NEXT GEN EMPLOYABILITY PROGRAM

CREATING A FUTURE-READY WORKFORCE

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CAPSTONE PROJECT SHOWCASE

Project Title

REAL TIME COLLABORATION TOOL

Abstract | Problem Statement | Project Overview | Proposed Solution | Technology Used | Modelling & Results | Conclusion | Q&A

Abstract

1 **Technology Stack**: Utilize MongoDB for data storage, Express.js for server-side routing, React for the front-end UI, and Node.js for handling back-end logic and WebSocket communication to support live collaborative features.

2 **Real-Time Collaboration**: Implement Web Sockets to ensure seamless real-time synchronization of changes across all users editing the document, with live updates on content modifications and user actions.

3 **User Interface**: Create an intuitive, responsive UI using React to allow users to easily edit text, track changes, and manage multiple collaborators, with features like user roles, comments, and version control.

4 **Security and Scalability**: Implement user authentication and authorization with secure login systems, and design the architecture to be scalable, ensuring the tool can handle increasing numbers of concurrent users while maintaining performance.

Problem Statement

- Modern collaborative work demands real-time tools that allow multiple users to edit and share documents seamlessly. Many tools struggle with synchronization , leading to version conflicts and delayed updates. The challenge is to build a system that ensures smooth , instant collaboration while managing authentication, document storage, and real time communication effectively.

Project Overview

- The Real collaboration Tool is a web based application designed to facilitate synchronous document editing and management .
- Efficient Document Management
- Secure User Access
- Real Time collaboration
- User Friendly Interface
- Robust Backend

Proposed Solution

- Develop a real time collaboration tool using the MERN stack with Socket.IO integration
- Frontend (React.js): Enable user engagement and live document editing
- Backend (Node.js + Express.js): Manages authentication , API endpoints, and communication.
- Database(MongoDB): Stores user data and documents
- Socket.IO: Provides instant updates and synchronization across users.

Technology used

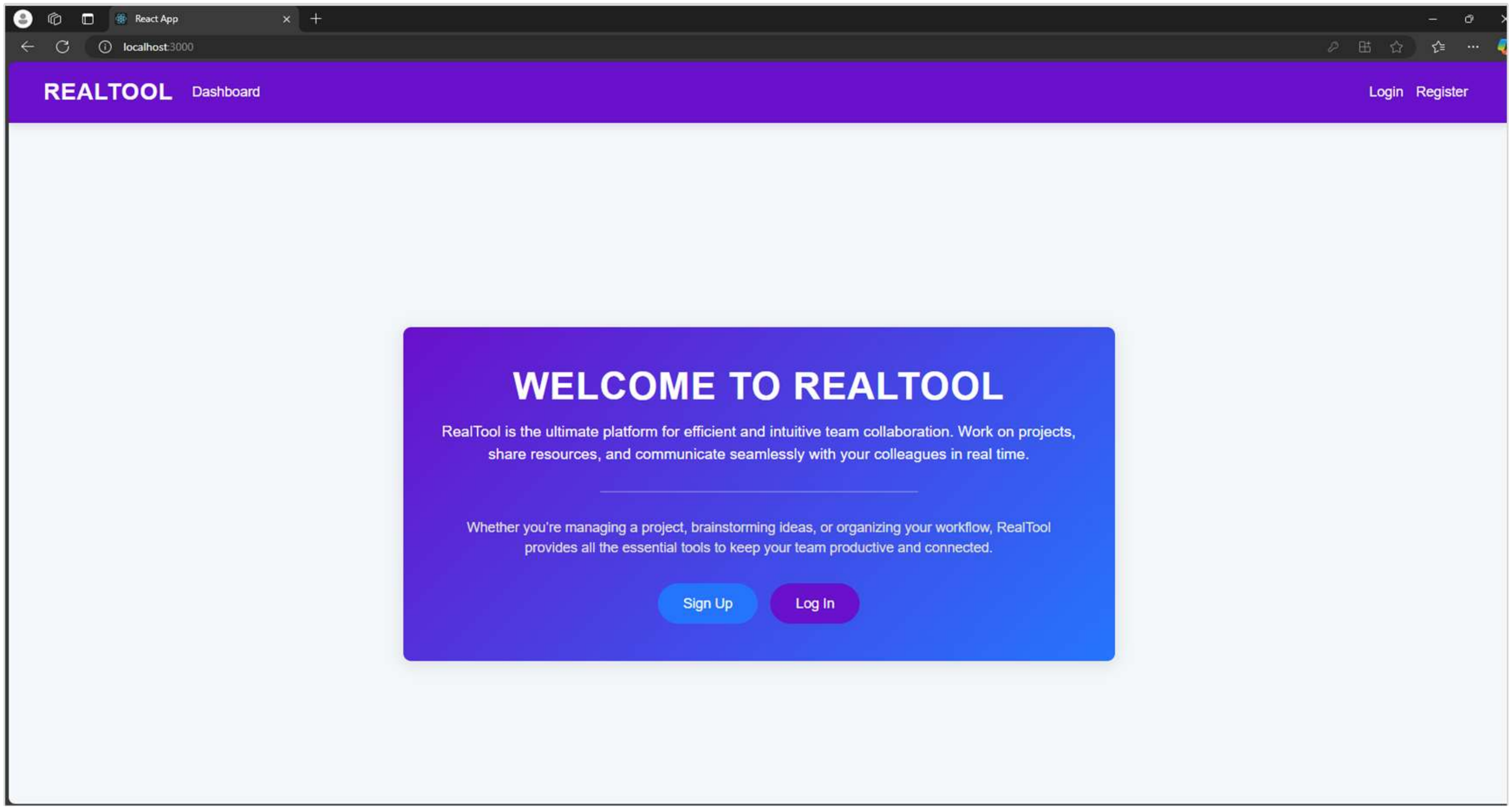
Frontend : react.js for building dynamic user interfaces, Bootstrap for styling and Socket.io for real time updates.

Backend: Node.js and express.js for server – side logic . MongoDB for database management and Socket.io for real time communication.

Authentication: JSON Web Token for secure user authentication and authorization

Development Tools: Axios for HTTP requests, and tools for version, coding , testing and deployment

Modelling & Result



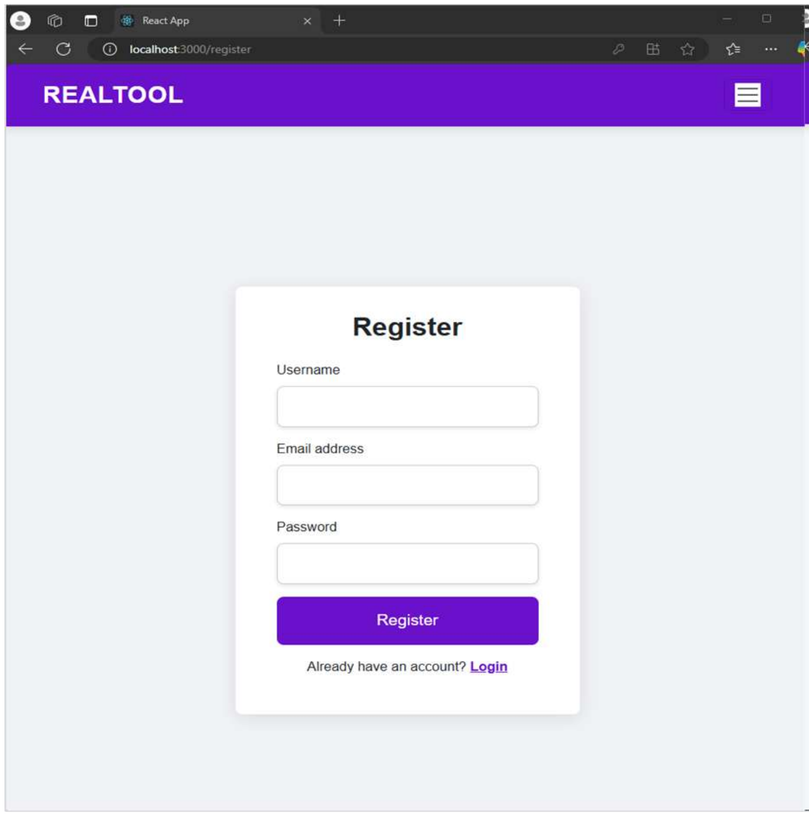
REALTOOL Dashboard Login Register

WELCOME TO REALTOOL

RealTool is the ultimate platform for efficient and intuitive team collaboration. Work on projects, share resources, and communicate seamlessly with your colleagues in real time.

Whether you're managing a project, brainstorming ideas, or organizing your workflow, RealTool provides all the essential tools to keep your team productive and connected.

Modelling & Result



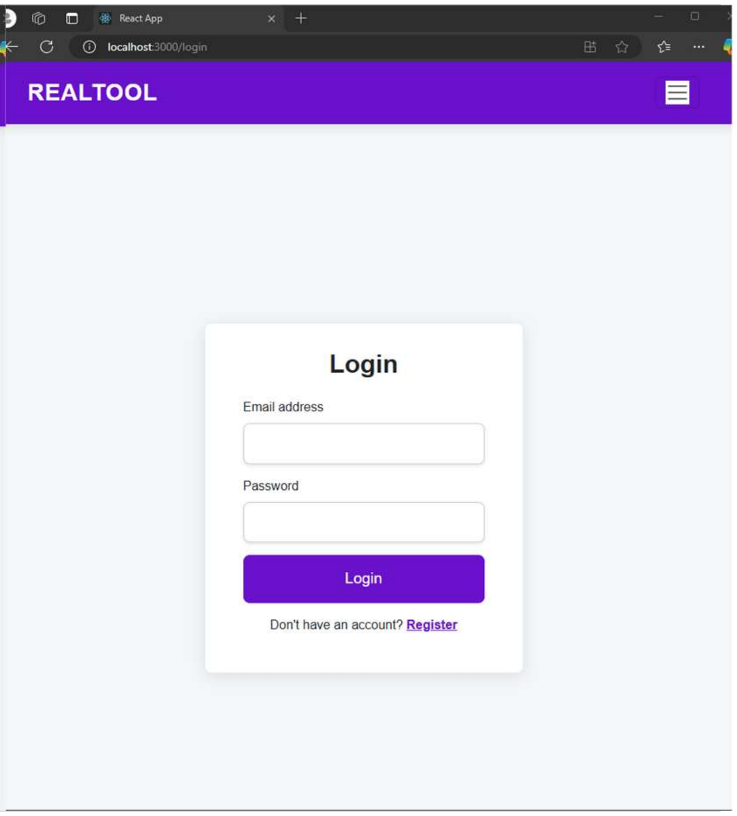
Register

Username

Email address

Password

Already have an account? Login



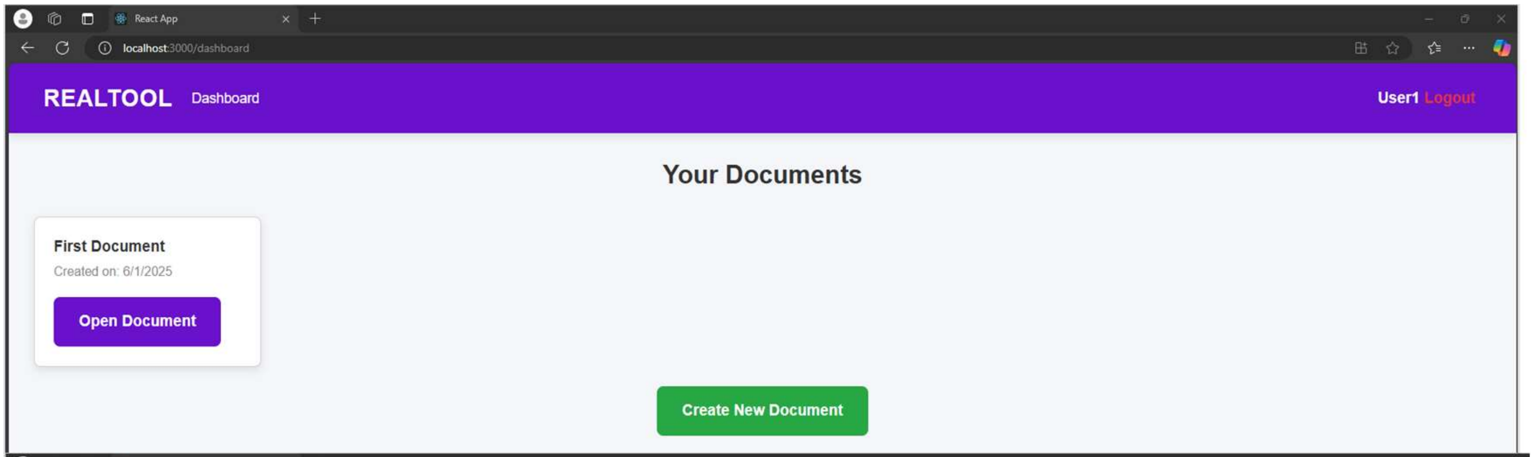
Login

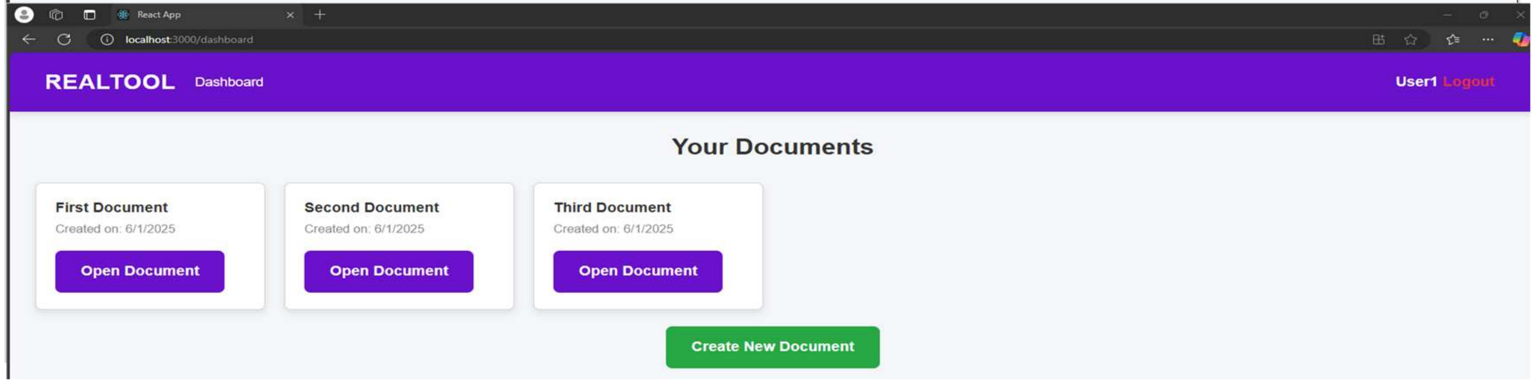
Email address

Password

Don't have an account? Register

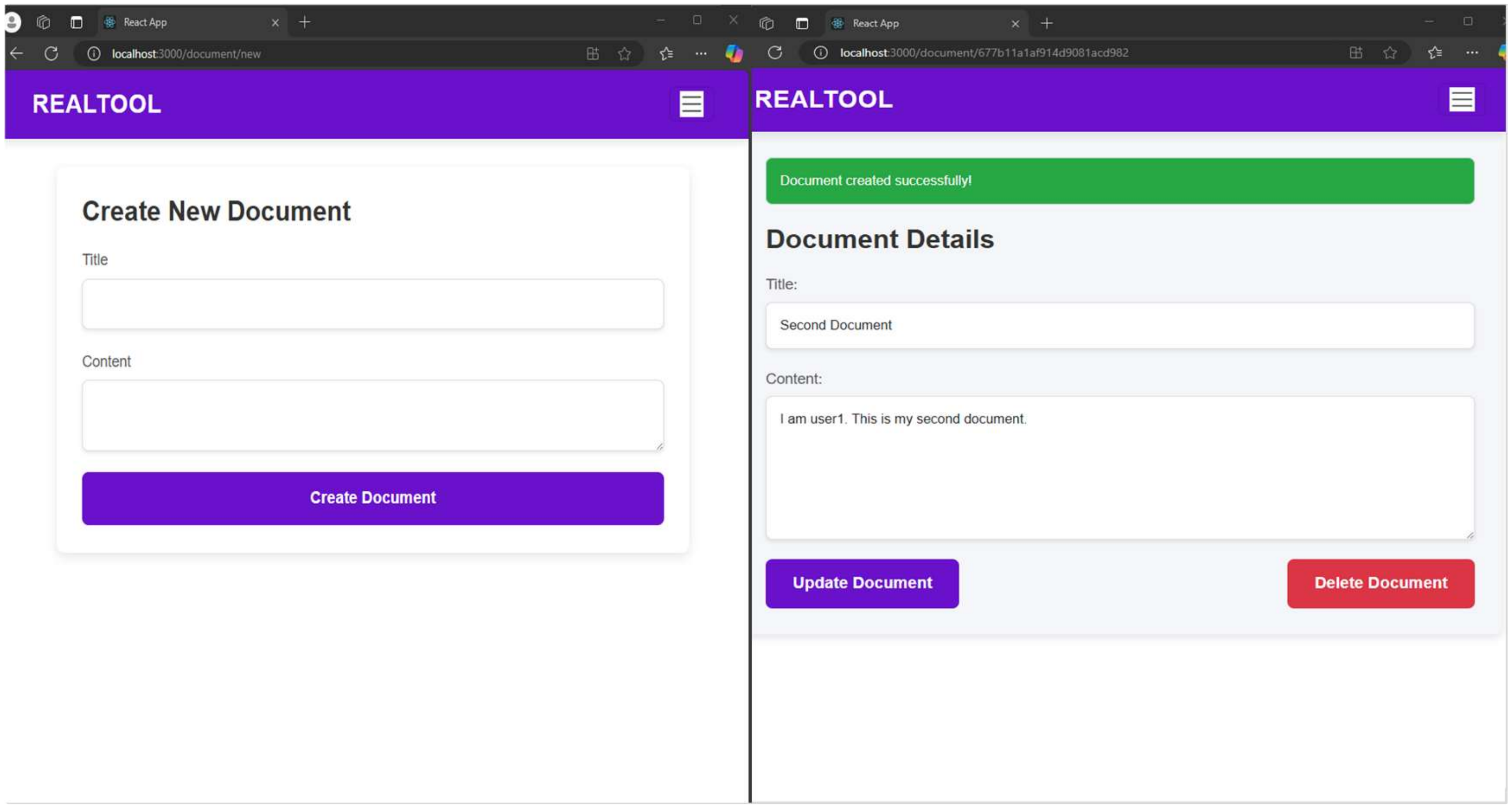
Modelling & Result





improvised_backend.txt

Modelling & Result


React App

localhost:3000/document/new

REALTOOL

Create New Document

Title

Content

React App

localhost:3000/document/677b11a1af914d9081acd982

REALTOOL

Document created successfully!

Document Details

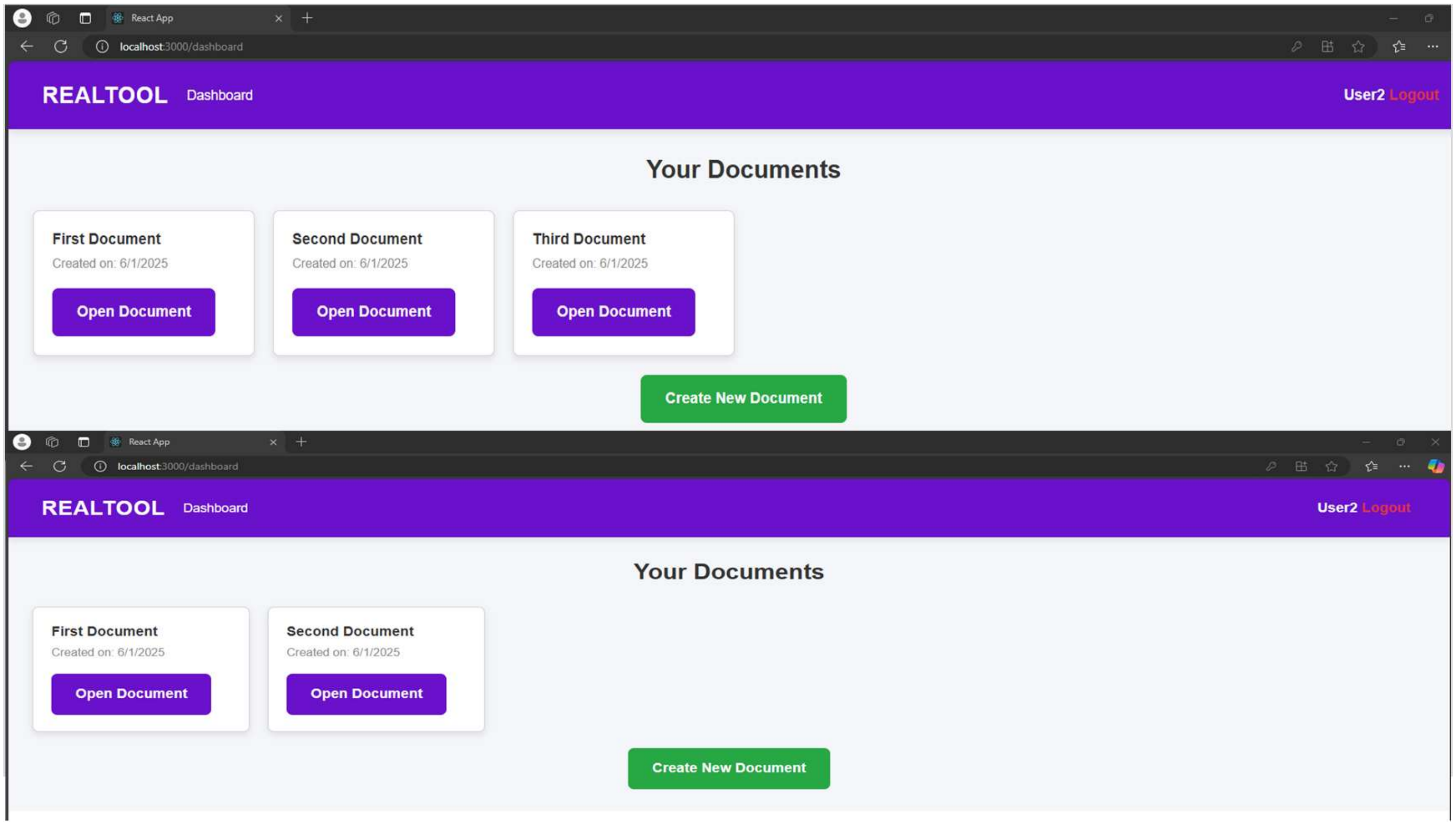
Title:

Second Document

Content:

I am user1. This is my second document.

Modelling & Result



Your Documents

First Document
Created on: 6/1/2025

Second Document
Created on: 6/1/2025

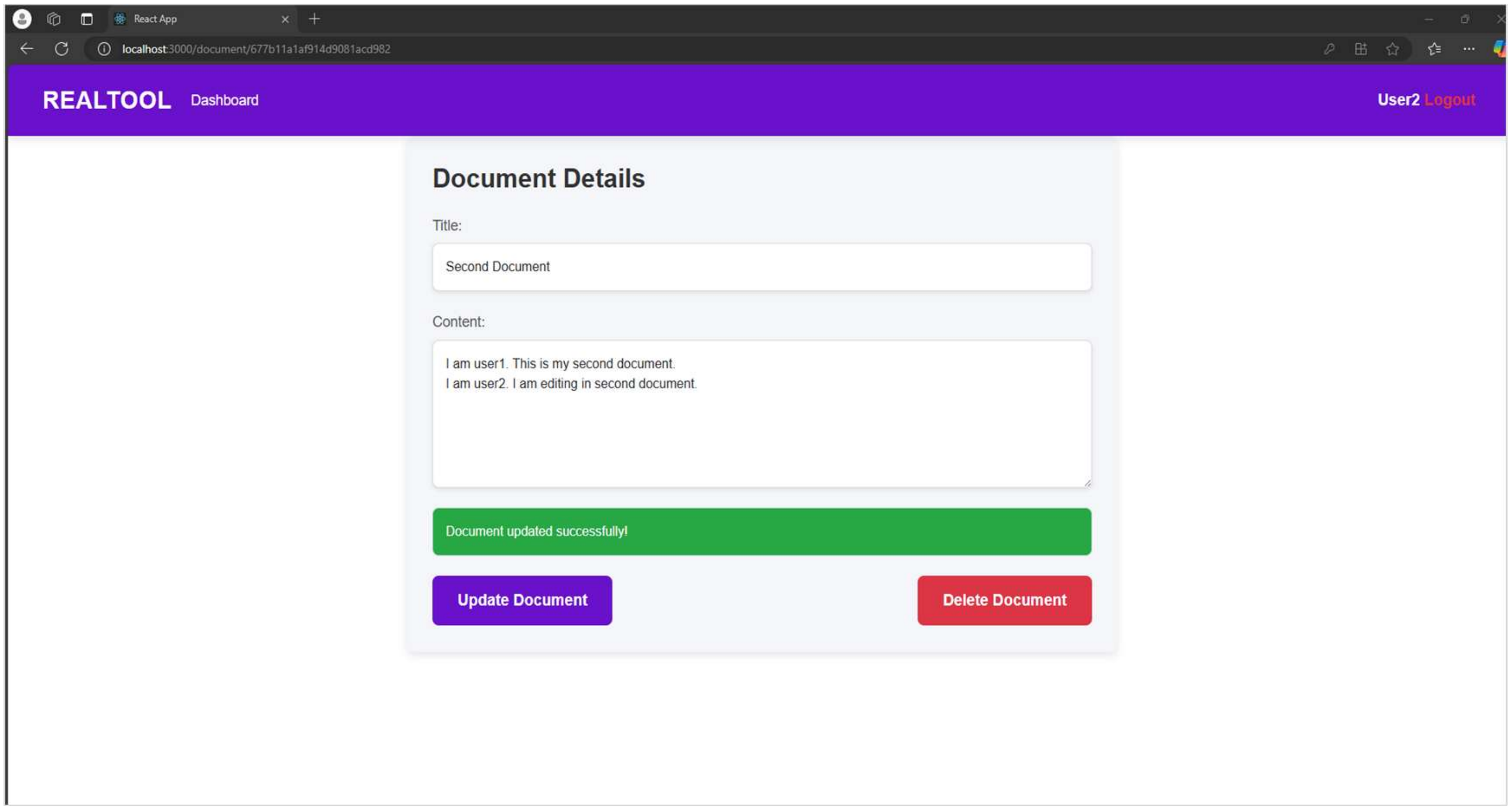
Third Document
Created on: 6/1/2025

Your Documents

First Document
Created on: 6/1/2025

Second Document
Created on: 6/1/2025

Modelling & Result



Document Details

Title:

Second Document

Content:

I am user1. This is my second document.
I am user2. I am editing in second document.

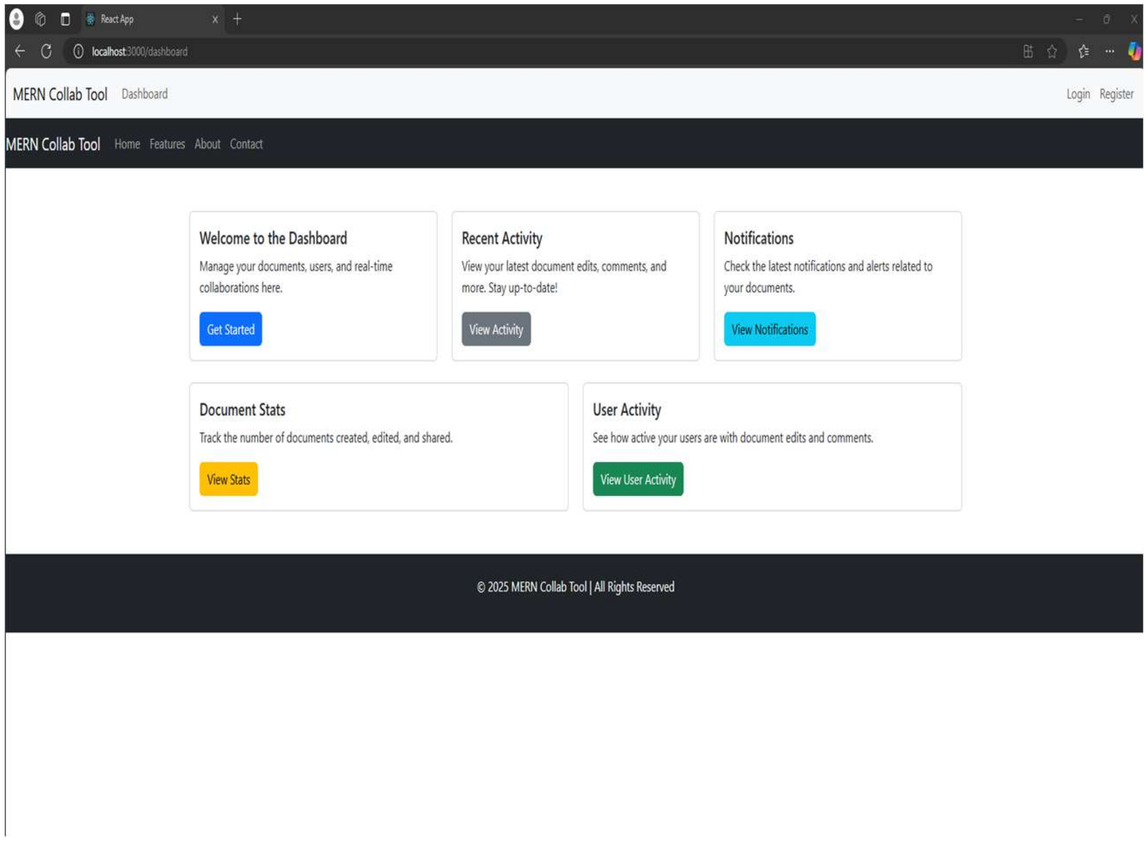
Document updated successfully!

Conclusion

- This project provides a highly functional, collaborative, and secure document management platform. By integrating real-time document editing and authentication, it allows users to seamlessly work together on shared documents, improving workflow efficiency and collaboration.
- Project enhancements and additional features , such as chat functionality or advanced document collaboration features.
- Explore future improvements for scalability, performance and user experience.

Future Scope

- **Real-Time Collaboration Enhancements**: Adding features like document versioning, conflict resolution, and comment threads for better collaboration.
- **Rich Text Editor**: Integrating a WYSIWYG editor for enhanced content creation (e.g., tables, images, etc.).
- **User Roles**: Implementing role-based access control (e.g., admin, editor, viewer) to manage different levels of document access.
- **Cloud Storage Integration**: Adding support for storing documents on cloud platforms like AWS S3 for better scalability and reliability.
- **Offline Mode**: Enabling offline access to documents and syncing changes when the user is back online.
- **Multi-Language Support**: Adding localization and internationalization features for global user base support.



Welcome to the Dashboard
Manage your documents, users, and real-time collaborations here.
Get Started

Recent Activity
View your latest document edits, comments, and more. Stay up-to-date!
View Activity

Notifications
Check the latest notifications and alerts related to your documents.
View Notifications

Document Stats
Track the number of documents created, edited, and shared.
View Stats

User Activity
See how active your users are with document edits and comments.
View User Activity

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Thank you!

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