Software Requirements Specification (SRS)

for

Real-Time Chat Application

Version 1.0

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Contents

1. Introduction

1.1 Purpose

The purpose of this document is to describe the software requirements for the development of a real-time chat application. This application will provide users with the ability to login/signup, find people, message them, and toggle between light and dark themes.

1.2 Scope

This SRS covers the requirements for the chat application including user authentication, user search, messaging capabilities, and theme settings. The target audience includes the development team, project managers, and stakeholders.

1.3 Definitions, Acronyms, and Abbreviations

SRS: Software Requirements Specification

UI: User Interface

UX: User Experience

API: Application Programming Interface

2. Overall Description

2.1 Product Overview

The chat application is a standalone product that allows users to communicate in real-time. It is designed to be intuitive and user-friendly, providing essential features for seamless communication.

2.2 Product Functionality

User Authentication: Login and signup functionality.

Find People: Search and add friends.

Messaging: Send and receive messages in real-time.

Themes: Switch between light and dark themes.

2.3 User Classes and Characteristics

End Users: Individuals using the app to communicate.

Administrators: Individuals managing user accounts and maintaining the system.

2.4 Operating Environment

The application will be accessible on modern web browsers (Chrome, Firefox, Safari) and mobile platforms (iOS, Android).

2.5 Design and Implementation Constraints

Compliance with data privacy regulations.

Scalability to support a large number of concurrent users.

Compatibility with different devices and browsers.

2.6 Assumptions and Dependencies

Users have a stable internet connection.

Users have devices that meet minimum technical specifications.

3. Specific Requirements

3.1 Functional Requirements

3.1.1 User Authentication

FR1.1: The system shall provide a login feature that requires a username and password.

FR1.2: The system shall provide a signup feature that collects necessary information (username, email, password).

FR1.3: The system shall validate user credentials during login.

FR1.4: The system shall allow users to reset their passwords.

3.1.2 Find People

FR2.1: The system shall provide a search feature to find other users by username or email.

3.1.3 Messaging

FR3.1: The system shall enable users to send and receive text messages in real-time.

FR3.2: The system shall notify users of new messages.

FR3.3: The system shall maintain chat history.

3.1.4 Themes

FR4.1: The system shall provide an option to switch between light and dark themes.

FR4.2: The system shall save the user’s theme preference.

FR4.3: The system shall apply the selected theme throughout the application interface.

3.2 Non-Functional Requirements

3.2.1 Performance

NFR1: The system shall support up to 10,000 concurrent users without performance degradation.

NFR2: The system shall load the user interface within 2 seconds on a standard internet connection.

3.2.2 Usability

NFR3: The system shall provide an intuitive and user-friendly interface.

NFR4: The system shall be accessible to users with disabilities.

3.2.3 Security

NFR5: The system shall encrypt all user data during transmission.

NFR6: The system shall store passwords using secure hashing algorithms.

3.2.4 Compatibility

NFR7: The system shall be compatible with the latest versions of major web browsers.
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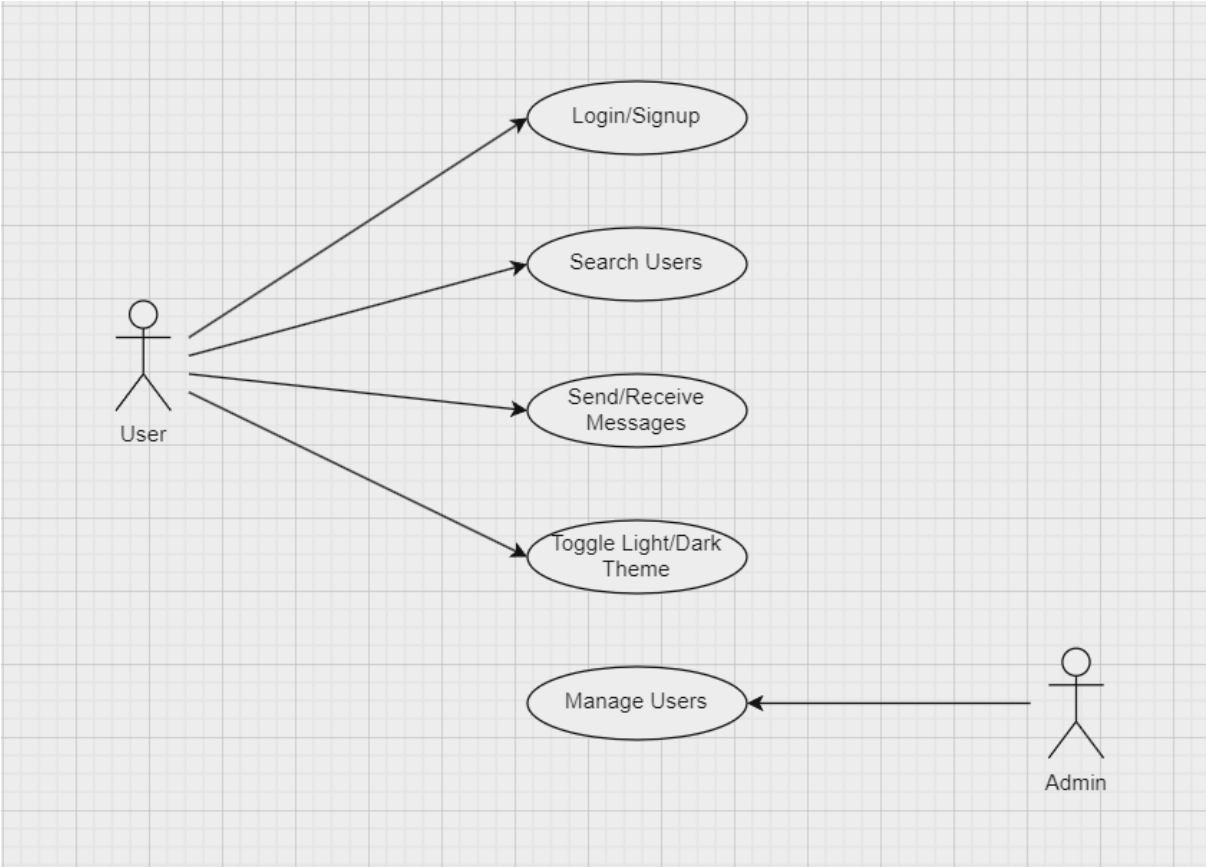
NFR8: The system shall function on iOS and Android devices.

3.3 Use Case Diagram



4. Test Case Table

Test Case ID	Test Case Description	Pre-conditions	Test Steps	Expected Result	Actual Result (example)	Status
TC001	User Signup	None	1. Navigate to signup page 2. Enter valid details 3. Submit the form	User account is created, and user is redirected to the login page	User account was created successfully and redirected to login page	Pass
TC002	User Login	User account exists	1. Navigate to login page 2. Enter valid credentials 3. Submit the form	User is logged in and redirected to the home page	User logged in successfully and redirected to home page	Pass
TC003	Invalid Login	None	1. Navigate to login page 2. Enter invalid credentials 3. Submit the form	Error message is displayed	Error message "Invalid credentials" displayed	Pass

TC004	Search Users	User is logged in	1. Navigate to search page 2. Enter search criteria 3. Submit the search	Relevant user results are displayed	Relevant user results displayed correctly	Pass
TC005	Send Friend Request	User is logged in	1. Search for a user 2. Click on the 'Add Friend' button	Friend request is sent successfully	Friend request sent successfully	Pass
TC006	Accept Friend Request	User is logged in and has pending friend requests	1. Navigate to friend requests page 2. Click on 'Accept' for a pending request	Friend request is accepted successfully	Friend request accepted successfully	Pass
TC007	Decline Friend Request	User is logged in and has pending friend requests	1. Navigate to friend requests page 2. Click on 'Decline' for	Friend request is declined successfully	Friend request declined successfully	Pass

			a pending request			
TC008	Send Message	User is logged in and has friends	1. Open chat with a friend 2. Enter a message 3. Click 'Send'	Message is sent and displayed in the chat window	Message sent and displayed in the chat window	Pass
TC009	Receive Message	User is logged in and has friends	1. Friend sends a message	Message is received and displayed in the chat window	Message received and displayed in the chat window	Pass
TC010	Toggle Theme	User is logged in	1. Navigate to settings 2. Toggle the theme switch	Theme changes between light and dark modes	Theme toggled successfully between light and dark modes	Pass
TC011	Logout	User is logged in	1. Click on the logout button	User is logged out and redirected to the login page	User logged out and redirected to login page	Pass

4.1 Appendix A: Glossary

Real-Time Messaging: Immediate delivery of messages without noticeable delay.

Light/Dark Theme: UI color schemes designed for different lighting conditions.