Real Time Document Editor

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Group - 4

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Problem Statement

In today’s world, people often need to work together on the same document from different locations requires a system that supports real-time updates, consistent data sharing, and smooth collaboration. It is important to handle simultaneous edits efficiently, keep the document state synchronized for all users, ensure data remains safe and available at all times, and control who can view or edit the document based on their roles.

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System Overview

Real-Time Editing

Broadcasts changes instantly to all connected clients.

Distributed Storage

Ensures data availability and persistence through replication.

Concurrency Control

Achieved implicitly by the real-time update mechanism.

Security and Access

Offers role-based document sharing permissions for users.

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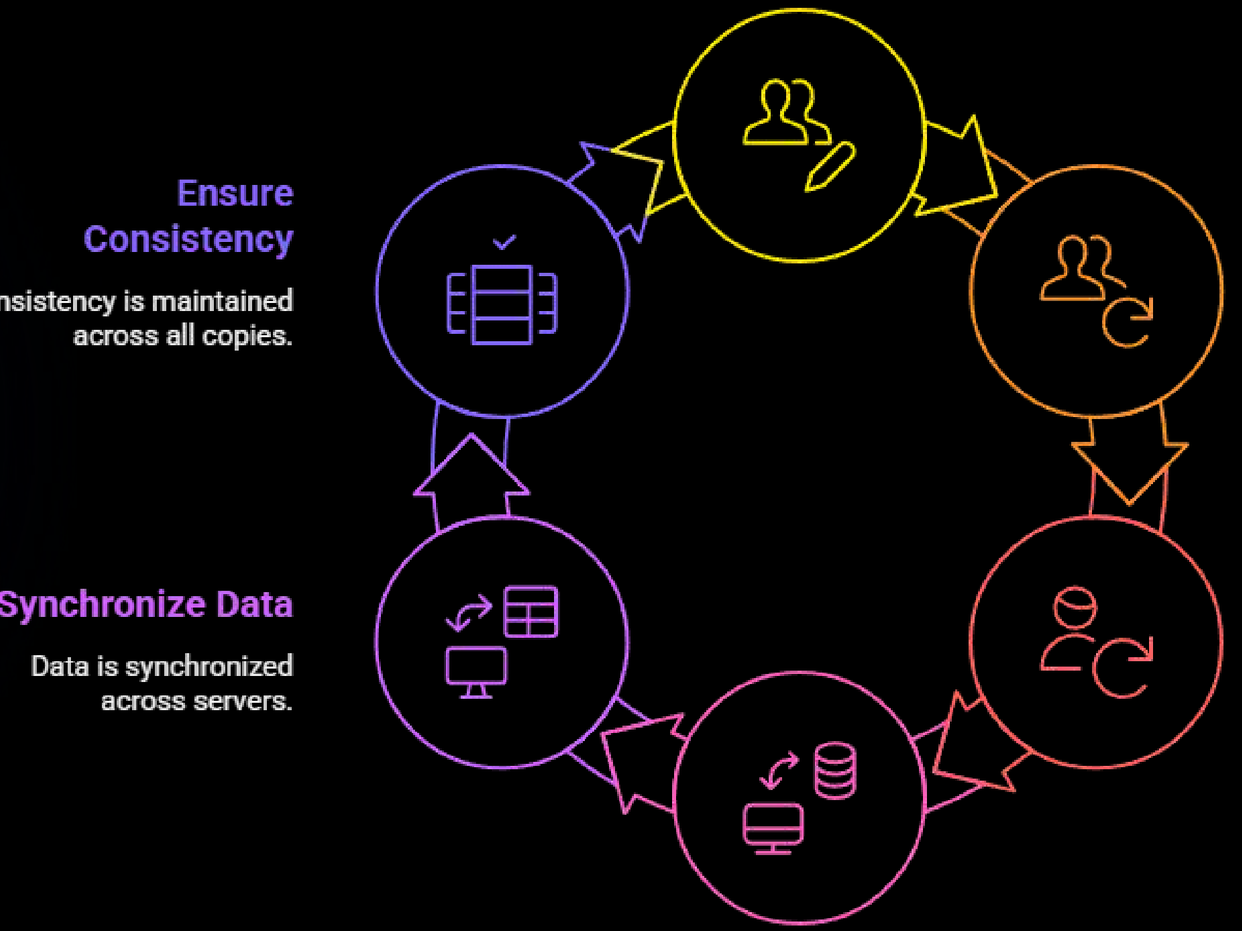
Operational Flow



User Edits Document

Users make changes to the document.

Broadcast Changes

Changes are broadcasted to all users.

Receive Changes

Users receive and apply changes.

Replicate Data

Data is replicated across servers.

Synchronize Data

Data is synchronized across servers.

Ensure Consistency

Consistency is maintained across all copies.

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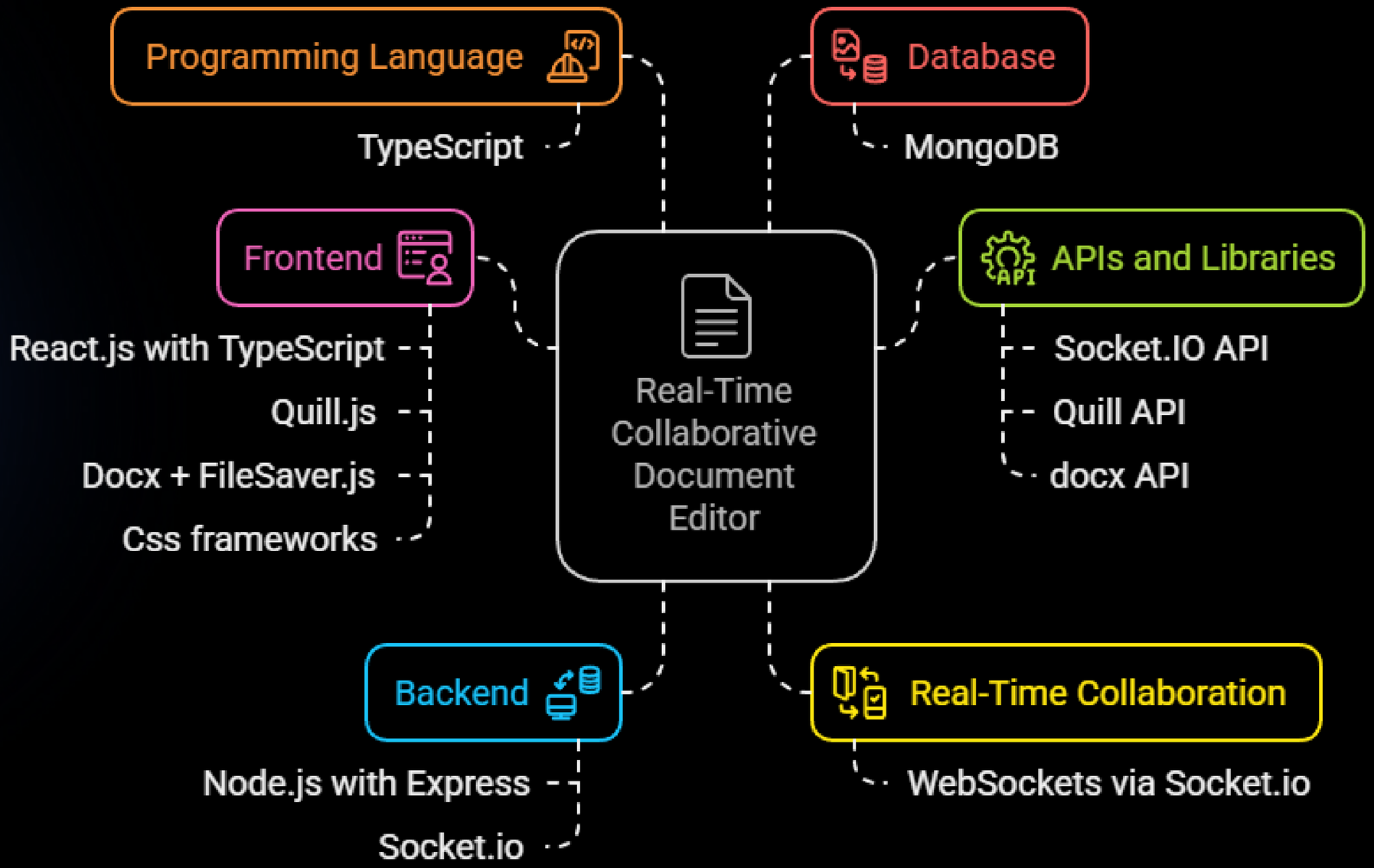
Tech Stack



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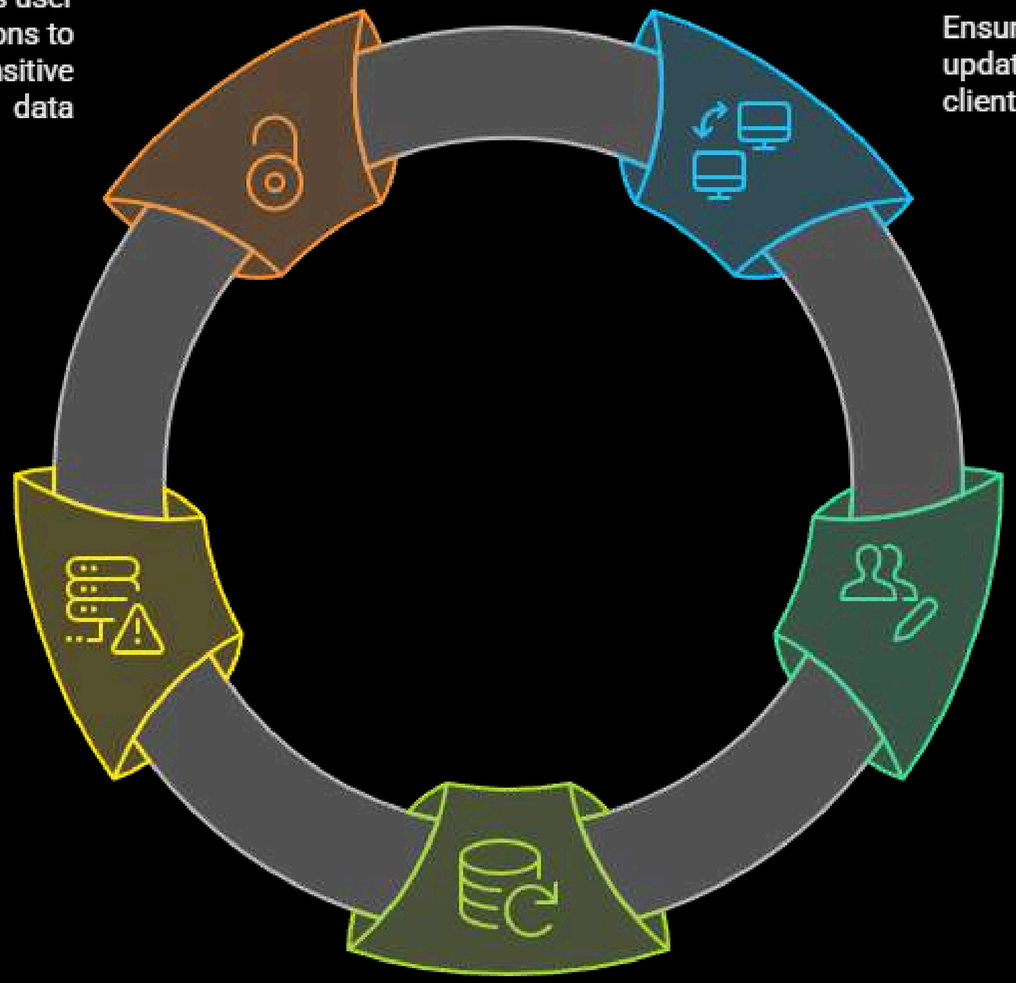
Distributed System Concept



Access Control

Manages user permissions to protect sensitive data

Real-Time Synchronization

Ensures instant updates across all clients

Fault Tolerance

Ensures uninterrupted service through backups and failover

Concurrent Multi-User Collaboration

Allows simultaneous editing by multiple users

Replication

Maintains data integrity and availability through redundancy

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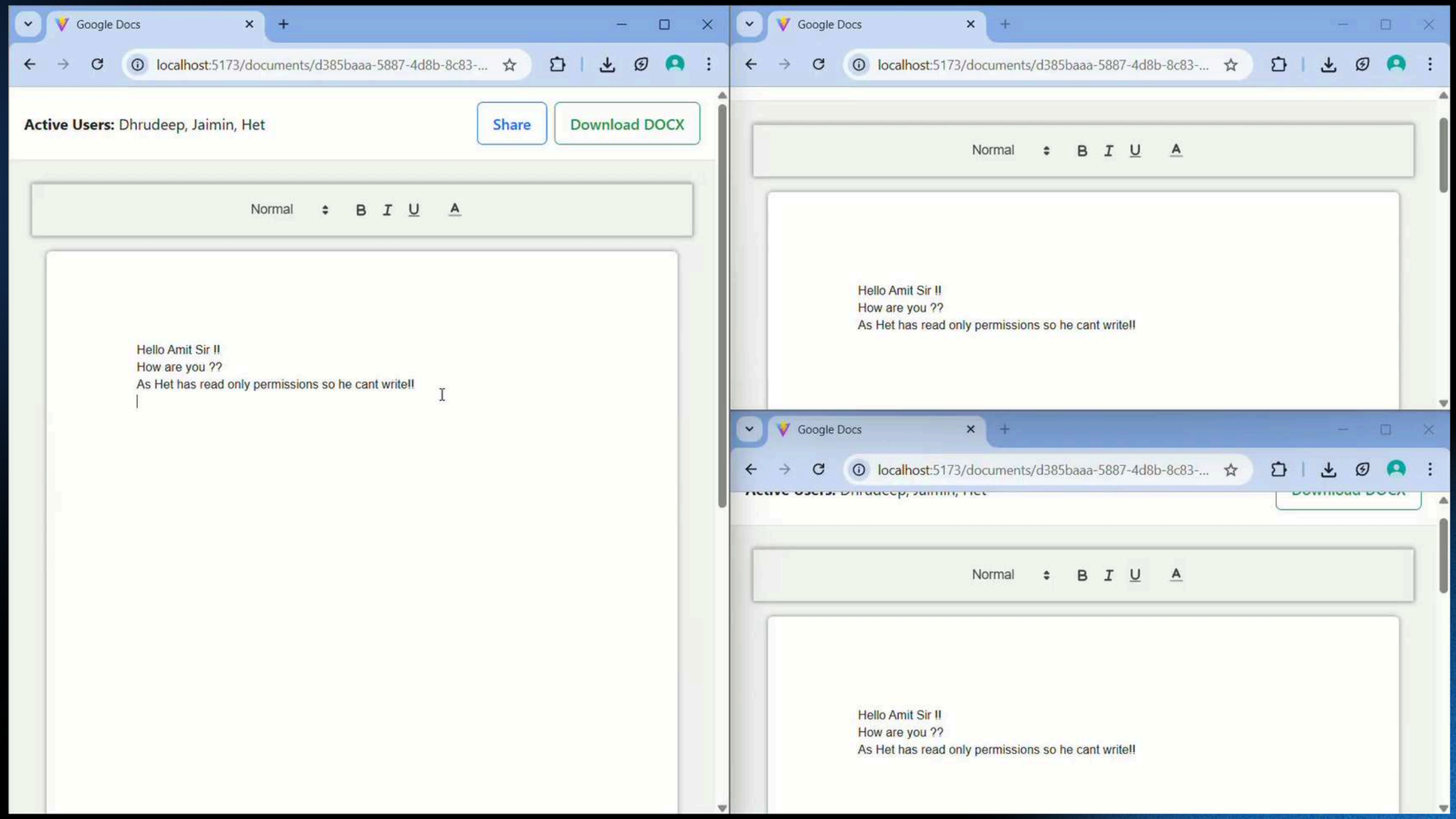
Real Time Synchronization & Concurrent Multi User Collaboration



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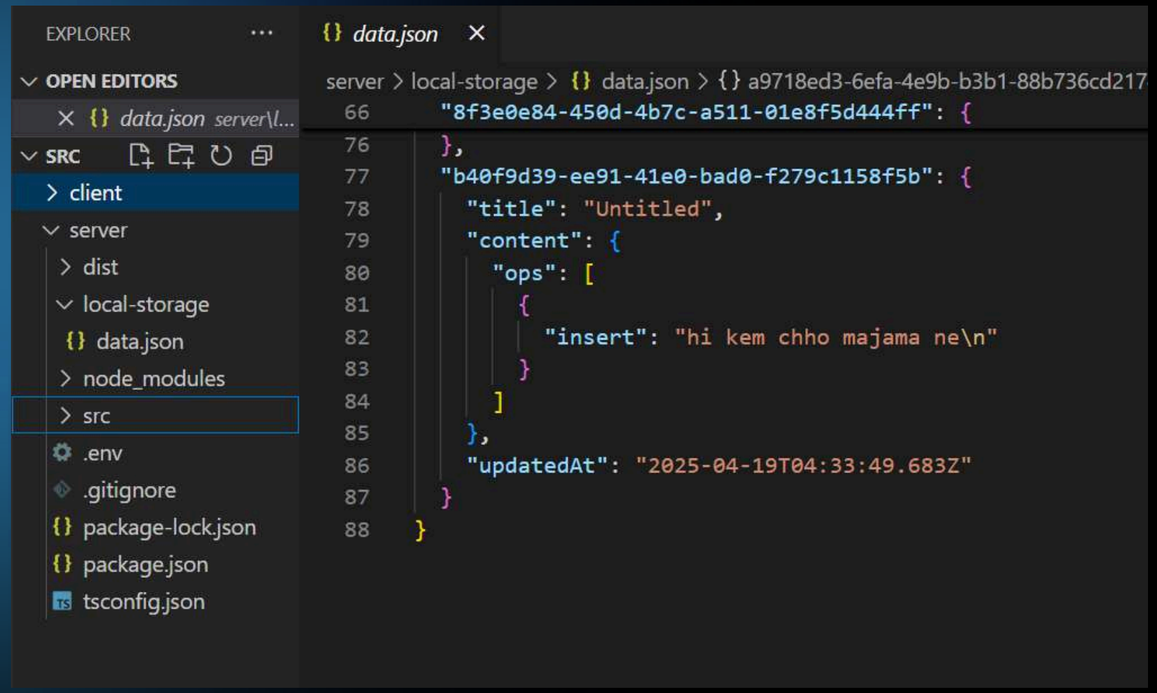
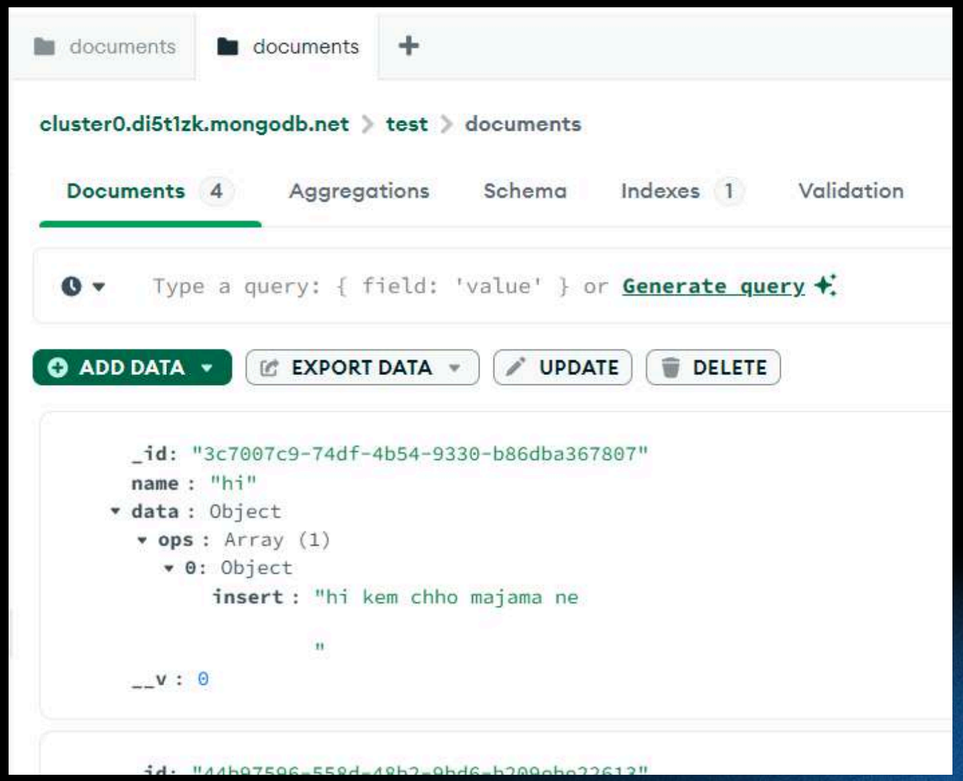
Replication



Local Storage



MongoDB

Fault Tolerance

Check Local Storage

System checks if document exists locally

Query MongoDB

If not found, system queries MongoDB

Retrieve or Create

MongoDB retrieves or creates the document

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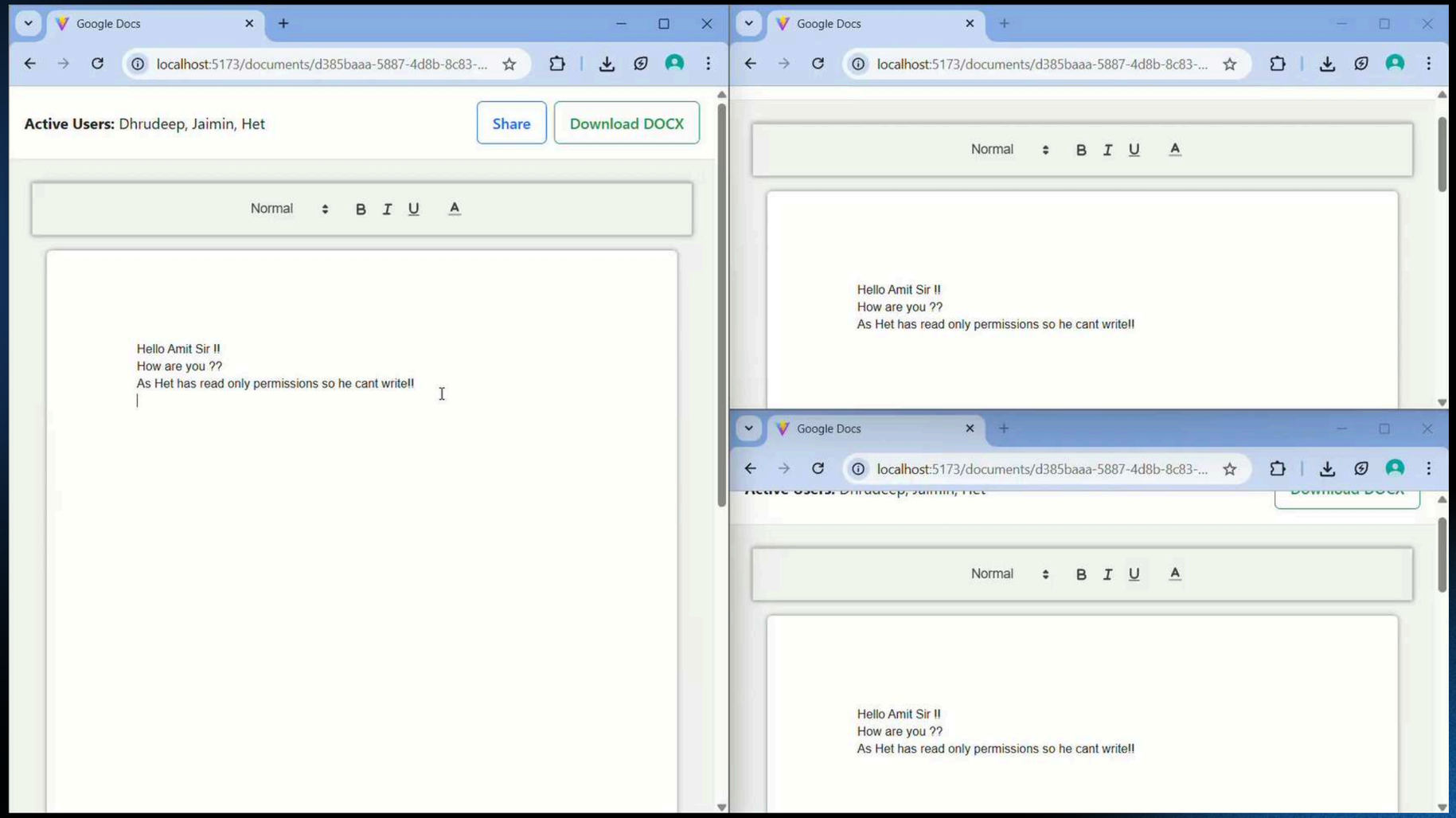
Access Control



THANK YOU