PLANNING

[REQUIREMENTS] ELICITATION

Respondents Details:
1. Yung Kim (email)
2. Brianna Fong (email)

The given questions:
- What is one application that you wish Streams would implement to improve the communication experience?
- What is the feature currently in Streams that you think can be improved and why?

Responses:
Both respondents wrote about how they had wished a call function had been implemented. Yung also thought that the message functions of streams could be improved so that there existed a way to reply to people instead of just a general stream of messages.

Proposed Solution:
- Call feature:
    - which supports 1-1 and multiple users voice calls.
    - users are able to mute or unmute their microphone

- Replying to messages feature
    - Users are able to reply a specific message

[REQUIREMENTS] ANALYSIS & SPECIFICATION - USE CASES

User Story #1
As a student, I want to be able to call a team member, so that we can more easily communicate our ideas vocally and conduct virtual meetings.

Acceptance criteria:
- The feature to call shall be available on both DMs and channels.
- When a user starts a call in a channel or DM, a message is sent into that channel or DM stating a call has started.
- Each member in a channel or DM shall be able to join a call that is occurring in that respective channel or DM.
- During the call, users shall have the ability to mute and unmute their microphones.
- At the end of a call, users shall have the ability to leave the call.
- When the last user leaves a call, the call shall be automatically ended.

- After the call ends, the original message that indicates a call has started will be updated to show the duration and attendees present in the call.

User Case:
- User case: call with the members in channels or channels
- Goal context: The user wants to start or join a voice call with the members in dms or channels
- Scope: DMs and channels in UNSW streams
- Level: Primary Task
- Preconditions:
  - For starting the call, The user has registered an account and is logged in. The user is also part of at least one channel or DM.
  - For joining the call, the user has registered an account and is logged in. The user is also part of at least one channel or DM. The call exists and is ongoing when the user joins in.
- Success End Conditions: A user can start or join a call in a channel/DM.
- Failed End Conditions: A user cannot start or join a call in a channel/DM.
- Primary Actor: User
- Trigger: User click on the 'start' call or 'join' call'

Success Scenario 1:
1. A member of a channel or dm clicks on the option to 'start' call.
2. A message is sent in the chat that indicates a call is started by that user.
3. Members in the channel or dm join the call.
4. During the call, users mute and unmute their microphones at any interval throughout the call.
5. Some users in the call leave the call.
6. When the last user has left the call, the call is automatically ended and the message is updated in the channel or dm to display the duration of the call and users that attended.

User Story #2
As a student, I want to be able to reply to specific messages, so that I can more directly communicate with team members and so that my message does not get lost under everyone else's.

Acceptance criteria:
- There shall be a feature next to every message that allows a user to reply to that message directly.
- Only members of a channel or DM that a message is part of can reply to that message.
- Also, the user that sent the message is able to reply to their own message given that they are still a member of that channel or DM the message was sent in.

- When another member replies, the original user that sent the message shall get a notification that someone replied to their message.
- When a user replies to a message, the user that sent the original message and the original message itself is shown in the reply.
  - E.g. "*User 1: This message is being sent*
                   [reply] "

User Case:
- User case: reply to a specific message in channels or channels
- Goal context: The user wants to reply the message in the channels or dms
- Scope: dms and channels in UNSW streams
- Level: Primary Task
- Preconditions:

  The user is a valid member in the channel or the dm. The message the user wishes to reply exists and is valid. The length of message must within 1 to 1000 characters inclusively

- Success End Conditions:
  - A user can reply to the message in the channel or the dm
- Failed End Conditions:
  - A user cannot reply to the message in the channel or the dm
- Primary Actor: User
- Trigger: User click on the 'reply' option of the message that they wish to reply

Success Scenario 1:
1. User sees a message and wants to reply it
2. User clicks on 'reply' option
3. User writes their message that replies to the original message.
4. When the user sends the message, the format of the message will include the original user's handle, the original message and indented below is the replied message.

[REQUIREMENTS] VALIDATION

The given questions:
- To what extent did these use cases adequately describe the problem you stated previously?

Responses
Yung Kim:
"The use cases described the problem of the call function to a significant extent providing a solution to better communicate more efficiently between other users other than through

messaging. Additionally, the use case for reply was also well-described in providing a method to directly respond to a specific message."

Brianna Fong
"I think it basically meets the requirement of having an immediate call in the channel. So this improves our communication efficiency and teamwork and communication experience. It will be better if a video call is available to us in the future."

[DESIGN] INTERFACE DESIGN

Input/Output types

Variables names	Type
call_id	integer
(outputs only) named exactly **u_ids**	List of user ids
Has suffix _message_id	integer
(outputs only) named exactly **call**	List of dictionaries, where each dictionary contains types { u_ids, time_created}

Interface

Name & Description	HTTP Method	Data Types	Exception
call/dm/start/v1 Given the dm_id, the user starts a call and a message will be sent to the channel to indicate the call has started.	**POST**	**Parameters:** { token, dm_id} **Return Type:** {call_id, message_id}	**Input error:** ● dm_id does not refer to a valid DM **Access Error:** ● Dm_id is valid but the authorised user is not a member of the dm
call/channel/start/v1 Given the channel_id, the user starts a call and a message will be sent to the channel to indicate the call has started.	**POST**	**Parameters:** { token, channel_id } **Return Type:** { call_id, message_id }	**Input error:** ● Channel_id does not refer to a valid channel. **Access Error:** ● Channel_id is valid but the authorised user is not a member

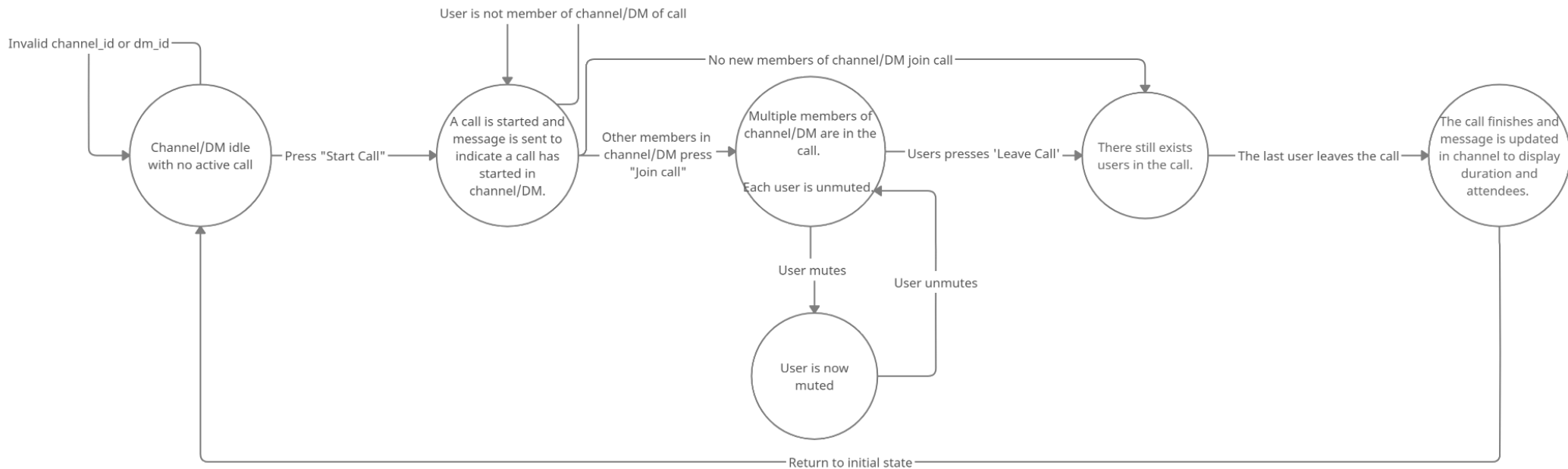|			of the channel
call/channel/join/v1 Given a call_id that the authorised user can join, adds them to that call in the channel. Append the user's id to the list of u_ids.	**POST**	**Parameters:** { token, channel_id, call_id } **Return Type:** { call }	**Input error:** ● Call_id does not refer to a valid call ● Channel_id does not refer to a valid channel ● The authorised user is already joined the call **Access Error:** ● Channel_id is valid but the authorised user is not a member of the channel
call/dm/join/v1 Given a call_id that the authorised user can join, adds them to that call in the dm. Append the user's id to the list of u_ids.	**POST**	**Parameters:** { token, call_id, dm_id } **Return Type:** { call }	**Input error:** ● Call_id does not refer to a valid call ● Dm_id does not refer to a valid dm ● The authorised user is already joined the call **Access Error:** ● dm_id is valid but the authorised user is not a member of the dm
call/mute/v1 Given a call_id that the authorised user is in, mute themselves in the call.	**POST**	**Parameters:** { token, call_id } **Return Type:** { call_id }	**Input error:** ● Call_id does not refer to a valid call ● The authorised user is already muted. **Access error:** ● Call_id is valid but the authorised user is not part of the call_id
call/unmute/v1 Given a call_id that the authorised user is currently in,unmute themselves in the call.	**POST**	**Parameters:** { token, call_id } **Return Type:** { call_id }	**Input error:** ● Call_id does not refer to a valid call ● The authorised user is already unmuted **Access error:**

			● Call_id is valid but the authorised user is not part of the call_id
call/end/v1 Given the call_id, the call automatically ends when the last user leaves the call. A message will be sent to the channel to indicate the call has ended. Included in the message is the duration of the call and the handles of the users that attended the call.	**DELETE**	**Parameters:** { token, call_id, message_id } **Return Type:** { }	**Input error:** ● Call_id does not refer to a valid call ● Message_id does not refer to a valid message_id **Access error:** ● Call_id is valid but the authorised user is not part of the call_id
message/reply/v1 Given a channel with ID channel_id that the authorised user is a member of, reply to a message to the message with od_message_id.	**POST**	**Parameters:** { token, channel_id, og_message_id } **Return Type:** { reply_message_id }	**InputError when any of:** ● channel_id is invalid ● og_message_id does not refer to a valid message within a channel/DM that the authorised user has joined ● length of reply_message_id is less than 1 character or more than 1000 characters **AccessError when:** ● the channel_id is valid and the authorised user has not joined the channel that the og_message_id they are replying to is part of
message/replydm/v1 Given a dm with ID dm_id that the authorised user is a member of, reply to a message to the message with od_message_id.	**POST**	**Parameters:** { token, dm_id, og_message_id } **Return Type:** { reply_message_id }	**InputError when any of:** ● dm_id is invalid ● og_message_id does not refer to a valid message within a channel/DM that the authorised user has joined ● length of

| | | | reply_message_id is less than 1 character or more than 1000 characters |
| | | | **AccessError when:**
● the dm_id is valid and the authorised user has not joined the DM that the og_message_id they are replying to is part of |

[DESIGN] CONCEPTUAL MODELLING (STATE)

Call Feature

User is not member of channel/DM of call

Invalid channel_id or dm_id

No new members of channel/DM join call

Channel/DM idle with no active call — Press "Start Call" → **A call is started and message is sent to indicate a call has started in channel/DM.**

Other members in channel/DM press "Join call" → **Multiple members of channel/DM are in the call. Each user is unmuted.**

Users presses 'Leave Call' → **There still exists users in the call.**

The last user leaves the call → **The call finishes and message is updated in channel to display duration and attendees.**

User mutes → **User is now muted** → User unmutes

Return to initial state

Message Reply Feature

User is not member of channel/DM of that call

Invalid channel_id or dm_id

Channel/DM contains at least one message. — Press "Reply" to existing message → **User is able to write their reply as a message.** — Send message → **Message is sent in channel/DM with format that includes the original user's handle, original message and the replied message.**

Return to initial state