COMP 1531 - Software Engineering Fundamentals

Term 1 – 2022

Iteration 3 - Short Report on Seams' future problems to solve

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Elicitation

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 Seams.

The structure of the interview is done through Google Forms accompanied by follow up questions (when necessary), the form can be accessed through https://forms.gle/n1HCYUqPvrQ7TgHEA.

The following questions were asked in the form:

1.   Have you used teamwork-driven communication tools before (e.g. Microsoft Teams)?
2.   If no, do you intend to use such tools in the future?
3.   In your opinion, what are the most important features of such tools?
4.   Does Seams have those features you described above?
5.   Would you use Seams as your future teamwork communication tool? Why or why not?
6.   Compared to existing teamwork communication tool that you use, what features do you think Seams is lacking?
7.   If you are given a team of prodigy programmers that will follow all your instructions precisely and perfectly but you can only ask them to code for Seams, what would you make them do?
8.   Seams.Ltd is now a public company and you own 90% of the shares. The Seams software is about to roll out in public, what is one thing that you will make sure Seams has to make it as successful as possible to make you a trillionaire.

The reason for the design of the above questions:

Questions 1 and 2 are used to make sure the interviewees fits the criteria of our target users. Questions 3 to 6 are standard questions asking users to identify their requirements and problems with teamwork-driven communication tools and compare them with the current features of Seams. Questions 7 and 8 are designed to ask users for desired future features of Seams without worrying about the technical and financial feasibilities.

Interviewee details:

User No.	Full Name	Email
1	Ray Chen	raychen235@gmail.com
2	Daniel Miu	dmiubusiness@gmail.com
3	Calvin Xu	calvin.xu0212@gmail.com

User 1

Have you used teamwork-driven communication tools before (e.g. Microsoft Teams)? *

◉ Yes

○ No

1.

If no, do you intend to use such tools in the future?

○ Yes

○ No

○ Maybe

2.

In your opinion, what are the most important features of such tools? *

call/video feature, connection stability, preservation of message histories, large file sharing sizes, the
ability to create polls/mention specific groups/permission settings, intuitive UI

3.

Does Seams have those features you described above? *

○ Yes, all of them

○ Yes, most of them

◉ Yes, some of them

○ No

○ Other:

4.

Would you use Seams as your future teamwork communication tool? Why or why not? *

No, i need at least call features for teamwork communication. Seams is currently a message only tool, then I would rather use existing tools like Messenger that most people use already.

5.

Compared to existing teamwork communication tool that you use, what features do you think Seams is lacking? *

If you don't use an existing teamwork communication tool, put n/a.

call, video, share screen, group calendar, collaborative whiteboard, poll function, cloud storage

6.

If you are given a team of prodigy programmers that will follow all your instructions precisely and perfectly but you can only ask them to code for Seams, what would you make them do? *

- make application versions of Seams that supports phone, tablet, VR headset.
- Turn seams into a virtual reality environment where teams can log in and see everyone in their virtual character.
- optimise the application to make it very energy efficient, imagine u can video on seams for 24 hours and it still doesn't eat up your battery.

7.

Seams.Ltd is now a public company and you own 90% of the shares. The Seams software is about to roll out in public, what is one thing that you will make sure Seams has to make it as successful as possible to make you a trillionaire. *

networking features, age authentication, ads, connect with large companies and make them use Seams as official communication tool, heavy data encryption

8.

Have you used teamwork-driven communication tools before (e.g. Microsoft Teams)? *

◉ Yes

○ No

1.

If no, do you intend to use such tools in the future?

○ Yes

○ No

○ Maybe

2.

In your opinion, what are the most important features of such tools? *

Chat feature, call feature, ability to upload files

3.

Does Seams have those features you described above? *

○ Yes, all of them

○ Yes, most of them

◉ Yes, some of them

○ No

○ Other: _____

4.

5.

> **Would you use Seams as your future teamwork communication tool? Why or why not?** *
>
> I do not think so, the inability to make calls within the program and upload files make it difficult to use it as a communication tool in a corporate environment.

6.

> **Compared to existing teamwork communication tool that you use, what features do you think Seams is lacking?** *
>
> If you don't use an existing teamwork communication tool, put n/a.
>
> call feature, ability to upload files

7.

> **If you are given a team of prodigy programmers that will follow all your instructions precisely and perfectly but you can only ask them to code for Seams, what would you make them do?** *
>
> better UI, implement features such ability to call, upload files, optional: gifs, etc

8.

> **Seams.Ltd is now a public company and you own 90% of the shares. The Seams software is about to roll out in public, what is one thing that you will make sure Seams has to make it as successful as possible to make you a trillionaire.** *
>
> Using the capital gained from taking seams public to have a geographic focused marketing campaign to take market share in order to leverage user growth for global expansion and further capital raises

    a. *Follow up question:*
   This question was intended to ask about what users think would be the most critical/important feature that most people would need in a teamwork-driven communication tool. In other words, this question is asking for a technical feature you would add, rather than the business aspect of things. With this context in mind, please reanswer the question.

   Answer:
   I think the most critical technical feature for the product to be successful in the market is to make it good looking, so definitely an attractive UI.

Have you used teamwork-driven communication tools before (e.g. Microsoft Teams)? *

- ⦿ Yes
- ◯ No

1.

If no, do you intend to use such tools in the future?

- ◯ Yes
- ◯ No
- ◯ Maybe

2.

In your opinion, what are the most important features of such tools? *

Easy to use, simple user interface, ability to privately message others or message a group

3.

Does Seams have those features you described above? *

- ◯ Yes, all of them
- ◯ Yes, most of them
- ⦿ Yes, some of them
- ◯ No
- ◯ Other:

4.

> **Would you use Seams as your future teamwork communication tool? Why or why not? ***
>
> Probably not because it seems very basic compared to other communication tools. The user interface feels lacking.

5.

> **Compared to existing teamwork communication tool that you use, what features do you think Seams is lacking? ***
>
> If you don't use an existing teamwork communication tool, put n/a.
>
> User interface could be more fleshed out. Not sure how to join other channels or make a public channel

6.

> **If you are given a team of prodigy programmers that will follow all your instructions precisely and perfectly but you can only ask them to code for Seams, what would you make them do? ***
>
> Have more features ini Seams like calendar, assignments, etc.

7.

> **Seams.Ltd is now a public company and you own 90% of the shares. The Seams software is about to roll out in public, what is one thing that you will make sure Seams has to make it as successful as possible to make you a trillionaire. ***
>
> Clean unique user interface with many fleshed out features

8.

Brief summary of the problems described in the above interviews

Seams is lacking in some fundamental features such as voice calls, video calls, and file uploads and needs enhancement in the user interface, connection stability and private messaging features. Additional features such as calendars, cloud storage, and screen shares would be very helpful to users.

Brief description of a proposed solution to the problems above

Seams need to add in the additional features of stable voice and video calls first, then implement features that allow users to upload files in different channels and DMs. Then, Seams should try and enhance the current user interface into something more intuitive for users. When the Seams team have

enough resources, slowly implement additional features that are beneficial for team users such as the team calendar.

Analysis & Specification - Use Cases

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.

User Stories and Acceptance Criteria

Key:
- ★ *User Story*
- ➢ *Acceptance Criteria*

User 1

- ★ As a team member, I want to be aware of my team's milestones and deadlines so that we would deliver our products in time.
- ➢ Seams should provide a team calendar that
    - ➢ Displays milestone dates
    - ➢ Displays deadline dates
    - ➢ Users can add milestones dates
    - ➢ Users can add deadline dates
    - ➢ Alert notifications to every team member once a new milestone/deadline is added

- ★ As a team member, I want to have something that records all the meeting times for me so that I would be less late to meetings.
- ➢ Seams calendar should provide
    - ➢ A feature to add meeting time slots
    - ➢ Each meeting should alert team members with a notification 30 minutes before the meeting starts

- ★ As a work from a home team member, I want to talk with my team as if we were working in person so that we can minimise miscommunication.
- ➢ Dm features should be supported across all team members
- ➢ Dm should support sending and receiving voice messages
- ➢ Provide a voice call feature that supports multiple users to be on a call together
- ➢ Provide a video call feature that supports multiple users to be on a call together
- ➢ Multiple voice and video calls happening simultaneously should be supported between different team members to mimic the workplace environment

- ★ As a fast-pace environment team member, I want to access Seams on different devices so that I can always be instantly connected to my team if updates occur
- ➢ Seams' web UI needs to accommodate desktop/phone/tablet/TV sizes
- ➢ Have application versions of Seam that can be downloaded in phones and computers
- ➢ A notification should pop up when an update occurs (for all relevant users of the update)

- ★ As a team member, I want to have all the team files in one place so that I know I'm not working on outdated versions of files.
- ➢ A channel should provide its own cloud storage that all team members have access to
- ➢ The files in cloud storage should display the last updated date of each file
- ➢ The files in cloud storage should provide a file log that records the history of changes of the files

User 2

- ★ As a corporate worker, I want to call my team members so that I can show them what I am working on instantly.
- ➢ Provide a voice call feature that supports multiple users to be on a call together
- ➢ Provide a video call feature that supports multiple users to be on a call together
- ➢ Video calls should provide a screen sharing feature
- ➢ Dm and channel messages should support sending and receiving files

- ★ As a non-technical user, I don't want to spend a lot of time learning how to use Seams so that I can focus on my work.
- ➢ The user interface should be designed with elements that are consistent with industry standards
- ➢ The user interface should display a label for every button
- ➢ The user interface should always display a message or a progress signal for every user action
- ➢ Provide a help section that documents frequently asked questions and answers

- ★ As a humorous person, I want to send memes and emojis to my colleagues so that it lightens the working mood.
- ➢ Messages should support standard emojis
- ➢ Messages should support the sending of image files
- ➢ Sent image files should provide a preview display on the screen
- ➢ Messages should support reaction with standard emojis

User 3

- ★ As a frequent user of communication tools, I want to have a powerful and easy to use communication tool so that I can solve all my communication needs in one software.
- ➢ The user interface should be designed with elements that are consistent with industry standards
- ➢ The user interface should display a label for every button
- ➢ The user interface should always display a message or a progress signal for every user action
- ➢ Provide a help section that documents frequently asked questions and answers

➢ Provide the option to synchronise contacts with pre-existing market-dominant communication tools
★ As a team member, I want to quickly set up a team environment software so that administrative tasks don't take up too much of my time.
➢ Save the user's customised settings of previous channels as default settings when creating a new channel
➢ Support importing calendars to different channels
➢ Support adding shortcut hyperlinks to cloud storage of other channels

Generate at least one use case that attempts to describe a solution that satisfies some of or all the requirements elicited.

Use Case 1	Sending preview images in channels
Goal in Context	Users can send images in channels and others that can be previewed instantly without having to open the image file
Scope	Channel, Message
Level	Subfunction of Channel and Message
Preconditions	User must be a user inside the channel and have permission to send messages, image is of supported file type (.png, .jpeg, .gif)
Success End Condition	The image preview is displayed in the channel
Failed End Condition	The image fails to send
Primary Actor	User
Trigger	User uploads an image file to channel

Description	Step	Action
	1	User uploads an image file to channel
	2	Seams identifies the file as an image
	3	A message from the user is created in the channel
	4	Seams embeds the image into the message created in Step 3
	5	The message with an image embedded is sent to the channel
	6	Preview of the image is displayed in the channel

Use Case 2	Sharing screen during voice and video calls
Goal in Context	Allow other users in the call to view the livestream of one user's desktop
Scope	Calls
Level	Subfunction of Calls
Preconditions	At least two user is in the call, the screen sharer is using a desktop, there is only one screen sharer in the call
Success End Condition	Screen sharer's desktop is displayed to all other users in the call in real time
Failed End Condition	The screen is not displayed for other users
Primary Actor	Users
Trigger	User selects screen share button

Description	Step	Action
	1	At least two users are in a voice or video call
	2	One user selects screen share button
	3	Seams request the users' computer to start screen share
	4	Seams display the users' screen to the call in real time
	5	Screen share user stops screen share
	6	Seams stop displaying screen share user's screen
Extensions	**Step**	**Branching Action**
	5a	The call ends

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.

User 1 Comment

"I think adding a calendar is definitely what I'd like but specific to the milestones and deadline part, I'd say it's better to have another Gantt chart feature for that. The voice/ video call and cloud storage addition is very good. The multiple UI size is great but I think a specific TV size would be an overkill, just phone, desktop and tablet would do.
The use cases are pretty solid too.
I'd say to a large extent these user stories and cases describe my problems."

User 2 Comment

"You guys basically covered everything I said, but like you don't have to be humorous to want to send gifs and images, that user story could be a lil inaccurate. "

User 3 Comment

"It's hard to say if this satisfies the UI stuff I said, because it's really a design thing, but what you have so far is useful.
To a fair extent it satisfies my problems."

Interface Design

Name and Description	HTTP Method	Data Types	Exceptions

`/calls/audio_control`
 	
Given mute_status, user_id, call_id, updates the user's audio setting (mute/unmute) in the call.
	PUT	**Parameters:**
		`{ mute_status, user_id, call_id }`
		
		Return Type:
		`{ mute_status }`
			N/A

`/calls/video_control` Given video_status, user_id, call_id, updates the user's video setting (video on/video off) in the call.	PUT	**Parameters:** `{ video_status, user_id, call_id }` **Return Type:**	N/A

		`{ video_status }`	

`/calls/invite`
 	
Given a user_id, call_id, generate an invitation notification for that user to enter the call.
	GET	**Parameters:**
		`{ user_id, call_id }`
		
		Return Type:
		`{ user_id, invite_notification }`
			InputError when:
			• user_id is not valid
			
			AccessError when:
			• user_id is valid but user is not in the channel
			• call_id session ended

`/calls/notification`
 	
Given an invite_notification and user_id, display and alert the notification to the user.
	POST	**Parameters:**
		`{ user_id, invite_notification }`
		
		Return Type:
		`{ }`
			AccessError when:
			• user_id is valid but user is not online
			• call_id session ended

`calls/screen_share`
 	
Given the user_id of the screen sharer and the call_id of the call, display the screen to call.
	POST	**Parameters:**
		`{ user_id, call_id }`
		
		Return Type:
		`{ }`
			AccessError when:
			• call_id session ended

Conceptual Modelling (State)

State diagram for voice and video call