

COMP1531 Project Planning

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COMP1531 Project Planning	1
[Requirements] Elicitation	2
Questions	2
Target Users	2
Answers	2
[Requirements] Analysis & Specification	4
Josh's User Story	4
Zhong's User Story	5
Alice's User Story	5
General User Stories	6
Use Cases	6
[Requirements] Validation	7
Josh	7
Zhong	7
Alice	8
[Design] Interface Design	9
Data types	9
General Channel Capabilities	10
To-do List	11
Video Conferences	12
[Design] Conceptual Modelling	16
Josh's State Diagram	16
Alice's State Diagram	17

[Requirements] Elicitation

Find 2-3 people to interview as target users. Target users are people who currently use a tool like Flockr, or intend to. Collect their name and email address. Develop a series of questions to ask these target users to understand what problems they might have with teamwork-driven communication tools that are currently unsolved by Flockr. Give these questions to your target users and record their answers.

Questions

1. What is your intended purpose using teamwork-driven communication tools such as Flockr?
2. What are the main features you look for in a teamwork-driven communication tool?
3. Would you prefer to have a single application that centralises multiple methods of communication and collaboration, or use separate applications for different purposes?
4. Is there anything in particular that would make you choose Flockr over some of the mainstream platforms?

Target Users

Name	Email Address	Role
Josh Khu	jyoshie_k@yahoo.com.au	Teacher
Zhong Guan	zhongguan453@gmail.com	Student
Alice Smith	a.smith1@gmail.com	Corporate Manager

Answers

Target User	Answers
Josh	Well, I'm a school teacher and it would be great to use Flockr as a way to maintain a platform to communicate with my students at all times.
	From my experience, text message and file/media sharing should be the most important.
	Since I'm not very technology-competent, I would say that having a single application is perfect for me, and the primary school students too. It would just get too complicated and messy if we had to send a link to a useful website using a particular software, and then open something else just to upload a few pages of the textbook.

	<p>I am just looking for something that's easy to use and fits a school environment. Actually, we haven't had too much experience with such technologies – recently, we've created a blog where students can access files, send messages and I guess students can always send emails to themselves or to teachers. But sometimes it's just been very disorganised and it'd be great to have a software that can integrate all these features together. The school doesn't want to use anything that's too distracting for the students either, as they must concentrate in class and use this software in an educational way.</p>
Zhong	<p>Oh, I just want to use Flockr to chat with some of my mates. Nothing formal, just constant banter is what we'll be doing LOL.</p>
	<p>Of course file sharing is a must, since high quality memes and derps are always necessary as a stress-relief.</p>
	<p>I mean this is all for banter and nothing too important, so having a single application will definitely make things more convenient for lazy people like me.</p>
	<p>Look, most people just use Messenger to chat. But you can't pin messages and searching is sometimes troublesome. We've mostly been using Discord but I guess that can sometimes get too messy or generic, and we just want to try something new.</p>
Alice	<p>I would like to manage the employees in my office. As teamwork is a major soft skill that's critical in my company, I need software that will allow members to collaborate and be most productive.</p>
	<p>Since we are a market-leading company in Australia, it would be ideal to have a teamwork-driven communication tool that has multiple features – and when I say that, I don't mean quantity over quality, since they all have to be bug-free as we don't want the software to be a distraction from our work. We are now moving towards a working-from-home scenario, but some employees may still choose to work in the office. It is absolutely necessary for us to be able to send messages, share files (preferably compatible with various file types) and definitely video conferencing using this software. Project management tools would be very useful as well!</p>
	<p>In the past, we've always kept everything running on a single platform. This certainly was not a bad idea, as we did not have to operate multiple programs simultaneously just to communicate to someone else. But there has to be some sort of distinction between employees talking about critical work-related information, as opposed to what they are planning to do over the weekend.</p>
	<p>Slack was what we used before – and I think all the employees would agree that the channels are the most important feature. That's where it excelled over</p>

	other potential video-conferencing softwares like Zoom or Skype – not only does it have a more professional feel than Messenger, but the separate channels just categorises our communication and streamlines our work.
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[Requirements] Analysis & Specification

Once you've elicited this information, it's time to consolidate it. Take the responses from the elicitation and express these requirements as User Stories. Document these user stories. For each user story, add User Acceptance Criteria as notes so that you have a clear definition of when a story has been completed. Once documented, generate at least one use case that attempts to tell a story of a solution that satisfies the requirements elicited. You can generate a visual diagram or a more written-recipe style, as per lectures.

Josh

- As a teacher, I want to be able to send private and public messages so that I can talk to students individually and they can also help each other.
 - Given my students and I are registered Flockr users, when I send private messages to a specific student, I expect only we are able to see them.
 - Given my students and I are registered Flockr users, when I send messages to a public channel, I expect everyone who has joined the channel is able to see the messages.
- As a teacher, I want to be able to share files and media so that students can download and upload the required work.
 - Given my students and I are registered Flockr users, when I share a resource to a channel my students are in, I expect them to be able to view and download the resource.
 - Given my students and I are registered Flockr users, when a student shares a resource to a channel me and other students are in, I expect my students and I are able to view and download the resource.
- As a teacher, I want to be able to make certain messages stand out so that my students can easily refer to them when need be.
 - As a teacher, I want to be able to create an announcement channel so that important school events and reminders (such as for permission slip due dates) stand out and are accessible to all my students.
 - Given my students and I are registered Flockr users who have access to the announcement channel, when I send an announcement to the channel, I expect my students are alerted and are able to easily refer to the announcement.
 - As a teacher, I want to be able to create a to-do list for homework and assignment reminders so that my students are able to plan their workload and be reminded of upcoming deadlines.

- Given my students and I are registered Flockr users, when I update our channel to-do list, I expect all channel members are able to view the tasks and be notified of reminders.
- As a teacher, I want to create a general space for sharing educational resources so that students can easily refer to and access them when necessary.
 - Similar to dot point two

Zhong

- As a university student, I want to be able to talk to my mates casually, so that I can quickly catch up with what they've been up to in their life.
 - Given my friends and I are Flockr users, when I send a private message to my friend, I expect them to be able to see it, and vice versa.
- As a university student, I want to be able to create different channels so that we can have a place for general talk and a place for sending university related things.
 - Given my friends and I are Flockr users, when I send a message to a channel my friends and I are in, I expect them to be able to see it, and vice versa.
- As a university student, I want to pin specific content so that other mates can look for the important stuff easily without unnecessary scrolling.
 - Given I am a Flockr user, when I pin a message to a channel, I expect the message to remain visible in the channel window at all times.
- As a university student, I want to be able to use (create and join) public voice channels so that I can casually speak to my friends and listen to music together.
 - Given my friends and I are Flockr users, when I join public voice channels, I expect to be able to hear and talk to my friends who are also in the channel.

Alice

- As a corporate manager, I want to be able to access project-management tools (aligning with agile practices) that can facilitate and allow me to check on project progress.
 - As a corporate manager, I want to be able to have stand ups with my employees so that I can check on their progress and ensure project goals are met.
 - Given my employees and I are Flockr users, when I (or other members) start a stand-up in a channel chat, I expect that all messages sent to the channel while the stand-up is active will be packaged and sent as one message after the specified amount of time for a stand-up.
 - As a corporate manager, I want to be able to have video conferences with others so that we can hold meetings and conferences with each other.
 - Given I am a Flockr user, when I send a video conference invite to another Flockr user, I expect them to be able to join and use their webcam, microphone and speaker to be able to communicate with me, with the ability to have multiple users in one video conference call.

- As a corporate manager, I want to be able to access bot automation so that our team can streamline our workflow better, including Google Workspace integration.
 - Given my employees and I are Flockr users, when there are any updates to the calendar, files and notes in our shared workspace (Google Workspace), I expect an automated bot update gets sent to the channel.
- As a corporate manager, I want to be able to send messages in different channels depending on the purpose of our conversation.
 - Given my employees and I are Flockr users, when I set up a channel for a specific topic, I expect the channel topic/name to be easily distinguishable by other users so that they know which channel to use to send messages based on different topics and purposes.
- As a corporate manager, I want to be able to send messages to an employee privately so I can be consulted if they have any questions or problems with their work.
 - Given my employees and I are Flockr users, when an employee sends me a private message, I expect to be able to receive the message and send back a response.

General User Stories

- As a Flockr user, I want to be able to be able to set my display name and profile picture so that others can easily identify me in conversations.
- As a Flockr user, I want to be able to be able to reset my password so that I can still access my account if I forget my password.
- As a Flockr user, I want to be able to invite based on my others into the group based on my permission

Use Cases

Use Case 1: Starting a stand-up for members in a channel.

Goal in Context: Allows users to see a quick summary of everyone's progress in a group project.

Scope: A channel in a Flockr application.

Level: Subfunction.

Preconditions: Users are all registered (with different handles), and users have joined a common Flockr channel.

Success End Condition: A single packaged message is sent, containing a summary of all the messages sent by users during an active stand-up.

Failed End Condition: Messages are sent as normal, messages sent during the stand-up are lost, Messages sent are not packaged as a single message for ease of readability.

Primary Actor: Channel member (Flockr user).

Trigger: Stand-up is initiated in a channel.

Use Case 2: Video Conferencing

Main Success Scenario:

1. Host creates a video conference room
2. Host invites other users to join the room
3. Users join room
4. Users can adjust/set up webcam, microphone, speaker and screen sharing settings
5. All users are able to interact with other users (video, voice and chat)
6. Users can leave room at any time
7. Host can end the conference for all users

[Requirements] Validation

With your completed use case work, reach out to the 2-3 people you interviewed originally and inquire as to the extent to which these use cases would adequately describe the problem they're trying to solve. Ask them for a comment on this and record their comments in the PDF.

Josh

Great, that's effectively what I would consider best for students and teachers. Remember that my priority is to provide the best user-friendly learning experience for these young minds with online convenience – they should be able to discuss certain homework with each other, and I can also help them with urgent questions. In addition, it is a necessity for us to have different channels, so that teachers can remind students about excursion payments or assignment deadlines, without affecting the typical messaging. Oh, and I forgot to mention earlier, there must be options for all the teachers to join the different channels and monitor the chat between students, to ensure that no one gets cyberbullied or abused – after all, these are just primary school kids. Thanks!

Zhong

Exactly, that's right! Every day I gotta keep contact with my mates otherwise I will get fear of missing out. Again, I don't really wanna use Messenger or Discord as they take ages to load and just seem too generic. Would be very cool if Flockr also has nifty features that I am after such as pinning and creating channels. We need different channels so we can talk about different stuff so the content doesn't get mixed up. Even though I did say before that the main purpose is for banter and funny memes, I guess I would also be using it to talk to uni too. Definitely awesome if we can pin messages for like assignments, so that we don't have to repeat ourselves so many times. I can say on behalf of all people my age that it would also be cool if there are some extra features too – say the ability to play hangman if we're bored. Or some sort of randomiser that allows us to make a decision (like randomising where to eat out, or even who in the group should do 50 push-ups hahaha). I mean, probably not as critical, but would be some nice perks in Flockr. Cheers!

Alice

What you have listed for far is correct, but I will need for a few more features than that. I know I didn't really specify before but having an option that allows us to react to messages is critical – perhaps the stereotype may be that texts between employees in a company are very strict and courteous, but sometimes, if employees can endorse or pin each other's messages, it can save a lot of time. It will also minimise any miscommunication working in a team, and even boost staff morale if, say for example, a manager like me praises their idea with a 'like'. Perhaps not critical, but if we realise that a whole section of messages (such as the last 30 messages) was incorrect due to a misunderstanding, it would be convenient for us to instantly delete this whole block without deleting each one tediously. However, something that I want to reiterate is the stand-up feature, since it would be much clearer to collate the discussion regarding the employees' daily progress. Also, I'm not sure if you guys have got this, but we need to be able to screen share during our video conferences, as we often make presentations over our online conferences. Overall though, the current user stories are accurate and we would definitely be interested in adopting this application for our company.

[Design] Interface Design

Now that we've established our problem (described as requirements), it's time to think about our solution in terms of what capabilities would be necessary. You will specify these capabilities as HTTP endpoints, similar to what is described in 6.2. There is no minimum or maximum of what is needed – it will depend on what problem you're solving.

Most of the data types and interface designs from section 6.2 still hold true here, so we've included new HTTP endpoints for our new features and slightly updated the previous `channels_create` function to account for our new announcement channel feature.

Data types

Variable name	Type
named exactly file_content	string (byte literal)
named exactly volume	integer
has prefix is_	boolean
has suffix _id	integer
has suffix _url	string
has suffix _name	string
has suffix _timestamp	integer (unix timestamp)
(outputs only) named exactly tasks	list of dictionaries, where each dictionary contains types {task_id, task_name, due_timestamp, remind_timestamp}
(outputs only) named exactly video_members	list of dictionaries, where each dictionary contains types {u_id, name_first, name_last, handle_str, volume}
(outputs only) named exactly video_channels	list of dictionaries, where each dictionary contains types {video_channel_id, video_channel_name, is_voice_channel_only, video_members}

General Channel Capabilities

Function name	HTTP Method	Parameters	Return type	Exceptions	Description
channels/create	POST	(token, name, is_public, is_announcement_channel)	{channel_id}	InputError when: <ul style="list-style-type: none">• Name is empty• Name is more than 20 characters long AccessError when: <ul style="list-style-type: none">• Authorised user is not an owner of channel	Creates a new channel with that name that is either a public or private channel. Furthermore if it is an announcement channel, then only users with owner permissions can send messages to the channel.
message/uploadfile	POST	(token, channel_id, file_name, file_content)	{message_id, file_url}	InputError when: <ul style="list-style-type: none">• file_content is greater than 25MB AccessError when: <ul style="list-style-type: none">• Authorised user is not a member of channel with channel_id	Uploads a file with file_content and saves it on the backend as file_name. A message is then sent to the channel from the user, containing a url to the file uploaded.

To-do List

For our solution, we've designed to-do lists to be attached to each channel, where all channel members can add, edit, view and delete tasks.

Function name	HTTP Method	Parameters	Return type	Exceptions	Description
todo/addtask	POST	(token, channel_id, task_name, due_timestamp, remind_timestamp)	{task_id}	InputError when: <ul style="list-style-type: none">task_name is emptyremind_timestamp is before current timetask_id does not correspond to a task AccessError when: <ul style="list-style-type: none">Authorised user is not a member of channel with channel_id	Adds a new task with task_name to a channel. Optional arguments for due date and reminder time (timestamp) may also be included (None otherwise).
todo/edittask	PUT	(token, task_id, task_name, due_timestamp, remind_timestamp)	{}	InputError when: <ul style="list-style-type: none">task_id does not correspond to a task AccessError when: <ul style="list-style-type: none">Authorised user is not a member of channel containing task_id	Edits a task in a to-do list.
todo/list	GET	(token, channel_id)	{tasks}	InputError when: <ul style="list-style-type: none">channel_id does not correspond to a channel AccessError when: <ul style="list-style-type: none">Authorised user is not a member of channel with channel_id	Returns the to-do list for a channel
todo/removetask	DELETE	(token, task_id)	{}	InputError when: <ul style="list-style-type: none">task_id does not correspond to a task AccessError when: <ul style="list-style-type: none">Authorised user is not a member of channel containing task_id	Removes a task from a channel's to-do list

Video Conferences

For our solution, we've decided to implement video and voice channels together, with the option to restrict video channels to voice channels through `is_voice_channel_only`. These video channels exist under regular channels, and have their own space for messages in order to quickly resolve technical issues, add relevant attachments and not clutter up the regular channels.

Function name	HTTP Method	Parameters	Return type	Exceptions	Description
video/list	GET	(token, channel_id)	{video_channels}	InputError when: <ul style="list-style-type: none">channel_id does not correspond to a valid channel AccessError when: <ul style="list-style-type: none">Authorised user is not a member of channel with channel_id	Returns a list of active public video conferences in the channel.
video/listall	GET	(token, channel_id)	{video_channels}	InputError when: <ul style="list-style-type: none">channel_id does not correspond to a valid channel AccessError when: <ul style="list-style-type: none">Authorised user is not a member of channel with channel_id	Returns a list of all active video conferences in the channel.
video/create	POST	(token, channel_id, video_channel_name, is_public, is_voice_channel_only)	{v_channel_id}	InputError when: <ul style="list-style-type: none">video_channel_name is empty or more than 20 characters longchannel_id does not correspond to a channel AccessError when: <ul style="list-style-type: none">Authorised user is not an owner of channel with channel_id	Creates a video conference in the channel, if the authorised user is the owner of the channel. The owner can also specify that the channel created is a voice channel only (with video settings disabled).
video/invite	POST	(token, v_channel_id,	{}	InputError when: <ul style="list-style-type: none">u_id does not refer to a valid user	Given the authorised user invites the user with u_id to the video conference.

		u_id)		<ul style="list-style-type: none"> v_channel_id does not correspond to a valid video channel AccessError when: <ul style="list-style-type: none"> Authorised user is not a member of channel containing v_channel_id User with u_id is not a member of channel containing v_channel_id 	
video/join	POST	(token, v_channel_id)	{}	InputError when: <ul style="list-style-type: none"> v_channel_id does not correspond to a valid video channel AccessError when: <ul style="list-style-type: none"> Authorised user is not a member of channel containing v_channel_id v_channel_id refers to a video channel that is private (when the authorised user is not a global owner) 	Adds the authorised user to the video channel with v_channel_id if it is not private.
video/leave	POST	(token, v_channel_id)	{}	InputError when: <ul style="list-style-type: none"> v_channel_id does not correspond to a valid video channel AccessError when: <ul style="list-style-type: none"> Authorised user has not joined the video channel corresponding to v_channel_id 	The authorised user leaves the video channel with v_channel_id.
video/end	DELETE	(token, v_channel_id)	{}	InputError when: <ul style="list-style-type: none"> v_channel_id does not correspond to a valid video channel (or video no longer exists) AccessError when: <ul style="list-style-type: none"> The authorised user is not an owner of the channel containing the video conference, and not an owner of the Flockr 	The authorised user with owner permissions ends a video conference call for all users (deletes the channel).

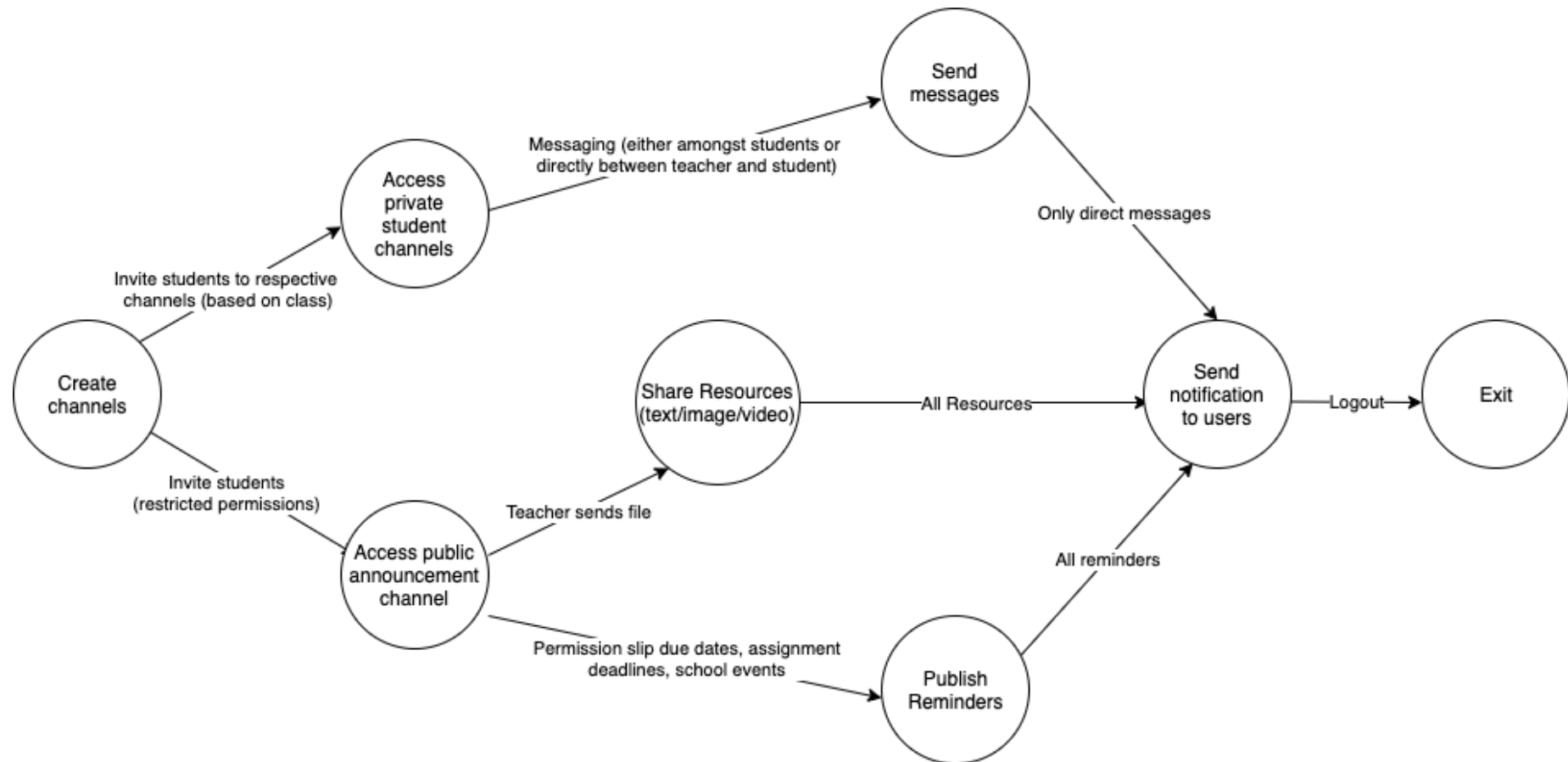
video/members	GET	(token, v_channel_id)	{video_members}	InputError when: <ul style="list-style-type: none"> v_channel_id does not correspond to a video channel AccessError when: <ul style="list-style-type: none"> Authorised user is not a video member in the video channel with v_channel_id Authorised user is not a member of channel containing v_channel_id 	Returns the list of members in the video channel with v_channel_id.
video/changevolume	PUT	(token, v_channel_id, volume, u_id)	{}	InputError when: <ul style="list-style-type: none"> volume is empty volume is less than 0 or greater than 100 v_channel_id does not refer to a valid video channel u_id does not refer to a valid user in the video channel with v_channel_id AccessError when: <ul style="list-style-type: none"> Authorised user is not a video member in the video channel with v_channel_id Authorised user does not have owner level permissions in the channel containing v_channel_id when authorised user does not have the same u_id as the u_id parameter (not changing their own volume) 	Update the user with u_id's volume (0 signifies muted). Any video member can update their own volume, but owner permissions are required to change other's volume.
video/sendmessage	POST	(token, v_channel_id, message)	{v_message_id}	InputError when: <ul style="list-style-type: none"> Message is empty Message is more than 1000 characters v_channel_id does not refer to a valid video channel AccessError when: <ul style="list-style-type: none"> Authorised user is not a member of the video channel with v_channel_id 	Send a message in a video channel.

video/messages	GET	(token, v_channel_id, start)	{messages}	<p>InputError when:</p> <ul style="list-style-type: none"> v_channel_id does not correspond to a video channel start is greater than the total number of messages in the channel <p>AccessError when:</p> <ul style="list-style-type: none"> Authorised user is not a member of channel with channel_id 	Returns the list of messages in the video channel.
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[Design] Conceptual Modelling

Now that you have a sense of the problem to solve, and what capabilities you will need to provide to solve it, add at least one state diagram to your PDF to show how the state of the application would change based on user actions. The aim of this diagram is to help a developer understand the different states of the user or application.

Josh's State Diagram



Alice's State Diagram

