RESEARCH HUB

Presented by Tejas Gunjal - 18

OVERVIEW

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INTRODUCTION

- Research Hub is a full-stack web application for accessing, sharing, and discussing academic resources
- It aims to create a collaborative knowledge-sharing ecosystem for students, researchers, and professionals.
- This platform enables users to upload, explore, and discuss research materials in one unified platform.
- It Encourages open academic discussions and community-driven contributions to support collective growth.

PROBLEM STATEMENT

The research landscape is fragmented across multiple platforms, making it difficult for researchers to discover relevant work, access reliable datasets, and collaborate effectively. This fragmentation results in inefficiencies, duplication of effort, and missed opportunities for interdisciplinary collaboration.

The core challenges include:

Fragmentation of Research Resources
Limited Collaboration & Networking Opportunities
Inefficient Discovery and Recommendation of Research
Barriers to Accessibility and Open Science
Interoperability with Existing Research Systems

OBJECTIVE

- **Simplify access to academic resources** :- Make it easy for students and researchers to find and utilize research materials.
- **Foster collaborative learning** :- Create a space for users to share, discuss, and contribute to academic content.
- **Encourage community contributions** :- Enable users to upload, explore, and engage with user-generated resources.
- **Centralize research activities** :- Provide a unified platform for academic access, sharing, and discussions.
- **Promote open academic dialogue :-** Support meaningful peer-to-peer learning and knowledge exchange.

TECH STACK

Component	Technology Used	Purpose
Frontend	React.js + TypeScript	Strong typing and responsive user interface
Backend	Flask	API development and business logic handling
Database	MongoDB	Flexible, document-based data storage

REQUIREMENTS

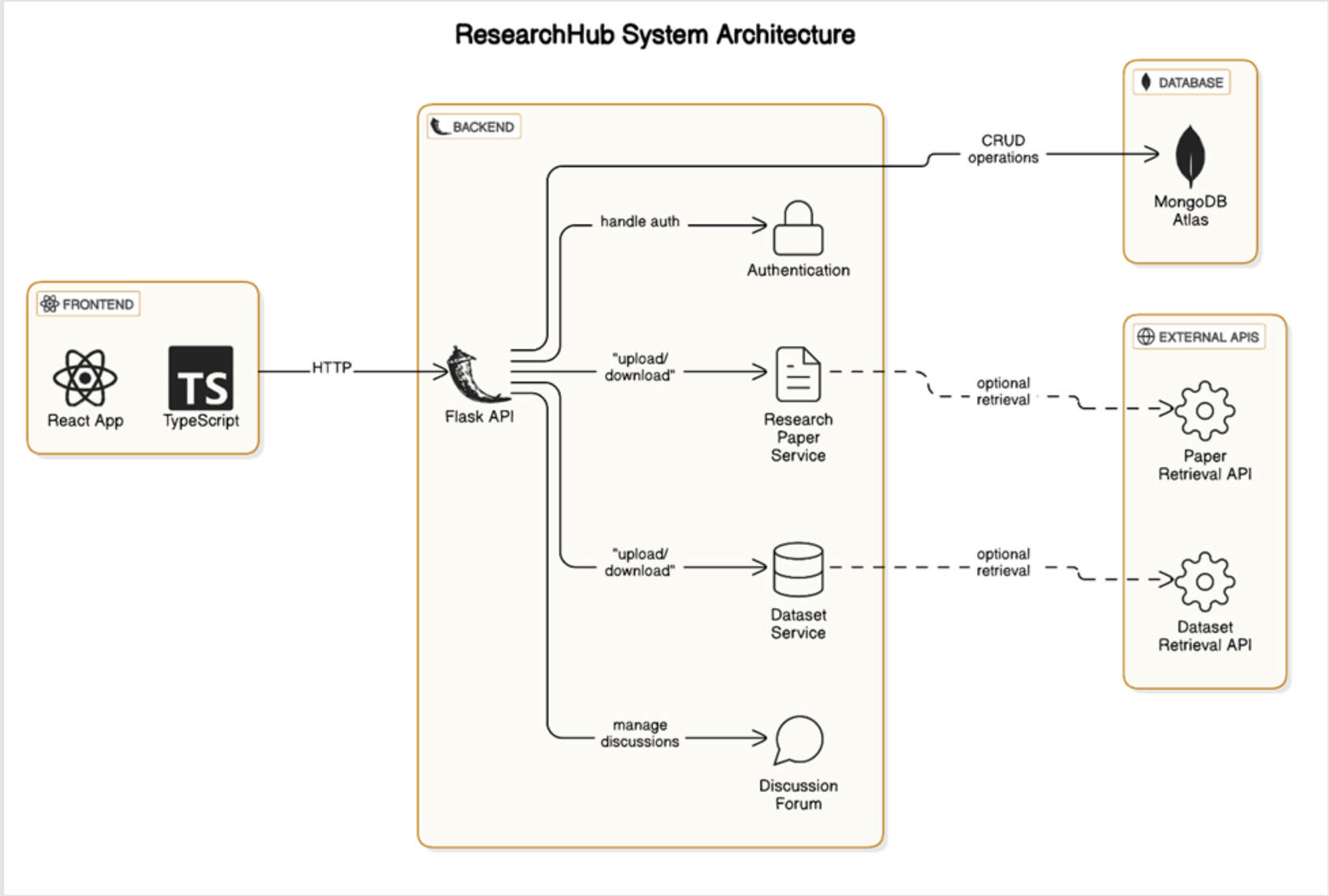
Software Requirements

- Node.js (v18.16.1 or later) – For running React frontend
- npm (v9.5.1 or later) – Dependency management
- Python (3.11.9 or later) – For Flask backend
- MongoDB Atlas – Cloud-based NoSQL database
- VS Code – Recommended IDE
- Postman – For API testing

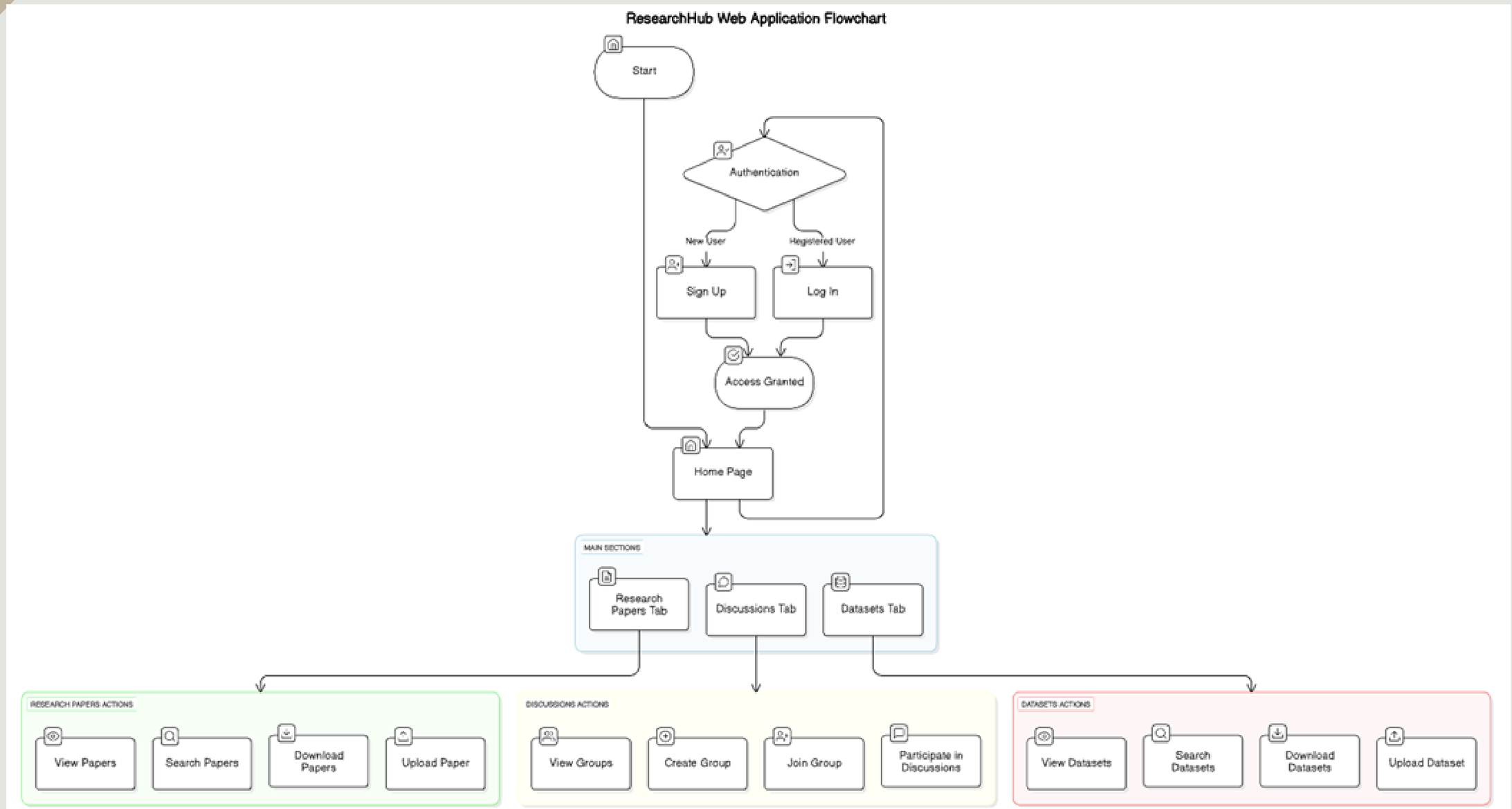
Hardware Requirements

- Processor: Intel Core i5 or higher
- RAM: Minimum 8GB (16GB recommended)
- Storage: At least 10GB free space
- OS: Windows 10/11, macOS, or Linux

PROPOSED ARCHITECTURE



PROPOSED FLOWCHART



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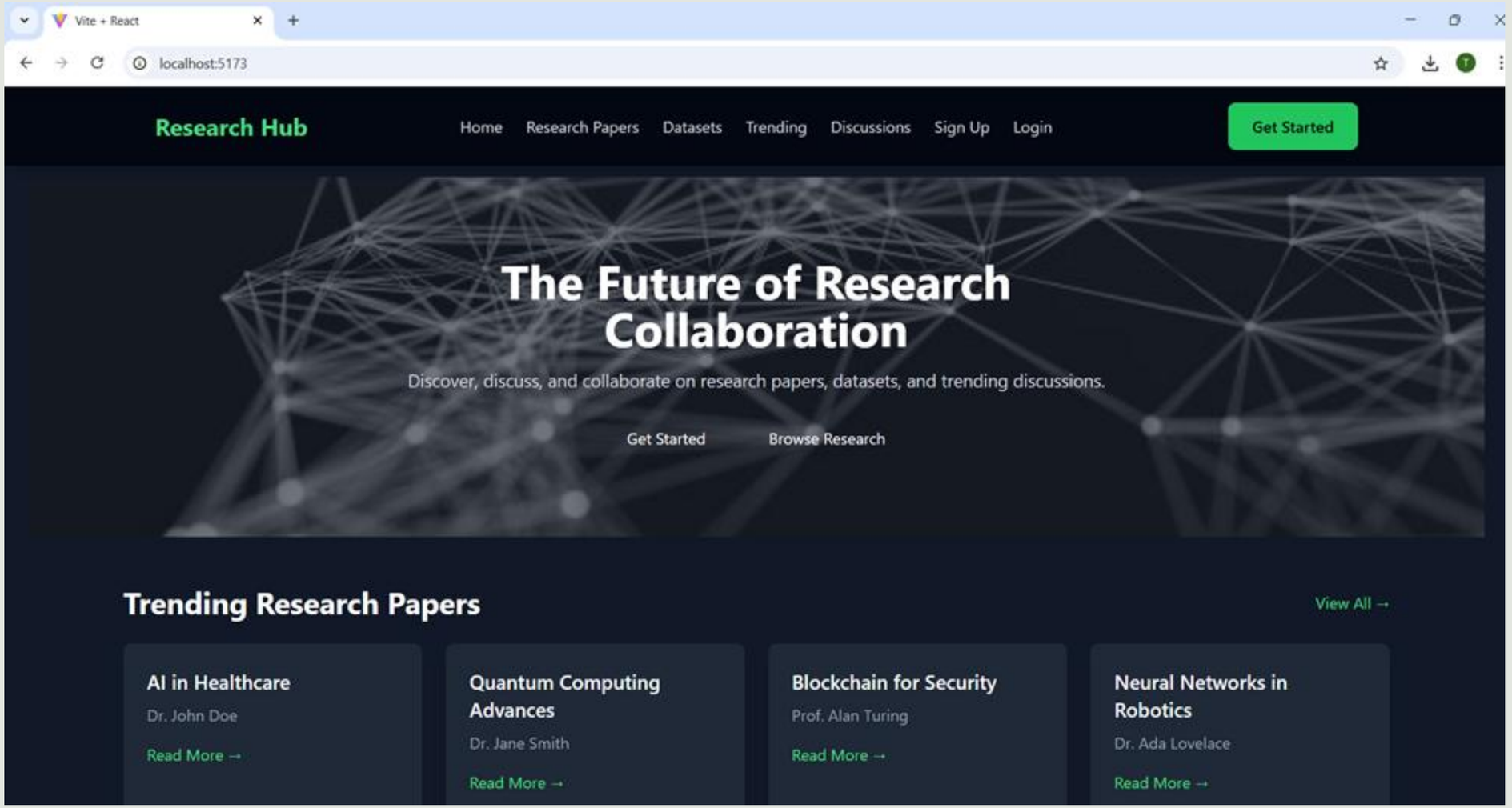

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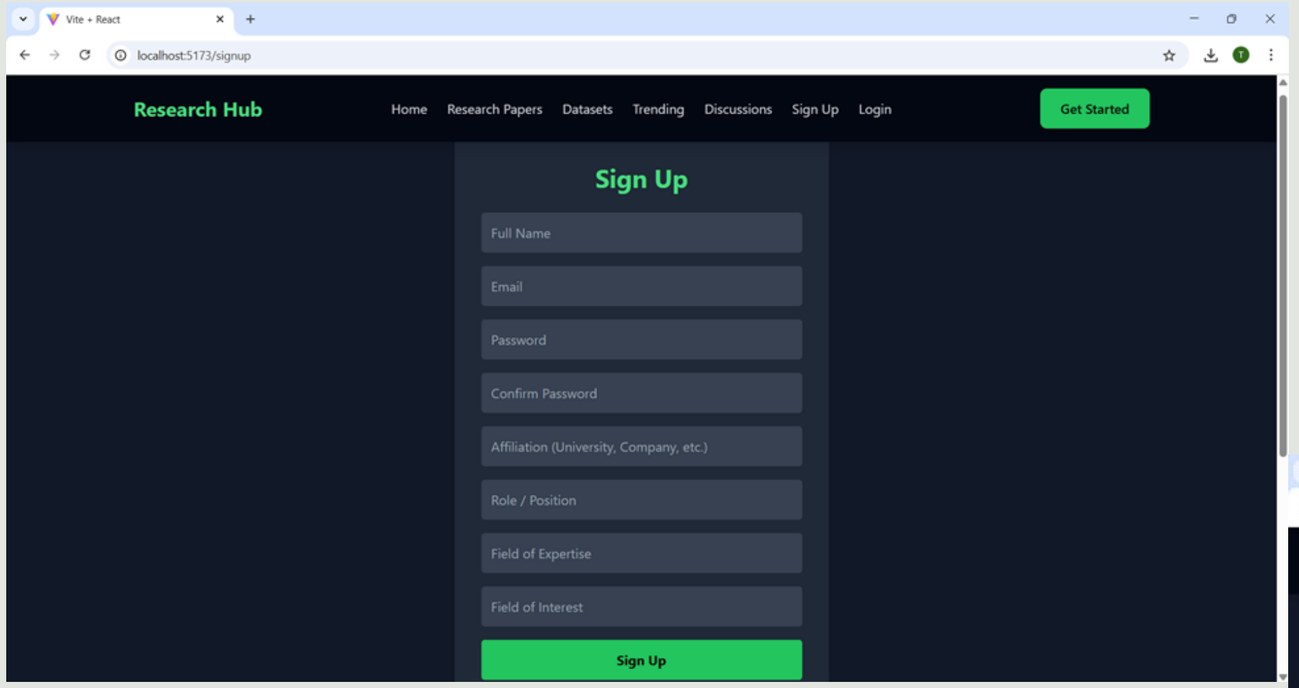

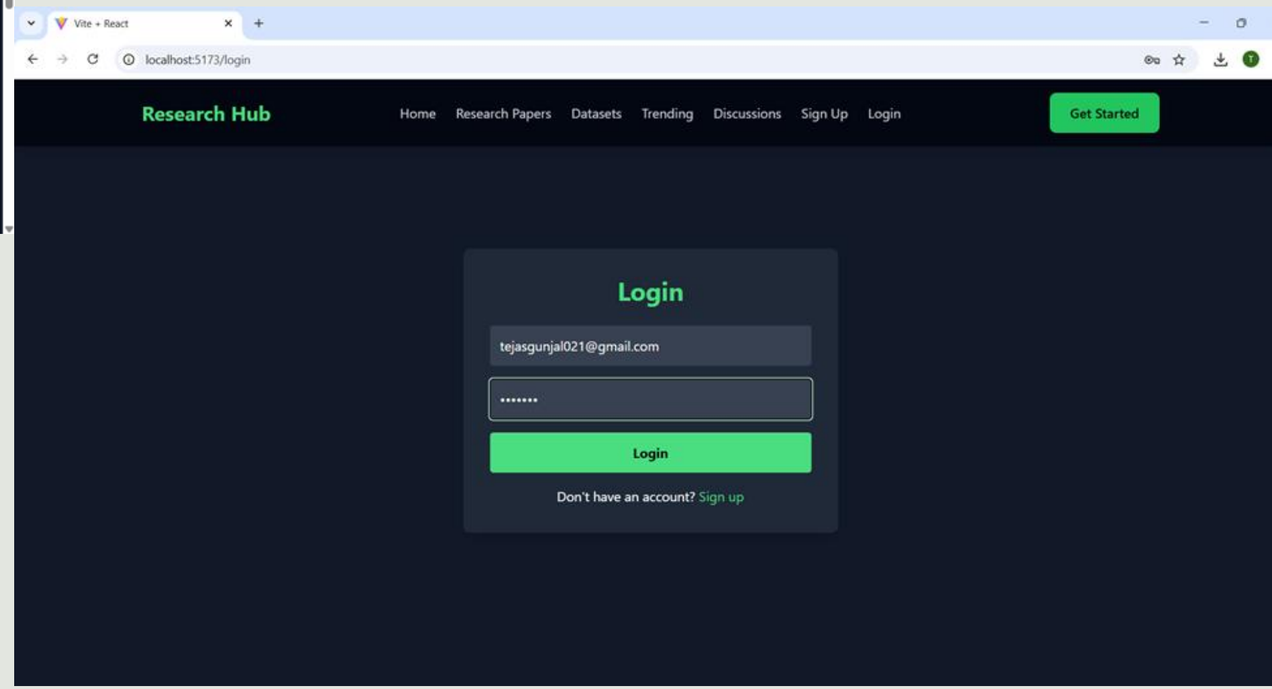

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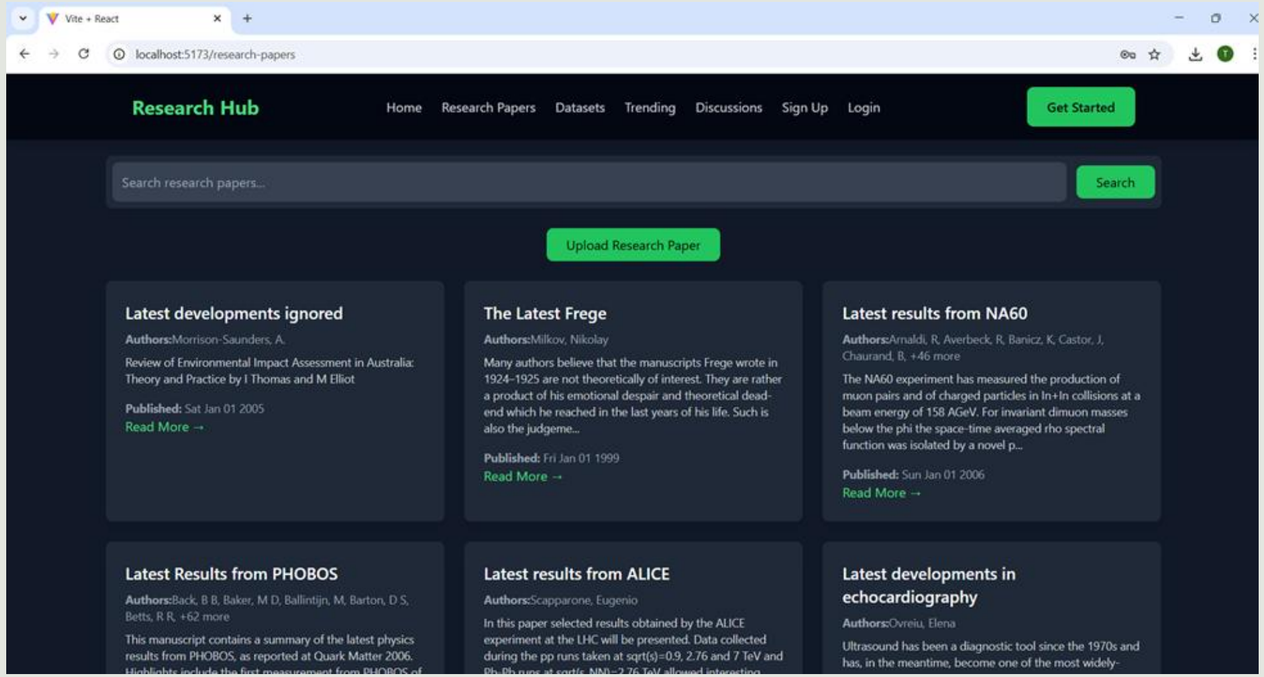

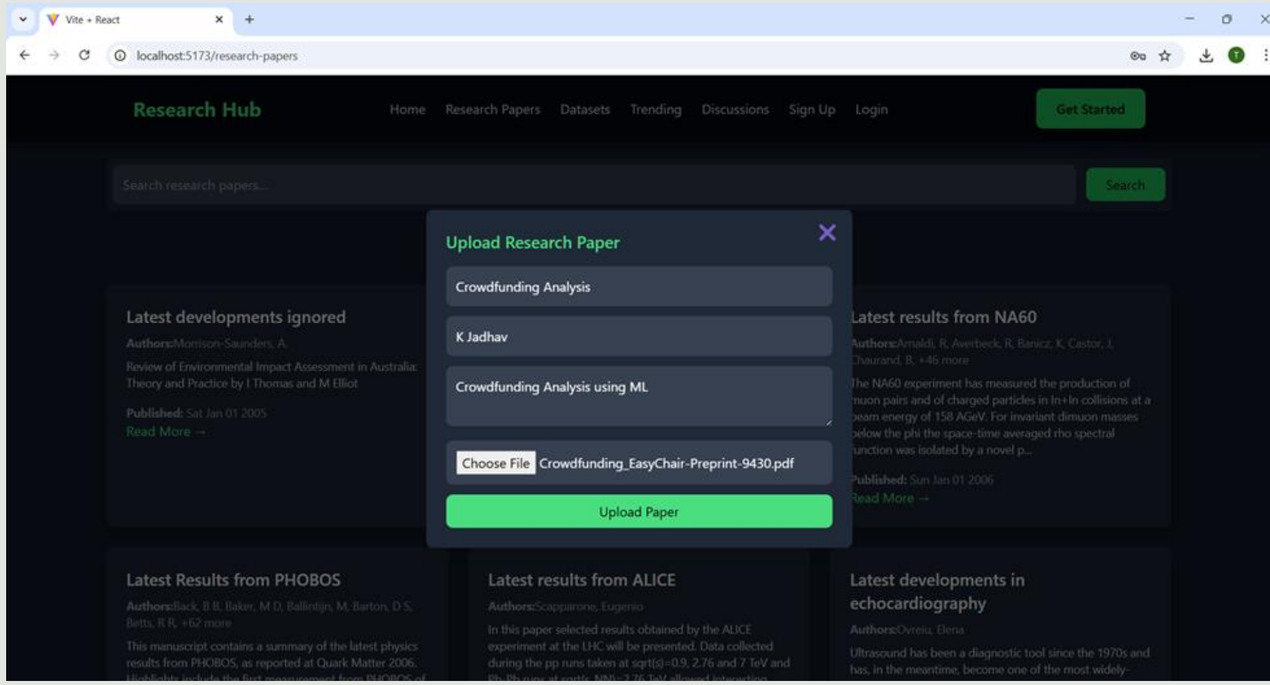

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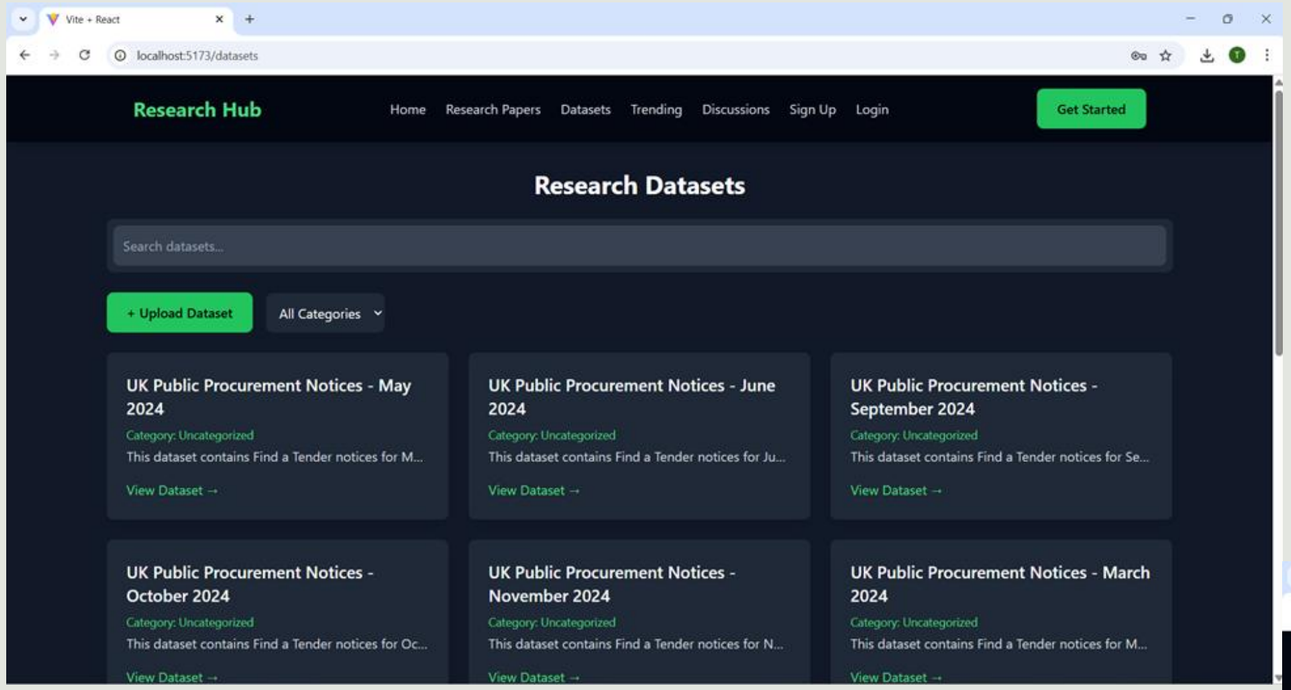

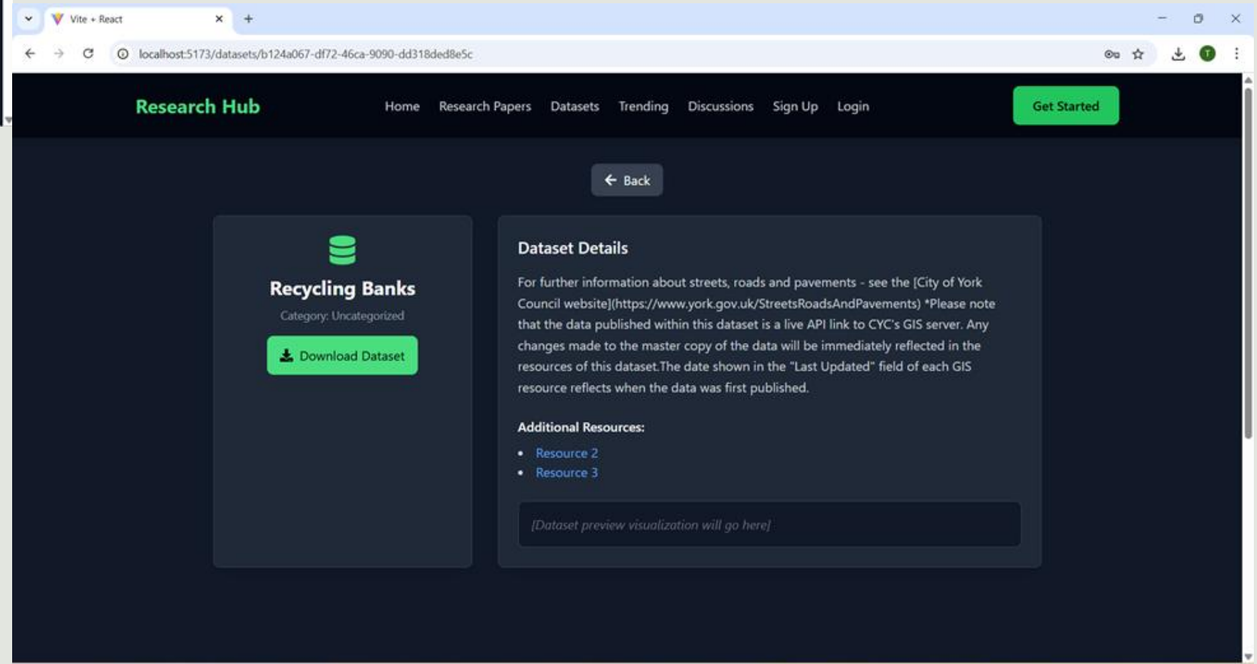

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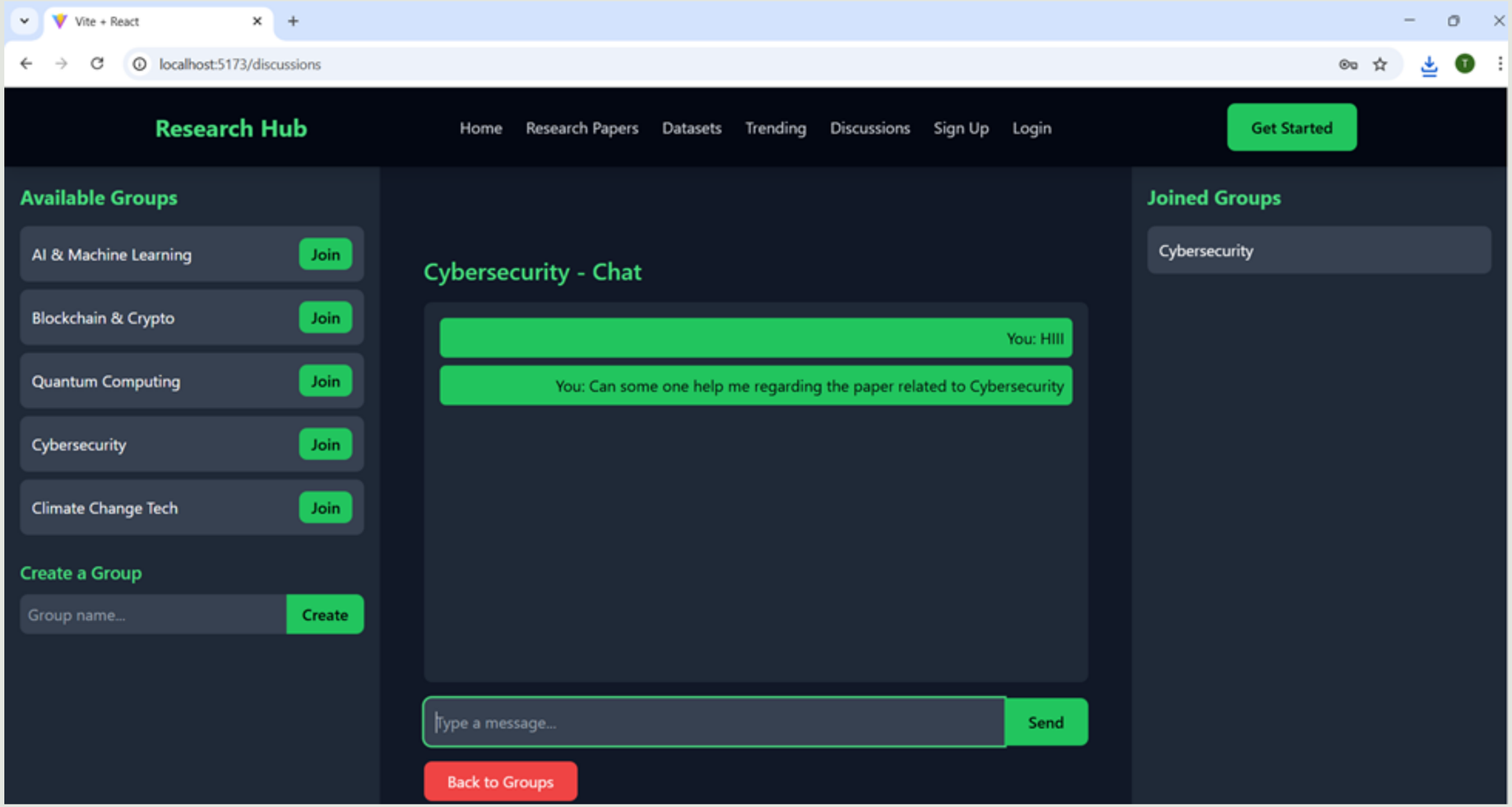

FUTURE SCOPE

- **Advanced Search & Filtering** :- Implement filters like author, domain, and publication year for quicker access to relevant content.
- **Recommendation System** :- Use machine learning to suggest papers and discussions based on user preferences.
- **Peer Review & Rating** :- Allow users to review and rate content to maintain quality and reliability.
- **Real-time Collaboration Tools** :- Enable shared workspaces, live editing, and group chats for collaborative research.
- **Integration with External APIs** :- Connect with platforms like arXiv, IEEE, and Springer to expand available resources.

CONCLUSION

- Research Hub serves as a unified platform that simplifies access to academic resources while promoting collaboration and knowledge sharing.
- By combining a modern tech stack with community-driven features, it empowers students and researchers to grow together.
- With future enhancements like recommendation systems, peer reviews, and real-time collaboration, Research Hub aims to become a go-to academic ecosystem for the research community.

Thank You