than just a tutoring platform; it is a comprehensive educational ecosystem that facilitates knowledge sharing, enhances learning experiences, and fosters a sense of community among students and educators. Through its innovative use of technology, Tutorverse is poised to become an indispensable tool in the landscape of educational resources in colleges.