

1. Elicitation

We wrote a survey that was given to two people who use a tool like UNSW Beans. They were given the following questions:

1. Do you use a teamwork-driven communication tool (for example, Microsoft Teams)?
2. What is it called?
3. Why do you use the tool (what functionality makes it useful)?
4. What problems do you have with your chosen tool (alternatively, what features/functionality do you wish your chosen tool had)?

We received the following responses:

Name	Luke	Mitchell
Email	lukemassa2003@gmail.com	mitch100@live.com.au
Q1	Yes	Yes
Q2	Teams	Microsoft Teams
Q3	Files stored for all to access, video calls, dark mode, activity status	Being able to video call with messages from the call stored within a channel makes it easy to keep track of what was discussed and for how long past meetings ran. Additionally, the tab storing all files sent within the channel in a single place is useful.
Q4	Misses notification, screenshare only works for one screen at a time, heavy processing power required, hard to find historical messages in chat	It lacks an easy way to view messages from a significant period of time ago; a feature that allows for searching for messages within a certain time frame or containing a certain content would be useful.

2. Analysis & Specification

The following user stories and acceptance criteria are derived from the survey responses we received in stage 1.

User Story 1

I, as a user, want to be able to find messages sent a long time ago through a search specifying when the messages were sent.

Acceptance Criteria 1

- I can select an upper time limit for the search
- I can select a lower limit for the search
- These controls are easy to use
- The search is quick (< 2s)

User Story 2

I, as a user who likes sharing files, want a tab where I can store files among people in my channel.

Acceptance Criteria 2

- Files should be downloadable by other users
- Files should be easy to upload e.g. drag and drop
- There should be a file tab in the channel to list all files that anyone has uploaded
- The user who uploaded the file and the admin should be able to take it down
- The files should be ordered by the time they were uploaded

User Story 3

I, as a user who works in a team, want to be able to see when my team members are online so I can message them and get a quick reply.

Acceptance Criteria 3

- A status icon on each user's profile
 - Online icon
 - Idle/afk icon
 - Offline icon
- The icon will update if they close the tab or don't touch the keyboard
- The user can manually update their status

Use Case 1

Step 1. User clicks search bar.

Step 2. User enters request in the form “(query string) before:(timeBefore)”.

Step 3. System verifies that the query string is 1 to 1000 characters long. If the query string is not valid, throw a HTTP error.

Step 4. Otherwise, the system lists all messages before timeBefore in channels and dms that the user is a part of from most recent to least recent.

Use Case 2

Step 1. User clicks search bar.

Step 2. User enters request in the form “(query string) after:(timeAfter)”.

Step 3. System verifies that the query string is 1 to 1000 characters long and timeAfter is not greater than or equal to the current time. If both conditions are not met, throw a HTTP error.

Step 4. Otherwise, the system lists all messages after timeAfter in channels and dms that the user is a part of from most recent to least recent.

Use Case 3

Step 1. User clicks search bar.

Step 2. User enters request in the form “(query string) before:(timeBefore) after:(timeAfter)”.

Step 3. System verifies that the query string is 1 to 1000 characters long, timeAfter is not greater than or equal to current time and timeAfter is less than timeBefore. If these conditions are not met, throw a HTTP error.

Step 4. Otherwise, the system lists all messages between timeBefore and timeAfter in channels and dms that the user is a part of from most recent to least recent.

3. Validation

We reached out to Mitchell and Luke with our use cases and asked them to comment on whether they would adequately solve their problem. We received the following responses:

Luke	Mitchell
"To a great extent, my needs have 100% been met."	"These cases would perfectly address any prior issues I've had with referring back to prior conversations or meeting details - they're exactly what I would expect out of a message search feature from any team-based communication tool."

4. Interface Design

Name & Description	HTTP Method	Data Types	Errors
<p>/searchAdvanced</p> <p>Given a query substring, returns a collection of messages before “timeBefore” and after “timeAfter” in channels/dms that the authorised user is a part of.</p> <p>Default timeBefore is current time and default timeAfter is 0.</p>	GET	<p>Query Parameters:</p> <p>(queryStr, timeBefore, timeAfter)</p> <p>Return Object:</p> <p>{messages}</p>	<p>400 Error when:</p> <ul style="list-style-type: none">length of queryStr is less than 1 or over 1000 characterstimeBefore is greater than timeAftertimeAfter is greater than current time <p>403 Error when:</p> <ul style="list-style-type: none">Token is invalid

Variable Name	Type
Named exactly queryStr	string
Has prefix time	number
Has suffix Id	number
Named exactly messages	Array of objects, where each object contains types { messageId, uid, message, timeSent, reacts, isPinned }

5. Conceptual Modelling - State Diagram

