

Requirement Engineering Report

Software Engineering Fundamentals

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Summary

This report details possible future features to be implemented to Flockr. Interviews are initially conducted with Flockr users to fundamentally understand the needs and requirements of current users. By understanding key issues with limitations of the current implementation, use cases are formed to refine requirements. These requirements are then submitted back to users for review and designs for implementations are prototyped.

Requirements - Elicitation

A series of interviews were conducted with Flockr users to understand current user issues centered around teamwork-driven communication. Doing so allowed insight into possible features previously unconsidered to improve future user experience.

(i) Interview 1

Interviewee: Thomas Smethurst

Email: Nfslolmiku@gmail.com

Person	Response	Requirement derived
Interviewer	Why would you want to use an online messaging platform?	
Thomas	I want to use an online messaging platform, so I can communicate with other people that I know without meeting in real life.	Ability to video call other users.
Interviewer	How would you like to message other users?	
Thomas	I would prefer to message them on my phone and from any computer.	Ability to access the Flockr website with an app, so the user can access the site easier.
Interviewer	What are the problems you face when communicating in a team?	
Thomas	Well, some key information is forgotten after a discussion and some team members don't notice new information being posted on the team communication tool.	Make the message pin feature more noticeable. Have the server play a sound to notify other users that a new message is sent.
Interviewer	What messaging platform are you using now? And what do you like about them?	

Thomas	I use snapchat as it allows me to edit any photo before sending them easily. I also use Microsoft teams for more formal things. I like Microsoft teams as they focus on video calls more than other messaging platforms.	Ability to send photos as a message in a channel. Ability to video call the channel users.
Interviewer	Any particular features you would like to see that are not in the messaging platform you are currently using?	
Thomas	Maybe a feature to make pinned messenger more noticeable but others I can't think of any others as of now.	Make the message pin feature more noticeable.

(ii) Interview 2

Interviewee: Gordon Wang

Email: z5309206@ad.unsw.edu.au

Person	Response	Requirement derived
Interviewer	Why would you want to use an online messaging platform?	
Gordon	To advocate for social distancing! But normally I use online messaging cause it's a lot more convenient and allows for communication during inconvenient times such as midnight or something.	The Flockr server will need to run 24/7.
Interviewer	How would you like to deliver the message?	
Gordon	I'd like the message delivered instantaneously and also securely cause it gotta be private.	Some security features to the private channels.
Interviewer	Who do you want to communicate with?	
Gordon	Friends and family and possibly co-workers.	Ability to invite new users to Flockr via sending an email link.
Interviewer	What messaging platform are you using now? And what do you like about them?	

Gordon	Discord and Facebook Messenger I like Discord because of its customization abilities (bots, servers etc.) and also its UI design (dark mode). I like messenger cause the limit to sending files to one another is generous.	A feature to allow users to add their own script to the channel. Ability to send files to other users.
Interviewer	Any particular features you would like to see that are not in the messaging platform you are currently using?	
Gordon	Well for discord, I'd like one of those read receipt things where you know if someone has read your message. More customizable messages are nice too, like different fonts and different colored text.	A feature to track users that have read a particular message.

(iii) Interview Analysis

As a result of the conducted interviews, this allowed the team to reflect upon the limitations of the current implementations and propose new features to improve quality of life as listed below:

- Video call other users within a channel.
- An app for Flockr available on popular devices.
- Highlight pinned messages.
- Notification sounds to be heard when new message appears in a channel.
- Ability to send photos as a message to a channel.
- A capable server which can run Flockr 24/7.
- Greater security features with regards to private channel's messages.
- Invite new users to Flockr via an email link.
- Allow users to add their own script to channels.
- Ability to sending files as a message in a channel.
- Track users that have read a particular message in the channel.

Requirements - Analysis & Specification: Use Cases

Information collected during the interview was analyzed and developed into user stories which further allowed insight into the needs and requirements of current users.

(i) User Stories – Thomas Smethurst

As Thomas, I want an online messaging tool that provides me with useful features that allow me to work and communicate with others to the same ability as if I were physically with them. I want these features because they allow me to work effectively in a remote environment.

Rules Based Acceptance Criteria:

- Ability to see people whilst working with them (conduct video calls)
- Ability to share documents and other pieces of work (edit and send files)
- Ability to deliver and receive important information quickly (pin function)
- Ability to communicate with people in a flexible manner (Web and mobile application)

(ii) User Stories – Gordon Wang

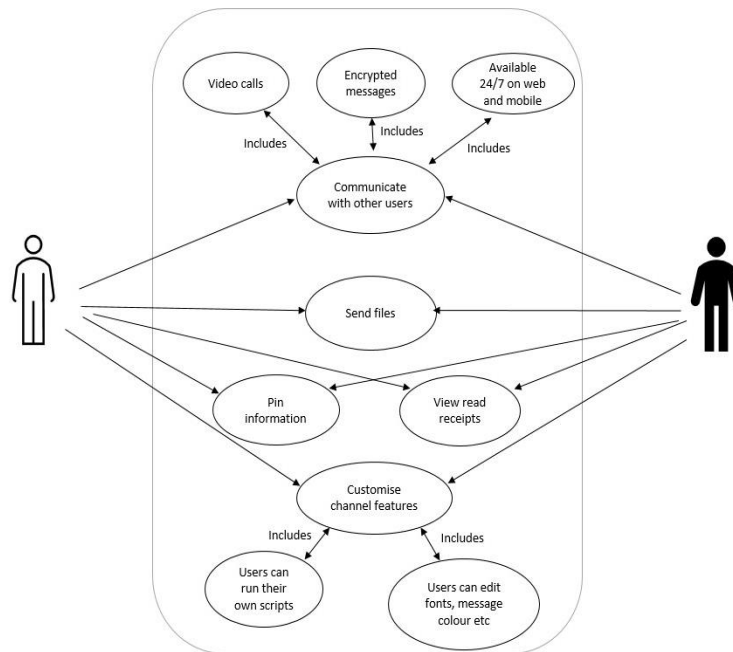
As Gordon, I want an online messaging platform that provides a secure, reliable, engaging, and flexible. I want these features because they advocate social distancing, which is quite important at the moment as well as allow me to communicate with others based on times which suit my schedule.

Rules Based Acceptance Criteria:

- Ability to custom features and functions of chat (custom user scripts, fonts, styles etc)
- Ability to send files and documents effectively (large file transfer size)
- Ability to see read receipts of messages
- Ability to communicate with people securely (all messages should be encrypted)
- Ability to communicate at any given time

(iii) Use Case Diagram

Based on the requirements analyzed, the following user case diagram was created. The diagram displays how different users could potentially use and interact with the Flockr platform, aiding in future development with focus on the end user's perspective.



Requirements - Validation

Both users were provided with the case work completed and in the previous section and asked to comment about whether the features of the proposed Flockr platform satisfies their needs. This allowed the team to confirm our use cases were in line with requested features.

(i) Thomas Smethurst's Comments

"I think your Flockr platform idea is great and it has a lot of the features I initially discussed. I also like the fact that you want to make sure messages are secure and the platform is always available. This will really allow me to use the platform for a lot of my work. I can also see the ability to run my own scripts and that would be really useful."

(ii) Gordon Wang's Comments

"I think the way this works satisfies a lot of the things I mentioned in the first interview. It is also really good that the platform will be available on mobile and web, I don't always have my computer and using mobile will be really convenient. I hope that the features such as running scripts and editing fonts can be available on both app and mobile"

Design – Interface Design

In confirming proposed solutions were in line with users' requests, HTTP endpoints and capabilities of feature implementations could be considered.

(i) Proposed Feature HTTP Endpoints

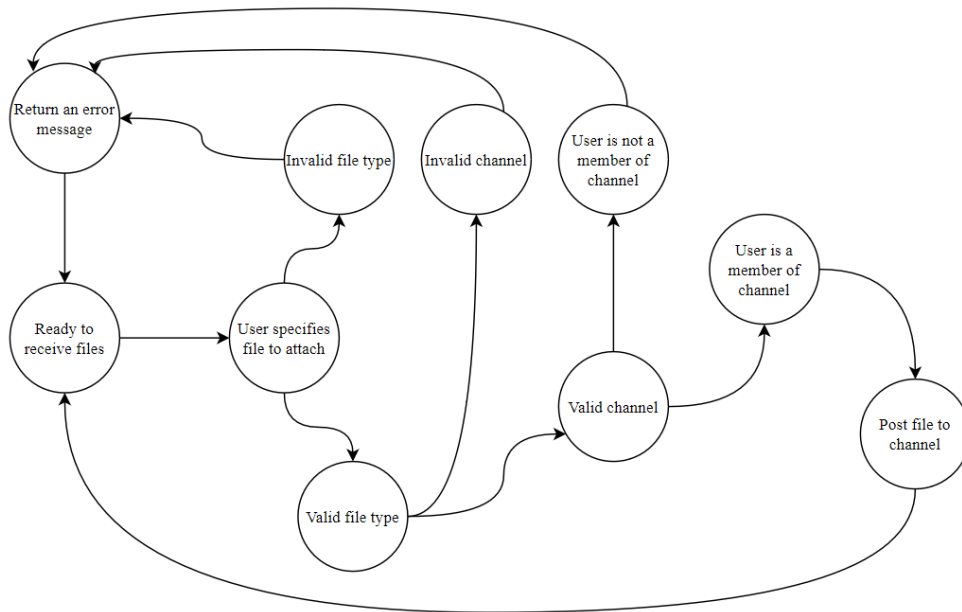
Function Name	HTTP Method	Parameters	Return Type	Exceptions	Description
channel/call	POST	(token, channel_id, u_id, call_id)	{ call_id }	InputError: <ul style="list-style-type: none">Channel_id is not valid AccessError: <ul style="list-style-type: none">U_id is not validCall_id is not valid	Invites a user to a video call within a channel in which authorized users are part of.
message/highlight	PUT	(token, message_id)	{ }	AccessError: <ul style="list-style-type: none">The message does not exist	Given a message within a channel the authorized user is part of, highlight the message that is pinned.
message/notification	GET	(token, message_id)	{ notification }	AccessError: <ul style="list-style-type: none">The message does not exist	Given a message within a channel the authorized user is part of users will be notified every time a message is sent in the channel.
message/sendfile	POST	(token, channel_id, file, message)	{ message_id }	InputError: <ul style="list-style-type: none">The file is of an invalid file type AccessError: <ul style="list-style-type: none">Channel_id is not validThe authorized user has not joined the channel they are trying to post to	Send a file/document as a message from authorized user to the channel specified by channel_id.

message/read	GET	(token, message_id, u_id)	{u_id}	AccessError: <ul style="list-style-type: none"> The message does not exist The user is not an authorized user 	Given a message within a channel the authorized user is part of, provide the users who have read the message.
message/font	PUT	(token, font, message_id)	{}	InputError: <ul style="list-style-type: none"> The font does not exist AccessError: <ul style="list-style-type: none"> The message does not exist 	Given a message within a channel the authorized user is part of, change the font of the message.
channel/invite/link	GET	(token, channel_id)	{invite_link}	InputError: <ul style="list-style-type: none"> Channel_id is not valid AccessError: <ul style="list-style-type: none"> The user is already a member of the channel Authorized user is not already a member of the channel 	Generates a link that when clicked, invites a user to join a channel. Once invited the user is added to the channel immediately.

Design – Conceptual Modelling (State)

Following the creation of planned application endpoints, state diagrams were created to further understand the requirements and dynamic states of proposed implementations.

(i) State Diagram – Send File



(ii) State Diagram – Invite Link

