

Project About



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Introduction to WhatsApp



WhatsApp Application:

WhatsApp is a popular mobile messaging application that was first launched in 2009. It is now owned by Facebook and has over 2 billion active users worldwide. WhatsApp allows users to send text messages, voice messages, make voice and video calls, as well as share images, videos, and documents with other users.

Problem Solved by WhatsApp:

Before WhatsApp, traditional SMS messaging was the primary means of communication on mobile devices. SMS messages were limited to 160 characters, and users were charged per message sent. This made it expensive and impractical to have extended conversations via text message. With the rise of internet-enabled smartphones, WhatsApp was developed to provide a cost-effective alternative to SMS and bring the convenience of instant messaging to mobile devices.

Background:

WhatsApp was founded by two former Yahoo employees, Brian Acton and Jan Koum. The company was initially started as a way to help people stay in touch with their families and friends, particularly those living in different countries. The app quickly gained popularity and was acquired by Facebook in 2014 for \$19 billion.

Work Plan:

To develop a WhatsApp-like messaging application, several steps need to be followed. These include identifying the target audience and their needs, selecting the appropriate technology stack, designing the user interface, developing the core messaging functionality, and testing and debugging the application.

WhatsApp Requirements

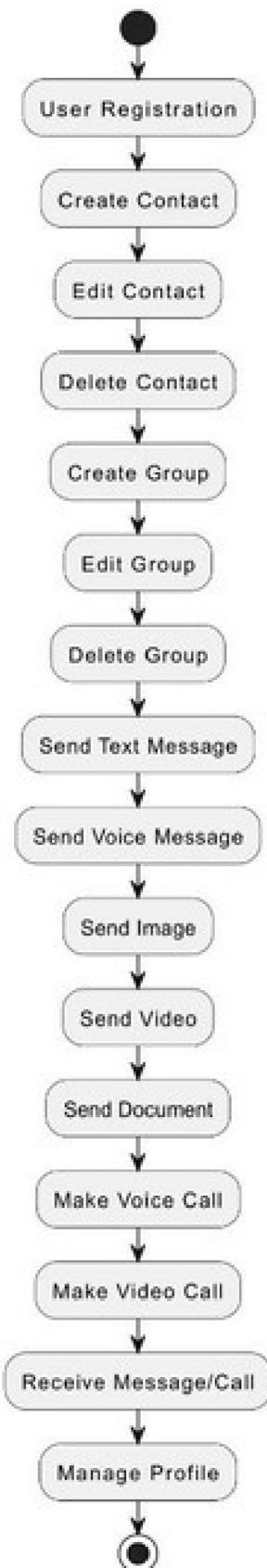
Functional Requirements:

1. The user should be able to register for the application using their email or phone number.
2. The user should be able to create, edit, and delete contacts and groups for easier communication.
3. The user should be able to send and receive text messages, voice messages, images, videos, and documents.
4. The user should be able to make voice and video calls to other users.
5. The user should be able to receive push notifications for incoming messages and calls.
6. The user should be able to manage their profile and set their status and profile picture.
7. The system should securely authenticate users during registration and login using encryption techniques.
8. The system should ensure messaging is end-to-end encrypted to protect user privacy and security.

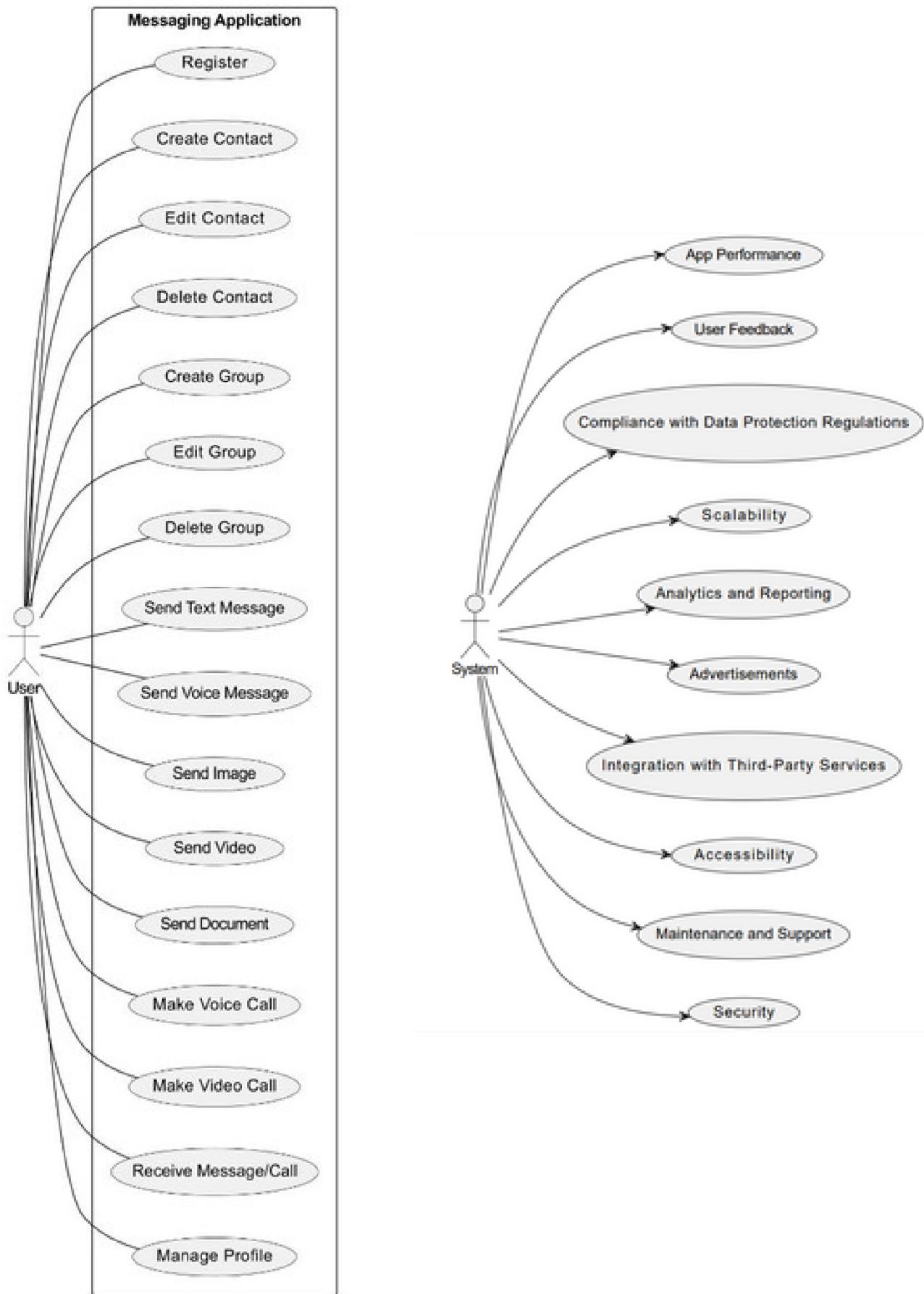
Non-Functional Requirements:

1. The application should adhere to data protection regulations and implement security measures to protect user data from unauthorized access, breaches, and other security threats.
2. The application should be designed and optimized for high performance with minimal latency and downtime.
3. The application should have a mechanism to collect and analyze user feedback to improve the user experience.
4. The application should be designed to handle a large user base and be scalable as the user base grows.
5. The application should comply with accessibility standards, such as WCAG, to ensure it is accessible to users with disabilities.
6. The application should be regularly maintained and updated to fix bugs, improve performance, and add new features.

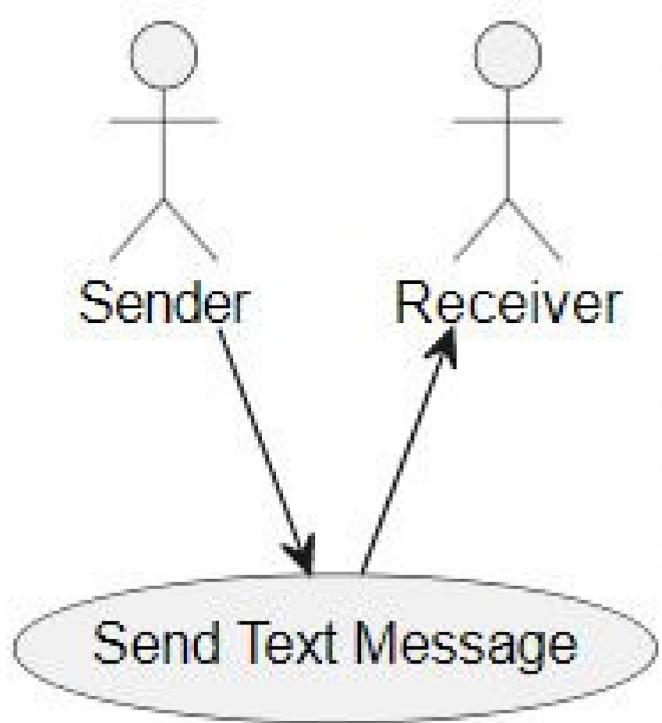
Activity diagram



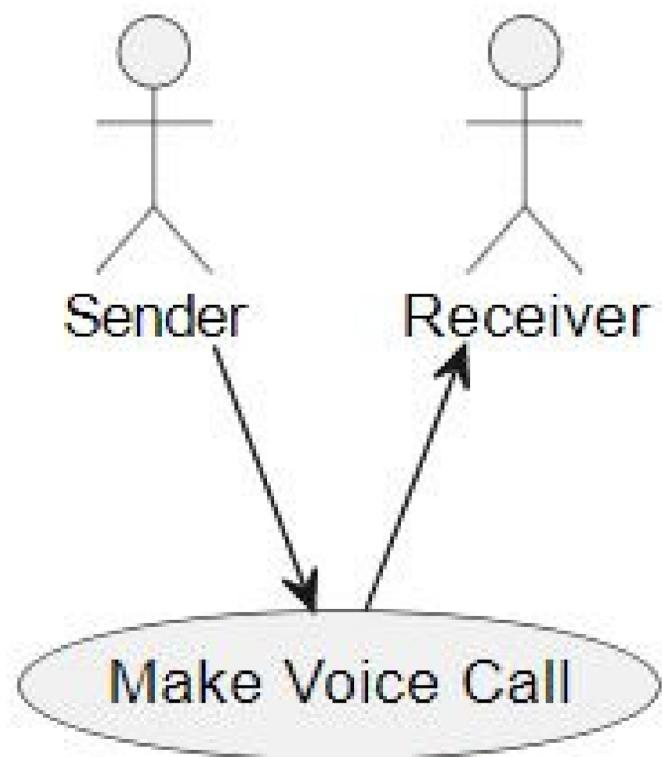
Use Cases



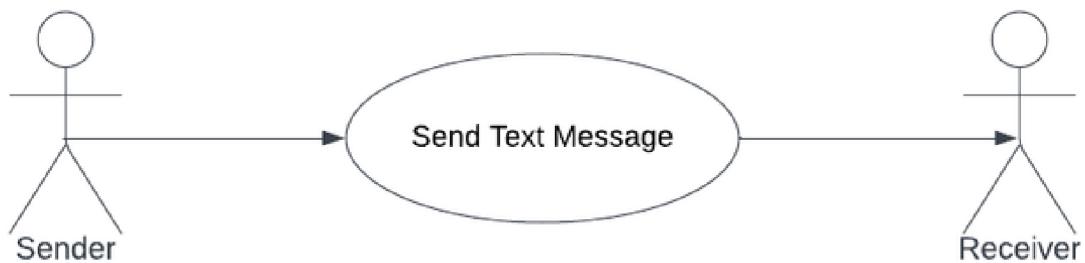
Send-Text-Message Use case:



Make-Voice-Call Use case:



Send-Text-Message Table:



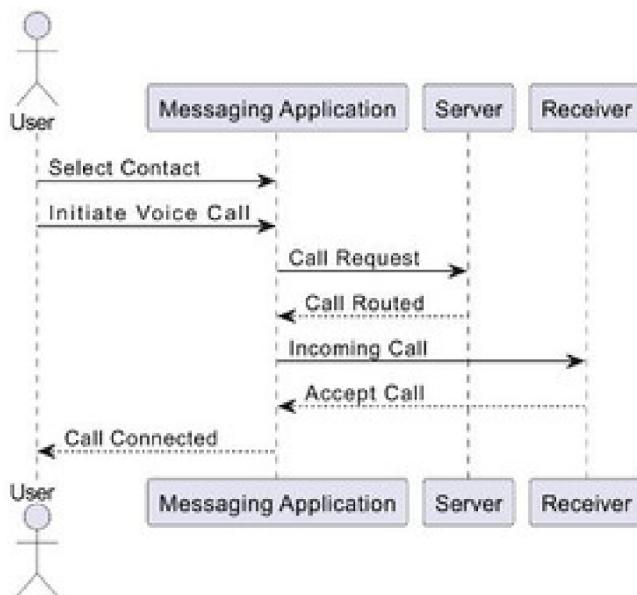
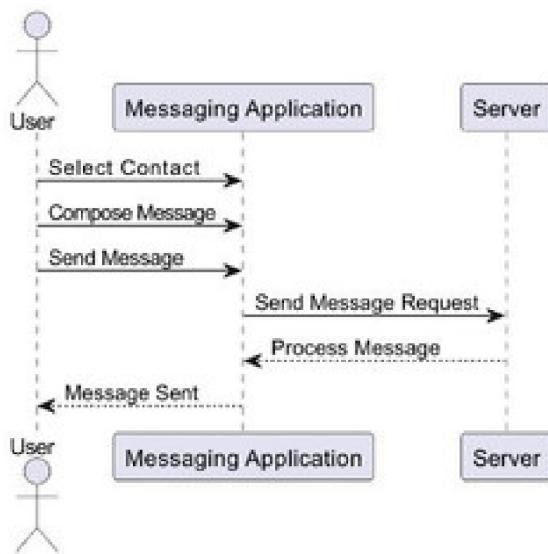
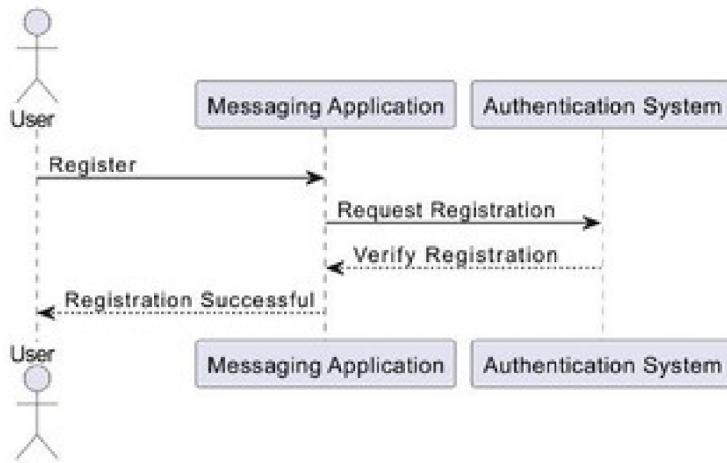
Use Case	Send Text Message
Actor	Sender, Receiver
Description	This use case describes the process of the Sender sending a text message to the Receiver.
Data	<ul style="list-style-type: none"> - Text message content - Sender's messaging application - Receiver's messaging application
Stimulus	<ul style="list-style-type: none"> - Sender selects the Receiver as the message recipient. - Sender composes the text message. - Sender initiates the process of sending the text message. - Messaging application sends the message to the Receiver. - Receiver's messaging application receives the text message.
Response	<ul style="list-style-type: none"> - Text message is successfully sent and received by the Receiver. - Message is stored in the messaging application's database. - Receiver's messaging application displays the received text message.
Comments	<ul style="list-style-type: none"> - Both the Sender and Receiver need to be registered users of the messaging application. - The Sender and Receiver must have an active internet connection. - If the Sender or Receiver is not a registered user, an error message will be displayed. - If there are technical issues or errors during message sending, an error message will be displayed. - Poor internet connection can cause delays in message delivery.

Make-Voice-Call Use case:



Use Case	Make Voice Call
Actor	Sender, Receiver
Description	This use case describes the process of the Sender initiating a voice call with the Receiver.
Data	<ul style="list-style-type: none"> - Sender's messaging application - Receiver's messaging application - Network connection
Stimulus	<ul style="list-style-type: none"> - Sender selects the Receiver to initiate a voice call. - Sender triggers the voice call initiation process. - Messaging application establishes a connection with the Receiver's messaging application. - Sender's device captures audio input from the microphone.
Response	<ul style="list-style-type: none"> - Voice call connection is established between the Sender and Receiver. - Receiver's messaging application alerts the Receiver about the incoming call. - Receiver has the option to accept or reject the call. - If accepted, audio data is transmitted between the Sender and Receiver. - Both parties can communicate via voice during the call.
Comments	<ul style="list-style-type: none"> - Both the Sender and Receiver need to be registered users of the messaging application. - Both the Sender and Receiver must have an active internet connection. - Voice call quality may vary depending on network conditions. - If the Sender or Receiver is not a registered user, an error message will be displayed.

Sequence Diagrams



Class Diagrams

Classes and associations:

Class User:

user
Username
Password
email
Register()
Create contact()
Delete contact()
Edit contact()
Delete group()
Edit group()
Create group()
Make voice call()
Make video call()
Receive message call()
Manage profile()

Class Message app:

message
application
Contact
group
Register user
Add contact()
Edit contact()
Delete contact()
Delete group()
Edit group()
Create group()
Make voice call()
Make video call()
Receive message call()
Manage profile()

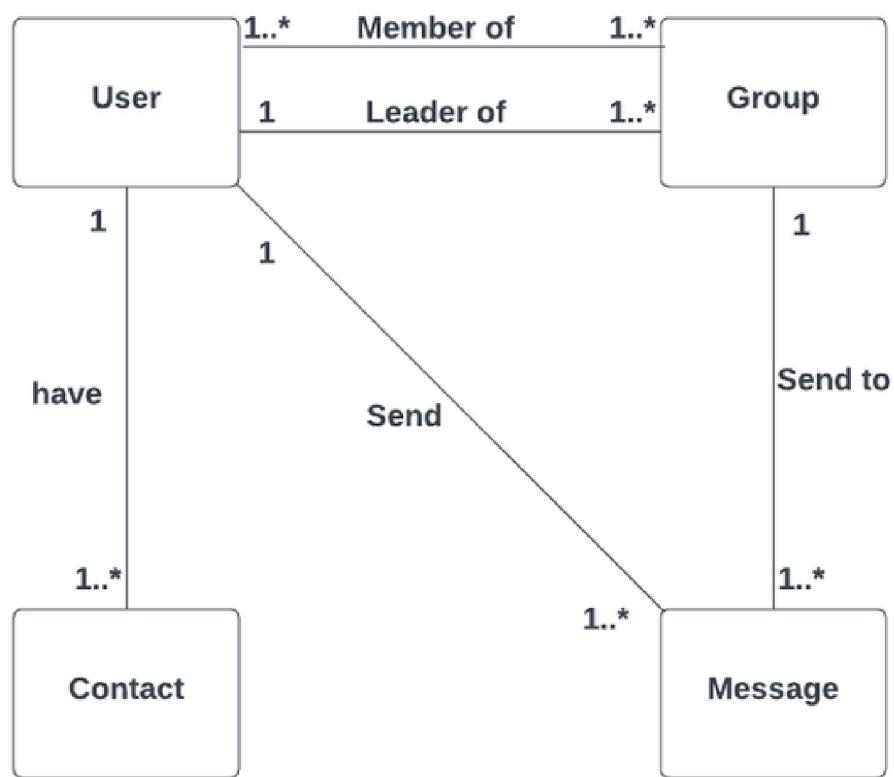
Class Group:

Group
Name
member

Class Contact:

Contact
Name
Phone number

Classes and associations:



Finally:

Developing a messaging application like WhatsApp requires a thorough understanding of the target audience and their needs, as well as a strong technical expertise in mobile app development and messaging protocols. The popularity and widespread use of WhatsApp demonstrate the demand for such applications, and the potential market for similar messaging applications is significant. However, competition in this space is intense, and any new messaging application will need to offer unique features and value propositions to stand out from the crowd.