

Software Design Documentation

Product Name	SimpleChat
Date Updated	13/09/2024
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Introduction

The purpose of this document is to provide a comprehensive overview of the software design for the SimpleChat application. This includes the system overview, design considerations, specifications, detailed design, implementation plan, and testing plan.

System Overview

SimpleChat is a chat application that provides **an easy-to-use, lag-free, unified communication channel for users on the web**. The app uses NextJs to handle the front-end representation through both client/server-side rendering. The back end uses **Socket.io** enable real-time message exchanges, as well as to provide user authentication and session restoration capabilities, with socket.io, we are able to maintain persistent connections between the server and the connected clients, allowing real-time updates of information without needing to refresh the page.

Design Considerations

- An elegant, modern representation of a chat interface that provides all the necessary features of a chat app.
- Scalability to accommodate a sufficient number of concurrent users sending messages at the same time.
- Security measures to protect user data, e.g. encryption schemes like SHA256.
- Compatibility with different browsers and devices.

Design Specifications

Requirement	Description
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R1	Easy-to-use user interface for message reading/sending
R2	Users should be able to send messages to friends across different browsers.
R3	The user should be able to receive real-time message updates with minimal delays
R4	User data should be securely stored and encrypted
R5	The system must be compatible with the latest versions of popular browsers
R6	Application components should be unit-tested to test for bugs and performance

Detailed Design

The detailed design of the Chat application includes the architecture, database schema, and user interface design. These details can be found in the separate documents provided.

Conclusion

This software design documentation provides a comprehensive overview of the SimpleChat application design. It includes the system overview, design considerations, specifications, detailed design, implementation plan, and testing plan. Any revisions to this document will be recorded below.

Revisions:

Version	Date	Author	Description
1.0	29/08/2024	Pai Chen	Initial version
2.0	13/09/2024	Pai Chen	Final version