Final Project Design
Perancangan Perangkat Lunak C

Team 2

Benedictus Bimo C W	5025201097
Nathanael Roviery	5025201258
Christhoper Marcelino M	5025201249
Warren Gerald Polandra	5025201233
Beryl	5025201029

DEPARTEMEN TEKNIK INFORMATIKA
INSTITUT TEKNOLOGI SEPULUH NOPEMBER
2022

Application Name

WhatsApp

Description

WhatsApp Messenger, or simply WhatsApp, is an internationally available freeware, cross-platform centralized instant messaging and voice-over-IP service owned by American company Meta Platforms.

Objectives

WhatsApp started as **an alternative to SMS**. This product now supports sending and receiving a variety of media: text, photos, videos, documents, and location, as well as voice calls. Some people's most personal moments are shared with WhatsApp, which is why the developer built end-to-end encryption into WhatsApp applications.

Features

- Texts : Simple, Reliable Messaging.

 Message Friends and family for free. WhatsApp uses the user phone's Internet connection to send messages so users can avoid SMS fees.
- Group Chat : Groups to keep in touch

 Keep in touch with the groups of people that matter the most, like family or coworkers. With group chats, users can share messages, photos, and videos with up to 256 people at once. Users can also name the group, mute or customize notifications, and more.
- Voice and Video Calls : Speak Freely

 With voice calls, users can talk to their friends and family for free, even if they're in another country. And with free video calls, they can have face-to-face conversations for when voice or text just isn't enough. WhatsApp voice and video calls use the user's phone's Internet connection, instead of the user's cell plan's voice minutes, so users don't have to worry about expensive calling charges
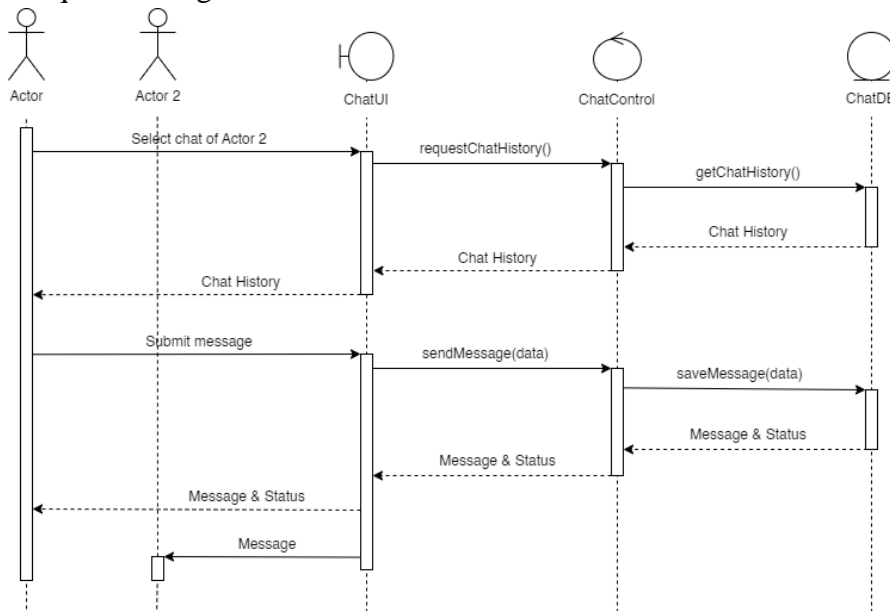
Environment

WhatsApp can be accesed from a web browser and can be downloaded on Windows, Google Play Store, and App Store.
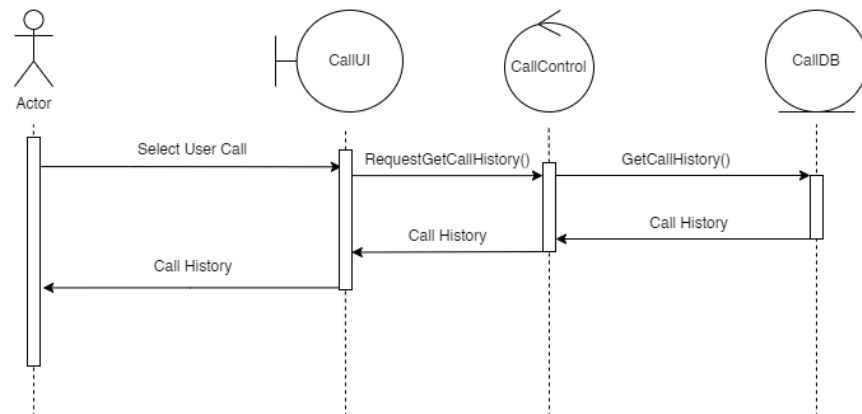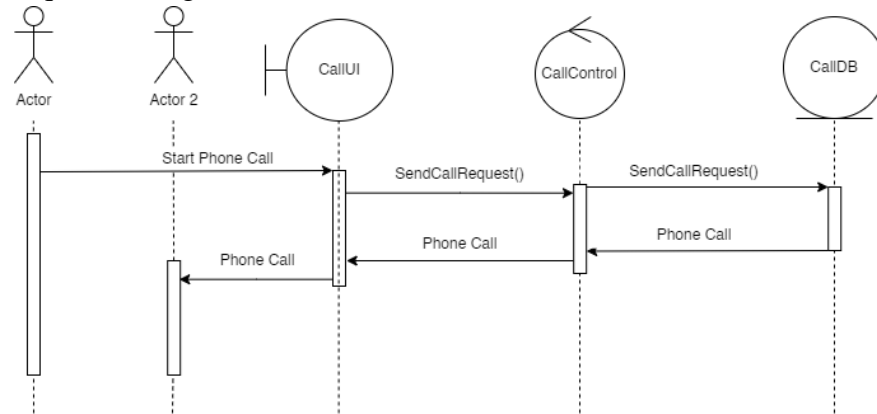
Sequence Diagrams

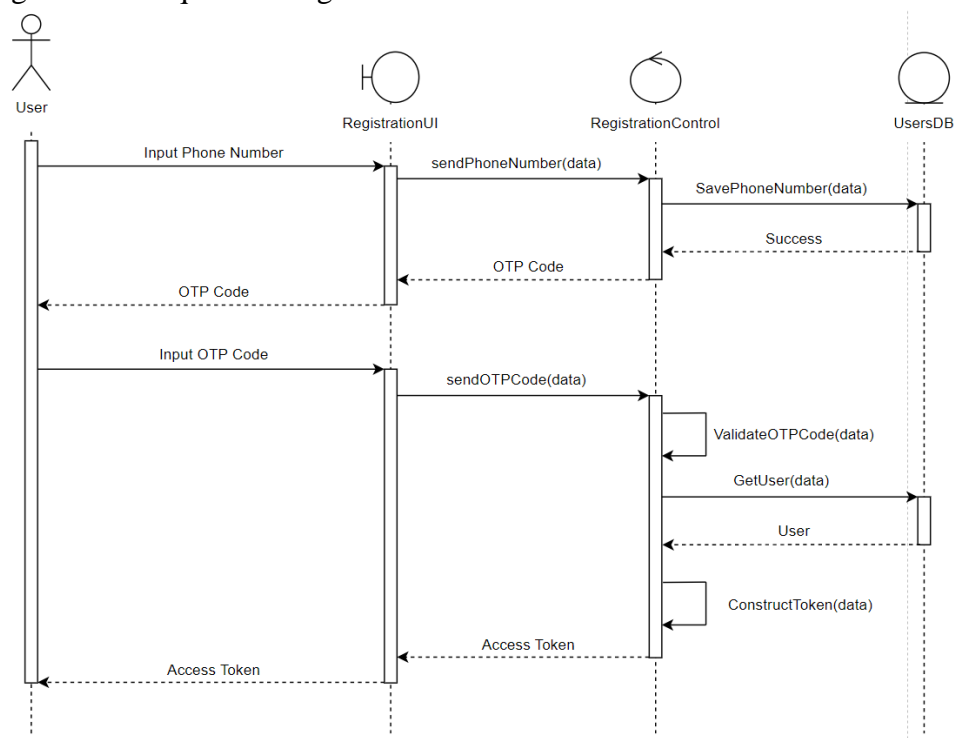- Sequence Diagram Upload Story dan Watch Story
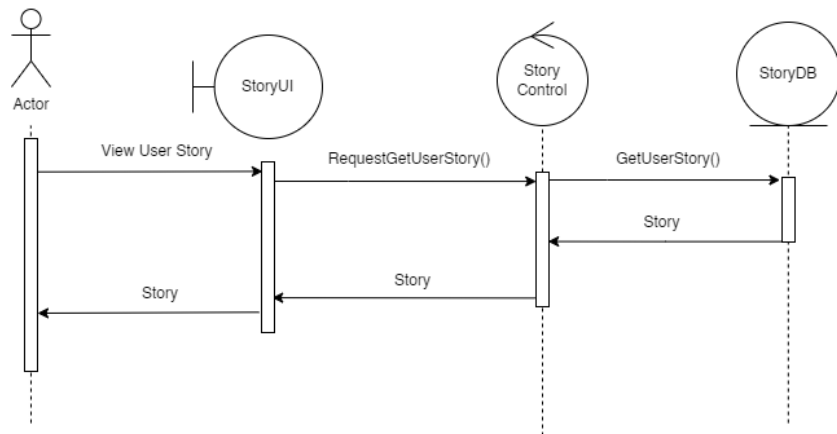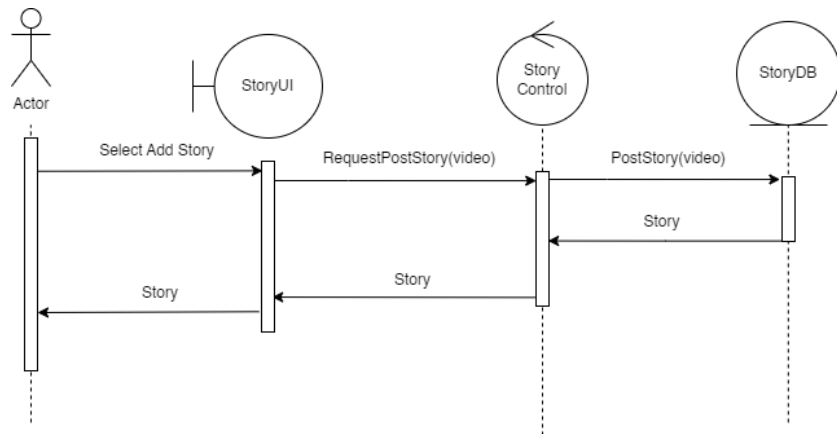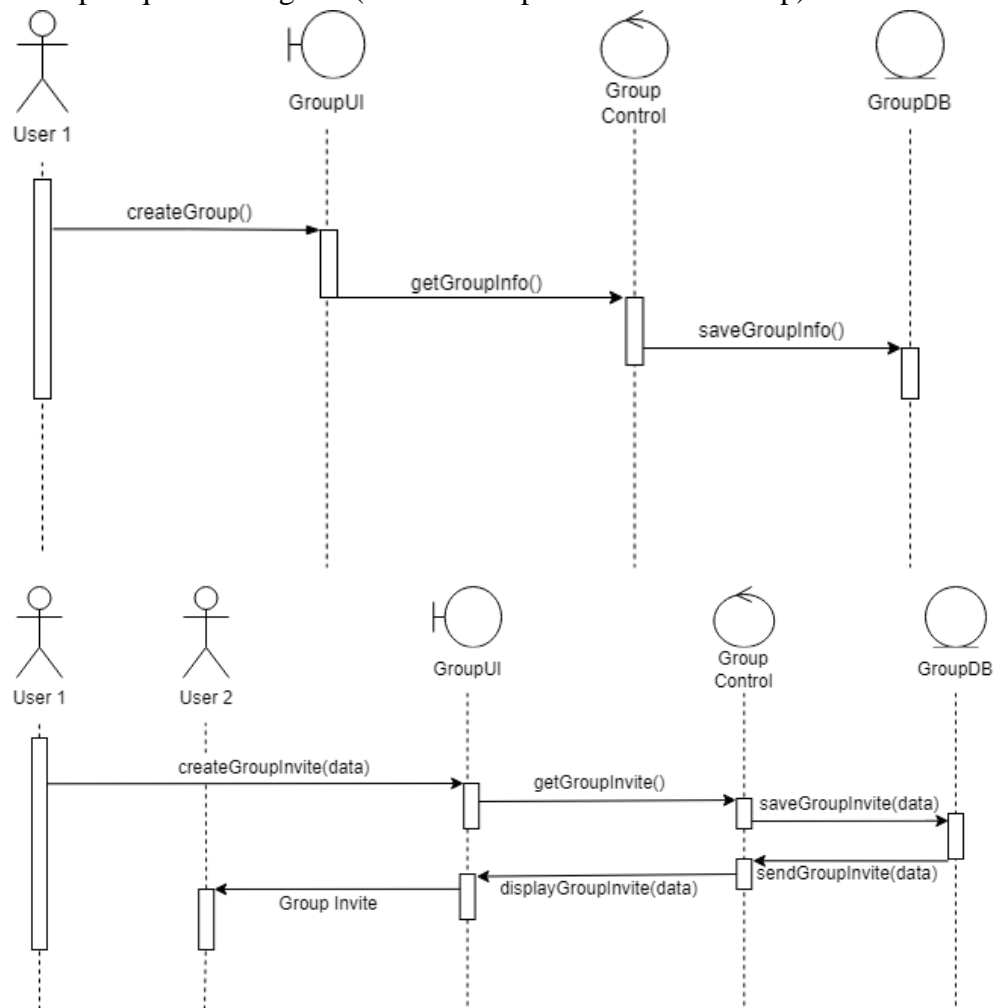

- Chat Sequence Diagram

- Call Sequence Diagram

- Registration Sequence Diagram

- Group Sequence Diagram (Create Group and Invite to Group)

Class Diagrams

Group

+ groupInfo: object

+ groupInvite: object

+ groupAdmin: User

- getGroupInfo(): object

- saveGroupInfo(data): boolean

- getGroupInvite(): object

- saveGroupInfo(data): boolean

- getGroupInvite(): object

- saveGroupInvite(data): boolean

- sendGroupInvite(data): void

- displayGroupInvite(data): void

- createGroupInvite(data): object

Story

- duration: int

- createdAt: date

- video: string

- viewer: object

- expiredTime: string

- requestPostStory(video): boolean

- postStory(video): object

- requestGetUserStory(): boolean

- getUserStory(): object

User

- name: string

- phoneNumber: string

- about: string

- photoProfile: string

- sendPhoneNumber(data): string

- savePhoneNumber(data): boolean

- getUser(data): object

- constructToken(data): string

Call

- duration: int

- created: date

- sendCallRequest(): boolean

- requestGetCallHistory(): boolean

- GetCallHistory(): object

Chat

- message: string

- sender: string

- receiver: string

- sendMessage(data): object

- saveMessage(data): object

OTP Code

- otpCode: string

- expiredTime: string

- sendOTPCode(data): string

- ValidateOTPCode(data)

Chat History

- messageList: object

- requestChatHistory(): object

- getChatHistory(): object

0...* 1...* 0...* 1

0...* 1 1 1

0..1 * 1

0..* 0..*

Software Design Strategy

Iterative and Incremental Design

We are sure that WhatsApp uses Iterative and Incremental Design strategy because the earliest version of WhatsApp is known to only have one feature. After many iterations of updates, WhatsApp currently has many new features. The developers update WhatsApp and add new features based on user's needs incrementally.

Software Design Method

Object-oriented Design

We are sure that WhatsApp implements Object-Oriented Design as it allows users to get in contact with each other real-time. By that, it is common for chat applications to use Object-oriented Design. WhatsApp mainly revolves around user data and privacy collection. Therefore supports earlier arguments. To further support the argument, with Object-oriented Design, the system is organized into fragments of objects and classes, making the implementation of messenger app easier.

System Architecture

Client-Server

We are sure that WhatsApp uses Client-Server Architecture because we think that unlike computers, cellphones can sometimes be disconnected and turned off. For example, "Bob" can send "Alice" a message on WhatsApp, even though Alice is currently in a no reception area (an Elevator etc.) while Bob is. We would not need both users to be connected **at the same time** or the message would never have been transferred or received.