Software Design Documentation

Product Name	SimpleChat
Date Updated	29/08/2024
Written By	Pai Chen

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 across different operating systems and platforms** (Considering the time scope of the project, the aim is to provide two working versions, on Windows and Android). The app uses **Blazor Web Assembly** to handle the front-end representation through client-side rendering. The back end uses **EF(Entity-Framework) Core** to store user data like credentials. We utilise the **SignalR** library to set up 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
R1	Easy-to-use user interface for message reading/sending
R2	Users should be able to send messages to friends across different platforms
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.

Implementation Plan

Task	Assigned To	Start Date	End Date	Status
Implementation of the Windows Client	Pai Chen	09/09/2024	12/09/2024	Not Started
Unit testing for the Windows client	Pai Chen	13/09/2024	13/09/2024	Not Started
Implementation of the Android Client	Pai Chen	16/09/2024	18/09/2024	Not Started
Unit testing for the Android Client and final check-ups	Pai Chen	19/09/2024	20/09/2024	Not Started

Testing Plan

- ○ Unit testing for individual components
- ○ Integration testing for different modules
- ○ User acceptance testing with a selected group of users
- ○ Performance testing to ensure scalability and responsiveness

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
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