

## 5.6 Planning for the next problems

### Elicitation

#### Interviewees:

- Lachlan McArthur:
  - o University Student
  - o lachlanmcarthur2026@gmail.com
- Tom Cattana
  - o Working full time remotely in marketing
  - o tcattana98@gmail.com
- Jack Elcombe
  - o Graduate Architect
  - o jack.elcombe@gmail.com

#### Questions and Answers:

Users	Lachlan McArthur	Tom Cattana	Jack Elcombe
Q1: <b>When using either Zoom, Google Meet or Microsoft teams, what is a feature you find frustrating?</b>	<ul style="list-style-type: none"> <li>- MS Teams</li> <li>- Doesn't like posts page</li> <li>- It doesn't show times that meetings occurred</li> <li>- Hard to tell "what is what"</li> </ul>	<ul style="list-style-type: none"> <li>- MS Teams</li> <li>- Doesn't like chat formatting</li> <li>- Hard to navigate and confusing</li> <li>- Hard to see messages, replies, meetings</li> </ul>	<ul style="list-style-type: none"> <li>- MS Teams</li> <li>- Finds notifications frustrating</li> <li>- Would prefer notifications for only messages being sent</li> <li>- Doesn't want notifications for invites, tags, message reacts</li> </ul>
Q2: <b>What is the most important tool to you on a teamwork communication platform?</b>	<ul style="list-style-type: none"> <li>- Video Call</li> <li>- Thinks video call is essential in the current era with so many people continuing to work from home</li> </ul>	<ul style="list-style-type: none"> <li>- Sticker board</li> <li>- Likes being able to record problems/notes in a communal place without disrupting anyone</li> <li>- Likes how they are easy to access, read, edit for all team members</li> </ul>	<ul style="list-style-type: none"> <li>- Scheduled team meetings with a built-in calendar</li> </ul>
Q3: <b>What is your preferred communication tool for teamwork related activities and why do you use it over others?</b>	<ul style="list-style-type: none"> <li>- Facebook messenger for Informal communication with team members</li> <li>- Microsoft Teams for everything else relating to teamwork</li> </ul>	<ul style="list-style-type: none"> <li>- Discord</li> <li>- Easy to use and navigate</li> <li>- Flexible, can be used for video and audio calls, direct messages, group chats or servers.</li> </ul>	<ul style="list-style-type: none"> <li>- Video calls (Zoom)</li> <li>- The easiest and fastest way to exchange information</li> <li>- More interpersonal</li> <li>- Messaging is too slow for discussing complex projects</li> </ul>

Q4: <b>Of any messaging app (FB messenger, Snapchat, WhatsApp etc.), what is a feature you find annoying or inconvenient?</b>	<ul style="list-style-type: none"> <li>- Tried to set up WhatsApp on their computer and was required to scan a QR code, which they couldn't do because their camera is broken.</li> <li>- Was extremely annoyed by this</li> </ul>	<ul style="list-style-type: none"> <li>- Dislikes 'seen'</li> <li>- When using Snapchat, Facebook Messenger, and WhatsApp, doesn't like that people know when they've read their message</li> </ul>	<ul style="list-style-type: none"> <li>- Wants more privacy</li> <li>- Doesn't like unnecessary information being collected by apps</li> <li>- Has found that registration processes often ask for more information than they really need</li> </ul>
Q5: <b>What is a productivity tool you find very handy or friendly to use on collaborative communicative software?</b>	<ul style="list-style-type: none"> <li>- Likes being able to drag around cards on a Trello board</li> <li>- Finds it easy to organise things</li> </ul>	<ul style="list-style-type: none"> <li>- Likes scheduling tools that show upcoming deadlines and/or due dates</li> <li>- Finds this very useful</li> </ul>	<ul style="list-style-type: none"> <li>- Likes shared task boards</li> <li>- Likes how they allow a project to be broken down into smaller jobs/objectives</li> </ul>
Q6: <b>What is a feature you wish was on Seams? (We let the user have a brief scroll around Seams)</b>	<ul style="list-style-type: none"> <li>- Audio and video calls</li> </ul>	<ul style="list-style-type: none"> <li>- Voice or video calls</li> </ul>	<ul style="list-style-type: none"> <li>- Video Call</li> </ul>

## Problems/Desired Features and Solutions:

<b>Problem/Desired Feature</b>	<b>Solution</b>
No audio calls	Add an audio call feature which can be accessed via DM's or channels.
No video calls	Add a video call feature which can be accessed via DM's or channels.
Task board	Add a task board for channels
Calendar	Add a personal calendar for each user with events that can be linked to channels and DM's.

## Analysis & Specification - Use Cases

User 1: Lachlan McArthur

1. As a university student, I want the posts page of a channel or team to display times of each post so that I can easily refer to previous posts/messages and know when they occurred.

*Acceptance Criteria:*

- i. Each post displays the time sent beside it
- ii. The time sent is in small grey font
- iii. The time sent is easily readable

2. As a university student, I want to have audio/video call so that I can communicate effectively with Team members.

*Acceptance Criteria:*

- i. A video or audio call can be started in a DM
- ii. A video or audio call can be started in a Channel
- iii. Participants (including the user who started the call) can join or leave the call whilst the call continues
- iv. A participant can share their screen
- v. A participant can mute/unmute themselves
- vi. A participant can mute another participant
- vii. A participant can turn their video on/off

3. As a university student, I want to be able to drag items on a task board around so that it is easy to reorganise and update.

*Acceptance Criteria:*

- i. Channels and DMs contain a task board
- ii. Lists can be dragged around the board
- iii. Tasks can be dragged from one list to another
- iv. Tasks can be dragged up or down within a list

4. As a university student, I want to have an alternative to QR codes when registering for an app so that if my camera doesn't work, I can still register.

*Acceptance Criteria:*

- i. *Given* the user is registered for Seams on their desktop
- ii. *And* the user would like to register Seams on their phone
- iii. *When* a QR code on their desktop can be scanned by their phone for registration
- iv. *Then* the user has an alternative option to register via email

User 2: Tom Cattana

1. As an employee working remotely in marketing, I want the messages in a channel/team to be easy to read and reply to so that I can quickly digest the messages that have been sent.

*Acceptance Criteria:*

- i. The messages are separated by empty space
- ii. Each individual message sent by the user is encircled by its own orange bubble
- iii. Each individual message sent by other users is encircled by a grey bubble
- iv. Messages are displayed in order of most recent to least recent from the top of the page down

2. As an employee working remotely in marketing, I want to have a task board so that I can record issues/notes without disturbing other team members.

*Acceptance Criteria:*

- i. Lists can be added to a task board
- ii. Tasks can be added to a list
- iii. Tasks can be edited by each user
- iv. Tasks contain a description
- v. Tasks contain the option of a due date, assignee, alert, and coloured label

3. As an employee working remotely in marketing, I want a scheduling tool so that I am reminded of upcoming deadlines and due dates.

*Acceptance Criteria:*

- i. Each user has a personal calendar
- ii. Due dates can be added to the calendar
- iii. The calendar can be synced with a channel or DM
- iv. Due dates on a calendar can be shared with a channel or DM
- v. Due dates can have notifications at intervals prescribed by the user

4. As an employee working remotely in marketing, I want to have audio and video call so that I can communicate effectively with Team members.

*Acceptance Criteria:*

- i. A video or audio call can be started in a DM
- ii. A video or audio call can be started in a Channel
- iii. Participants (including the user who started the call) can join or leave the call whilst the call continues
- iv. A participant can share their screen
- v. A participant can mute/unmute themselves
- vi. A participant can mute another participant
- vii. A participant can turn video on/off

User 3: Jack Elcombe

1. As an Architect I find notifications on Microsoft teams to be inconvenient, I want to receive a notification for each channel message or dm that is sent to me as well as invitations or requests to join a channel so that I am only made aware of only the necessary information.

*Acceptance Criteria:*

- i. Given a valid user is logged in, when they receive a channel message, dm message or channel invite, then they should receive a notification outlining the relevant information for only those cases.
2. As an Architect, I want a built-in calendar so I can manage tasks and schedule meetings/events with my peers.

*Acceptance Criteria:*

- i. Calendar displays a week or month in a grid format
  - ii. Each day is represented by a grid that can contain the events/tasks for that day
  - iii. By adding a task to a specific grid/date, the user makes this viewable to all users given access to this calendar.
  - iv. Other users can be given invites to specific tasks
  - v. Other users can be sent meeting invites which if accepted will be represented as a task in their personal calendar's
3. As an Architect, I want data privacy while using communications software so that my details are secure and that my data is not at risk of mis usage.

*Acceptance Criteria:*

- i. Only user's email, password, first and last name will be stored and more personal details (Gender, age, etc.) will not be tracked.
  - ii. Data relating usage of the product will not be tracked
  - iii. The user's details will be hidden behind a wall of encryption
  - iv. The user may select two-factor authentication for logging in. In this case, the user will need to be sent an authentication email containing a security code and a link to complete the login process.
  - v. JWT authorisation will continue to be used to verify a user throughout accessing the system features.
4. As an Architect, I want to be able to arrange task boards so that I can easily break down project assumptions.

*Acceptance Criteria:*

- i. Boards can be created for different projects
- ii. Boards can contain a number of lists
- iii. These lists contain a collection of tasks or items which can be moved freely between the board.
- iv. Each item has a title description and due date
- v. Boards and items can be starred/pinned
- vi. Boards can be shared between users

### Use Case

#### MAIN SUCCESS SCENARIO (Calendar)

Step 1. The user selects "Create new meeting" in the calendar module.

Step 2. The website creates a pop up tab which asks for the user for the following information:

- Meeting Name:
- Attendees:
- Meeting start:
- Expected duration:
- Add location (Optional)
- Recurrence period:
- Description (Optional):

Step 3. The user inputs the required meeting information and clicks "Create"

Step 4. The server verifies the user is logged in and is authorised to create this meeting.

Step 5. If verified, the server then checks that all meeting information is valid and verifies that the attendees are all valid users.

Step 6. Once this is complete, the server stores the meeting details and generates the notification for the people invited.

Step 7. The server then sends back the user's updated calendar and the notifications to invited users.

Step 8. The app displays this information to the user.

**Use Case:** User creates new meeting.

**Goal in Context:** The user wants to create a new meeting time slot in their calendar.

**Scope:** Collaborative calendar feature

**Level:** Secondary task

**Preconditions:** The student is logged into the system and in the calendar module.

**Success End Condition:** Users can view the meeting time slot in their personal calendar and all meeting attendees are emailed a meeting initiation.

**Failed End Condition:** User is either not authorised or has input invalid meeting criteria.

**Primary Actor:** User

**Trigger:** User selects "Create Meeting" in calendar module.

### Validation

**Lachlan McArthur:**

Are you pleased with acceptance criteria for the implementation of message time display?

Yes, this is what I was hoping for.

Does the description of audio/video calls meet your expectation?

Not quite, I would like to see a chat functionality added as this would be more useful for larger meetings.

Are you satisfied with the acceptance criteria for the task board feature?

Yes, that meets my expectations.

H09B - Badger

We have chosen not to implement QR codes when registering for our system. Does our preferred method meet your expectations?

Yes, this method has less limitations.

**Tom Cattana**

Are you satisfied with the description of message formatting?

Yes, however I would add a time stamp for each message sent.

Do the acceptance criteria for task board implementation meet what you had hoped for?

Yes, this would be quite helpful during meetings.

Is the proposed calendar tool described as you would prefer?

No, I was hoping for more functionality relating to meeting scheduling.

Are you pleased with the interpretation of the audio/video call feature?

Yes, this seems like an accurate interpretation.

**Jack Elcombe**

Does the newly proposed notification structure meet your expectations?

Yes, that much more succinct.

Is our interpretation of your calendar proposal correct?

Yes, this what I was hoping for.

Do our data privacy policies satisfy your expectations?

Yes, I appreciate the lack of usage data tracking

Are you pleased with the acceptance criteria for the task board functionality?

Yes, however under the current description the formatting seems a bit rigid and unclear. I would hope that upon implementation the formatting is clear and easy to use

## Interface Design

Route / CRUD	Input	output	description
/channel/vc/start  CRUD: POST	Token (str) ch_id (int) is_video (bool) is_public (bool)	{vc_id}	<p>A user can initiate a VC call in a channel that they are a current member of. They can choose to make this VC public or private.</p> <p>They can also choose if this VC allows video function (VC defaults to audio chat function, but when video is allowed, user can choose to chat in Video)</p> <p>Multiple instances of VC are allowed to be run simultaneous in one channel</p> <ul style="list-style-type: none"> <li>- InputError: <ul style="list-style-type: none"> <li>- When channel_id does not belong a valid channel</li> </ul> </li> <li>- AccessError: <ul style="list-style-type: none"> <li>- When user's session is invalid or is expired</li> <li>- When channel_id exists but user is not a current member of the channel</li> </ul> </li> </ul>
/channel/vc/join  CRUD: POST	Token (str) ch_id (int) vc_id (int)	{}	<p>A user can join an ongoing non-private VC.</p> <ul style="list-style-type: none"> <li>- InputError: <ul style="list-style-type: none"> <li>- When channel_id does not belong a valid channel</li> <li>- When vc_id does not point to an ongoing VC in this channel</li> </ul> </li> <li>- AccessError: <ul style="list-style-type: none"> <li>- When user's session is invalid or is expired</li> <li>- When channel_id and vc_id are valid but user is not a current member of the channel</li> <li>- When vc_id is valid but it is not a part of this channel</li> </ul> </li> </ul>
/dm/vc/start  CRUD: POST	Token (str) dm_id (int) is_video (bool)	Vc_id	<p>A user can initiate a VC call in a DM that they are a current member of.</p> <p>They can also choose if this VC allows video function.</p> <p>Only one instance of VC is allowed at a time in a DM.</p>



			<ul style="list-style-type: none"> <li>- InputError: <ul style="list-style-type: none"> <li>- When dm_id does not belong a valid DM</li> <li>- When a VC instance is already running</li> </ul> </li> <li>- AccessError: <ul style="list-style-type: none"> <li>- When user's session is invalid or is expired</li> <li>- When dm_id exists but user is not currently involved in this DM</li> </ul> </li> </ul>
/dm/vc/join  CRUD: POST	Token (str) dm_id (int)	{}	<p>A user can join an ongoing non-private VC.</p> <ul style="list-style-type: none"> <li>- InputError: <ul style="list-style-type: none"> <li>- When dm_id does not belong a valid DM</li> <li>- When vc_id does not point to an ongoing VC in this DM</li> </ul> </li> <li>- AccessError: <ul style="list-style-type: none"> <li>- When user's session is invalid or is expired</li> <li>- When dm_id and vc_id are valid but user is not currently involved in this DM</li> <li>- When vc_id is valid but it is not a part of this DM</li> </ul> </li> </ul>
/calendar/addevent/personal  CRUD: POST	Token (str) Date (str) - i.e. '1970/1/1' Time (str) - i.e. '16:30' Description (str) Recur_period (int)	{event_id}	<p>Add an event to user's personal calendar. Details of the event can be entered as descriptions. Event can be recurring, put 0 if this is a one-time event. Recur_period is interpreted in hours.</p> <ul style="list-style-type: none"> <li>- InputError <ul style="list-style-type: none"> <li>- If date and Time is before the current date and time of composition</li> <li>- If recur_period is negative</li> <li>- If description exceed 1000 characters in length</li> </ul> </li> <li>- AccessError <ul style="list-style-type: none"> <li>- When user's session is invalid or is expired</li> </ul> </li> </ul>
/calendar/removeevent/personal  CRUD: DELETE	Token (str) event_id (str)	{}	<p>Users can remove an event from their calendar</p> <ul style="list-style-type: none"> <li>- InputError: <ul style="list-style-type: none"> <li>- If the event_id does not point to a valid event</li> </ul> </li> <li>- AccessError:</li> </ul>

			<ul style="list-style-type: none"> <li>- When user's session is invalid or is expired</li> <li>- If the event_id exist but it is another users'</li> </ul>
/calendar/add-event/channel  CRUD: POST	Token (str) Date (str) Time (str) Description (str) Recur_period (int)	{event_id}	Add an event to the channel calendar. Details of the event can be entered as descriptions. Event can be recurring, put 0 if this is a one-time event. Recur_period is interpreted in hours.  <ul style="list-style-type: none"> <li>- InputError             <ul style="list-style-type: none"> <li>- If date and Time is before the current date and time of composition</li> <li>- If recur_period is negative</li> <li>- If description exceed 1000 characters in length</li> </ul> </li> <li>- AccessError             <ul style="list-style-type: none"> <li>- When user's session is invalid or is expired</li> </ul> </li> </ul>
/calendar/raise-meeting  CRUD: POST	Token (str) ch_id (int) Details (dict)  Details is a dictionary containing: <ul style="list-style-type: none"> <li>- Meeting_name (str)</li> <li>- Attendees (list   u_id (int))</li> <li>- expected_start (dict   date (str), time (str))</li> <li>- expected_duration (hours (int))</li> <li>- location (str)</li> <li>- recur_period (int)</li> <li>- description (str)</li> </ul>	{Meet_id}	Adds a meeting to channel calendar. Details must include the meeting name, attendees and expected start time duration and recur_period. Recur_period is counted in hours, defaulted to 0 for non-recurring.  Locations and descriptions can be left empty as they are optional.  When meeting time is met, all attendees will be pinged with notifications containing details, and a video VC will be started immediately.  <ul style="list-style-type: none"> <li>- InputError             <ul style="list-style-type: none"> <li>- If ch_id does not belong to a valid channel</li> <li>- If expected_start (date and time) is before the current date and time of composition</li> <li>- If expected_duration is negative</li> <li>- If recur_period is negative</li> <li>- If meeting_name is empty or over 200 characters in length</li> <li>- If description exceed 1000 characters in length</li> <li>- If location exceeds 200 characters in length</li> </ul> </li> </ul>

			<ul style="list-style-type: none"> <li>- <b>AccessError</b> <ul style="list-style-type: none"> <li>- When user's session is invalid or is expired</li> <li>- When ch_id is valid but user is not a current member of this channel</li> <li>- When attendees include users that are not current members of this channel</li> </ul> </li> </ul>
/calendar/removeevent/channel  CRUD: DELETE	Token (str) ch_id (int) event_id (int)	{}	Users can remove an event from their calendar  - <b>InputError:</b> <ul style="list-style-type: none"> <li>- If the event_id does not point to a valid event</li> <li>- If ch_id does not belong to a valid channel</li> </ul> - <b>AccessError:</b> <ul style="list-style-type: none"> <li>- When user's session is invalid or is expired</li> <li>- If the ch_id and event_id are valid but user is not a current member of this channel</li> <li>- If the event_id exist but it is not part of this channel</li> </ul>
/calendar/removeevent/meeting  CRUD: DELETE	Token (str) ch_id (int) Meet_id (int)	{Meet_id}	Removes a meeting from channel calendar.  - <b>InputError</b> <ul style="list-style-type: none"> <li>- If ch_id does not belong to a valid channel</li> <li>- If meet_id_start does not point to a valid meeting</li> </ul> - <b>AccessError</b> <ul style="list-style-type: none"> <li>- When user's session is invalid or is expired</li> <li>- When ch_id and meet_id is valid but user is not a current member of this channel</li> <li>- If the meet_id exist but it is not part of this channel</li> </ul>
/calendar/view/personal  CRUD: GET	Token (str) event_id (int) Start (int)	{events}  (events is a list of dictionaries containing each event)	Allows user to view all events on the personal calendar. This employs the same pagination technique as messages. Start = 0 will start from the most recent schedule, and will load a maximum of 50 events every load.  - <b>InputError:</b>

		{date: XXX, time: XXX, description}	<ul style="list-style-type: none"> <li>- event_id doesn't point to a valid event</li> <li>- start exceeds the maximum number of events on the calender</li> </ul> <ul style="list-style-type: none"> <li>- AccessError: <ul style="list-style-type: none"> <li>- When user's session is invalid or expired</li> <li>- When the event_id exists but it belongs to another user</li> </ul> </li> </ul>
/calendar/view/ channel  CRUD: GET	Token (str) Ch_id (str) Event_id (int) Start (int)	{events}  (events is a list of dictionaries containing each event)   {date: XXX, time: XXX, description}	Allows user to view all events on the channel calender. This employs the same pagination technique as messages. Start = 0 will start from the most recent schedule, and will load a maximum of 50 events every load.  <ul style="list-style-type: none"> <li>- InputError: <ul style="list-style-type: none"> <li>- channel_id doesn't belong to a valid channel</li> <li>- event_id doesn't point to a valid event</li> <li>- start exceeds the maximum number of events on the calender</li> </ul> </li> <li>- AccessError: <ul style="list-style-type: none"> <li>- When user's session is invalid or expired</li> <li>- When the channel_id and event_id are valid but the user is not a current member of this channel</li> <li>- When the event_id exists but it belongs to another channel</li> </ul> </li> </ul>
/taskboard/post  CRUD: POST	Token (str) ch_id (int) Task_name (str) Task_description (str) expected_due_date (str) I.e. '1970/1/1'	{task_id}	Allows user to post a task or issue on the channel board to be seen by every member. Details can be put in the description and an expected due date to be added.  <ul style="list-style-type: none"> <li>- InputError: <ul style="list-style-type: none"> <li>- ch_id doesn't belong to a valid channel</li> <li>- task_name must be between 1 and 1000 characters in length</li> <li>- task_description must be between 1 and 1000 characters in length</li> <li>- expected_due_date must not be before the day of this post</li> </ul> </li> </ul>

			<ul style="list-style-type: none"> <li>- <b>AccessError:</b> <ul style="list-style-type: none"> <li>- When user's session is invalid or expired</li> <li>- When ch_id is valid but user is not a current member of the channel</li> </ul> </li> </ul>
/taskboard/view  CRUD: GET	Token (str) ch_id (int) Start (int)	{task_list}  (a list of tasks and details)	Allows user to view all tasks on the taskboard. This employs the same pagination technique as messages. Start = 0 will start from the most recent post, and will load a maximum of 50 tasks every load.  <ul style="list-style-type: none"> <li>- <b>InputError:</b> <ul style="list-style-type: none"> <li>- ch_id doesn't belong to a valid channel</li> <li>- start exceeds the maximum number of tasks on the board</li> </ul> </li> <li>- <b>AccessError:</b> <ul style="list-style-type: none"> <li>- When user's session is invalid or expired</li> <li>- When ch_id is valid but user is not a current member of the channel</li> </ul> </li> </ul>
/taskboard/take  CRUD: POST	Token (str) ch_id (int) task_id (int)	{}	Allows users to assign the tasks on the taskboard to themselves.  <ul style="list-style-type: none"> <li>- <b>InputError:</b> <ul style="list-style-type: none"> <li>- ch_id doesn't belong to a valid channel</li> <li>- task_id doesn't point to a valid task</li> </ul> </li> <li>- <b>AccessError:</b> <ul style="list-style-type: none"> <li>- When user's session is invalid or expired</li> <li>- When ch_id and task_id is valid but user is not a current member of the channel</li> <li>- When task_id is valid but it doesn't belong to the taskboard of this channel</li> </ul> </li> </ul>
/taskboard/complete  CRUD: DELETE	Token (str) ch_id (int) task_id (int)	{}	Allows users to mark the tasks they have taken as complete.  <ul style="list-style-type: none"> <li>- <b>InputError:</b> <ul style="list-style-type: none"> <li>- ch_id doesn't belong to a valid channel</li> </ul> </li> </ul>

			<ul style="list-style-type: none"><li>- task_id doesn't point to a valid task</li><li>- AccessError:<ul style="list-style-type: none"><li>- When user's session is invalid or expired</li><li>- When ch_id and task_id is valid but user has not taken the task</li><li>- When task_id is valid but it doesn't belong to the taskboard of this channel</li></ul></li></ul>
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Conceptual Modelling (State):

