

Software Requirements Specification (SRS) Document

WhatsApp-like Chat Application

1. Introduction

This document outlines the requirements for a **WhatsApp Chat Application** .The application allows users to register, log in, send private messages, create group chats, and manage conversations.

2. Project Overview

The application simulates basic WhatsApp functionalities, including:

- **User Registration & Authentication**
- **Private Chats (1-to-1 messaging)**
- **Group Chats (with admin controls)**
- **Message Status Tracking (sent/delivered/read)**
- **Search Functionality in Chats**

3. Functional Requirements

3.1 User Management

Requirement ID	Description	Implementation Details
FR1.1	User Registration	Users can sign up with a username, password, and phone number. Store users in a vector.
FR1.2	User Login	Users can log in using credentials. Validate credentials before granting access.

Requirement ID	Description	Implementation Details
FR1.3	User Status	Users can be Online/Offline . Update status upon login/logout.

3.2 Private Chat

Requirement ID	Description	Implementation Details
FR2.1	Start Private Chat	A logged-in user can initiate a chat with another registered user.
FR2.2	Send Message	Users can send messages in private chats. Messages should store sender, content, timestamp, and status.
FR2.3	View Private Chat	Display chat history with sender, timestamp, and message status.

3.3 Group Chat

Requirement ID	Description	Implementation Details
FR3.1	Create Group	A logged-in user can create a group, name it, and add participants.
FR3.2	Add Admins	Group creator can assign admin privileges to other users.

Requirement ID	Description	Implementation Details
FR3.3	Send Group Message	Group members can send messages visible to all participants.
FR3.4	View Group Chat	Display group name, admins, and message history.

3.4 Message Features

Requirement ID	Description	Implementation Details
FR4.1	Message Status	Messages should have sent/delivered/read status.
FR4.2	Search Messages	Users can search messages in a chat by keyword.

5. System Architecture

The application follows an **Object-Oriented Design** with the following classes:

1. User – Manages user data (username, password, phone number, status).
2. Message – Stores message content, sender, timestamp, and status.
3. Chat (**Base Class**) – Handles common chat functionalities (message storage, display).
4. PrivateChat (**Derived from Chat**) – Implements 1-to-1 messaging.

5. GroupChat (**Derived from Chat**) – Manages group conversations with admin controls.
6. WhatsApp (**Main App Class**) – Handles user authentication, chat creation, and menu navigation.