<u>Immersive Search Project</u>

Team:

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Vishwa Shah
Sameer Thummalapally
Cheng Yuan

Stage 3 : Choose

Displays and votes and critique

INITIAL VOTES

Jennifer : Virtual library and file organization system with one location to store all case and supporting material
Jennifer : Virtual document search and retrieval system with AI/ML recommendations

Ben Watson : A different "library" for every case/search task
Ben Watson : ar augmenting physical files with summaries, notes, related cases.

Shreya Parikh : Hand gestures and voice recognition feature
Shreya Parikh : going to a physical library and using just a mobile to access information about the files

Vishwa Shah : Scanning of documents
Vishwa Shah : A mini library for every case
Vishwa Shah : voice recognition (serving as a librarian) and hand gestures (to access files)

Sameer Thummalapally : Virtual Assistant, voice recognition and hand gestures.
Sameer Thummalapally : Different types of libraries for specific cases.

Jash Bhupendra Dhakad : Important information would be present on a virtual wall in the form of sticky notes
Jash Bhupendra Dhakad : usage of Hand gestures

Jash Bhupendra Dhakad : exploring library with AR interaction
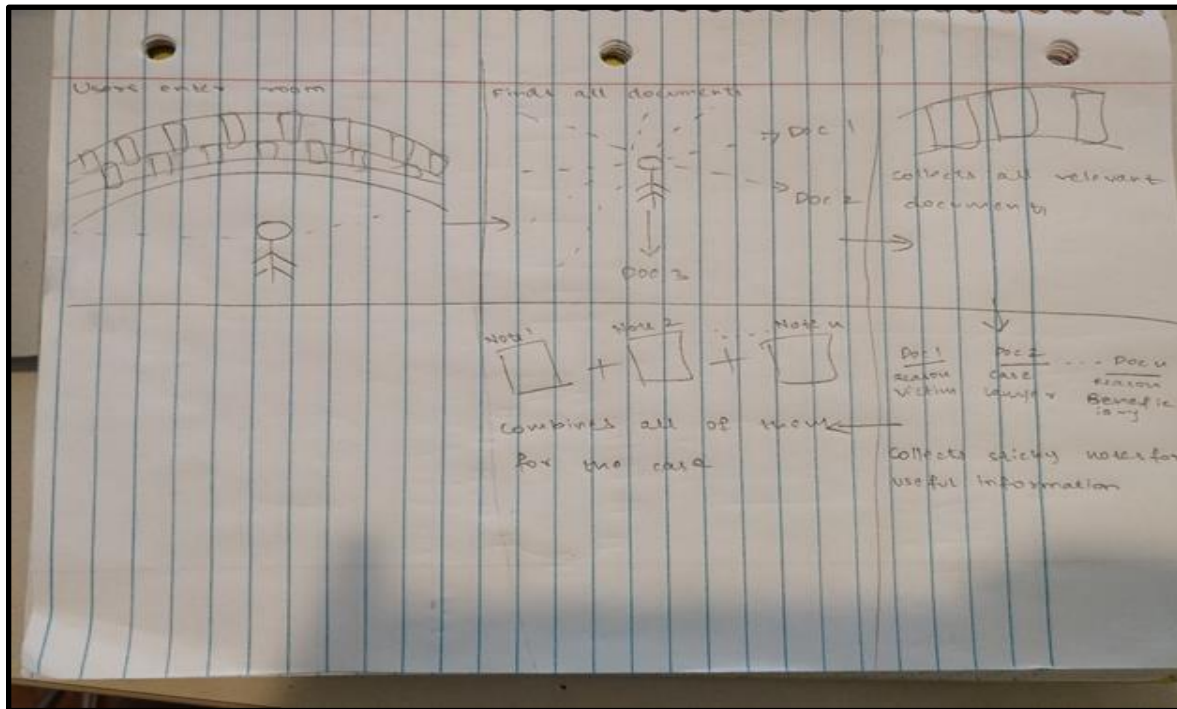
Cheng : Combination of AR and VR
Cheng : 360-degree view of a case

Anmol Desai : having a voice assistant to narrate the case
Anmol Desai : different types of settings available, office/library, use hand gestures for zooming and opening files

Nidhi Goenka : combination of AR and VR
Nidhi Goenka : Use of hand gestures to find and segregate the important cases

Critiques to Solution #1 - Jash (ar + vr)

1. Questions?

- What kind of room is it ?Physical or virtual?
- When you say that you will be using sticky notes, do you mean that all the important sticky notes are kept together on a board or you mean that they are segregated by case?
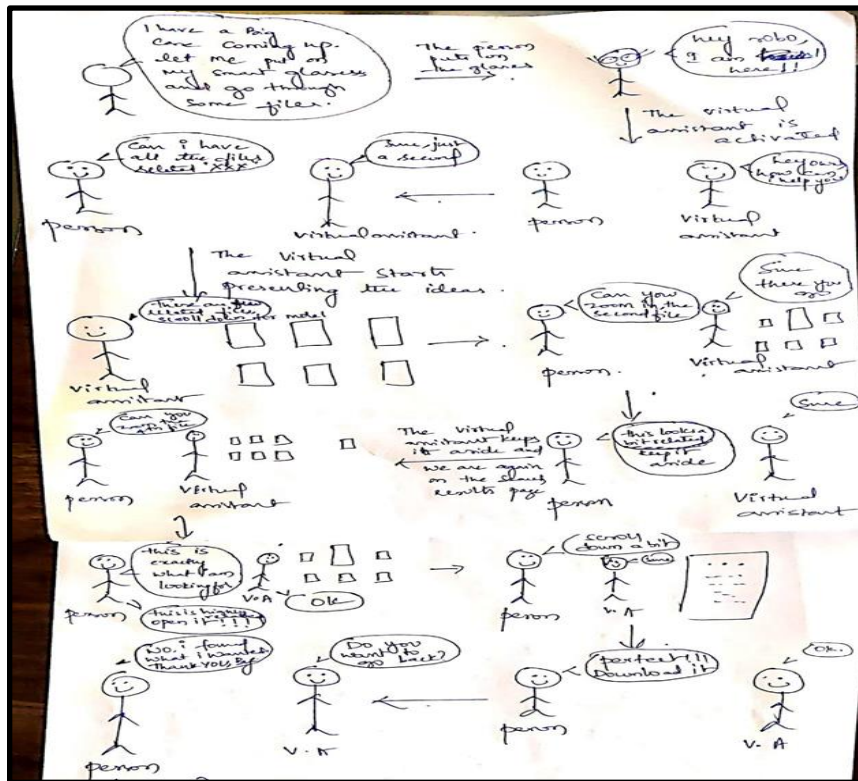
2. Comments

- The sticky notes idea is good and innovative.It will save a lot of time and help in finding important information quickly.
- Some better clarity on the storyboard would help.
- Simple
- Can be implemented in a real-world setting

Summary

The solution received quite good feedback especially the sticky notes functionality which was well received by everyone. Some kind of doubts lingered regarding the physical or virtual wall issue.But overall the idea was one of the most liked as it was simple,easy to implement,catchy and innovative.

Feedbacks to Solution #2 - Sameer (voice assistant)
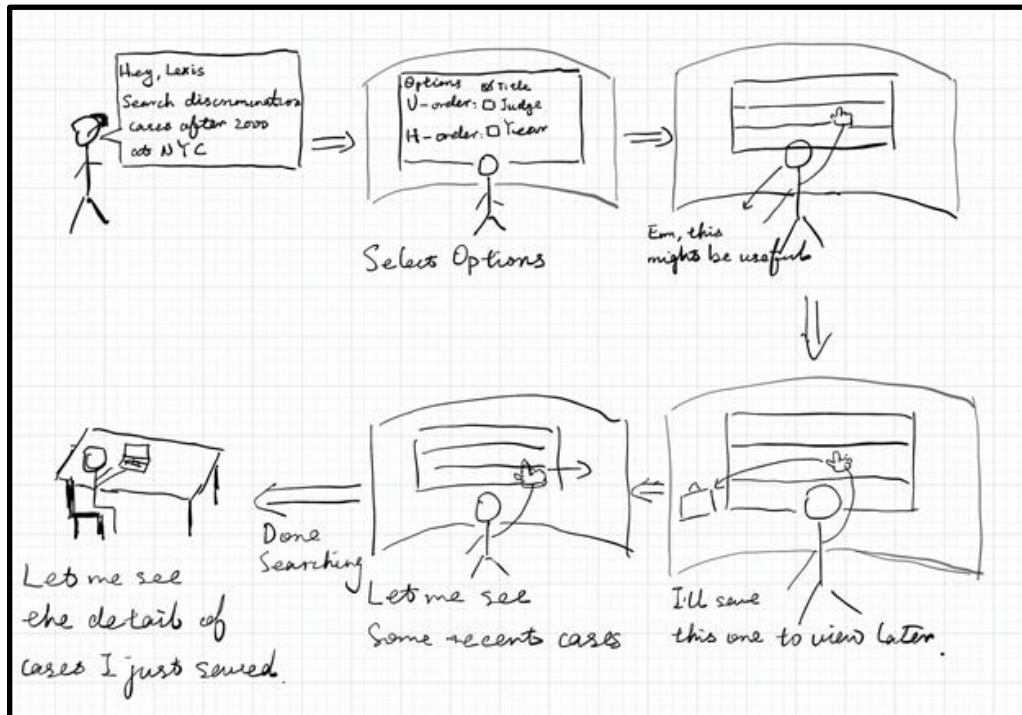

1. Questions?
   ● Is a standalone voice assistant required? Or could we just use the generic voice
     assistant already available on the device?
   ● How does the user navigate across the application? Is it just voice commands or can
     they use hand gestures?

2. Comments
   ● A voice assistant would save a lot of time and make the user more comfortable as typing
     is one of the biggest problems in AR/VR devices.
   ● Keeping the relevant documents aside is useful.
   ● Hand gestures would make the job in hand a lot easier.

Summary
The idea of having a voice assistant in order to make the job easy for the user was well received
as it would save a lot of time for the users. Functionalities like keeping the relevant files on the
order side in order to review them later and use of hand gestures in order to perform various
operations were good. The only problem is the extent of necessity of a standalone voice
assistant as generic voice assisted devices are already in play.

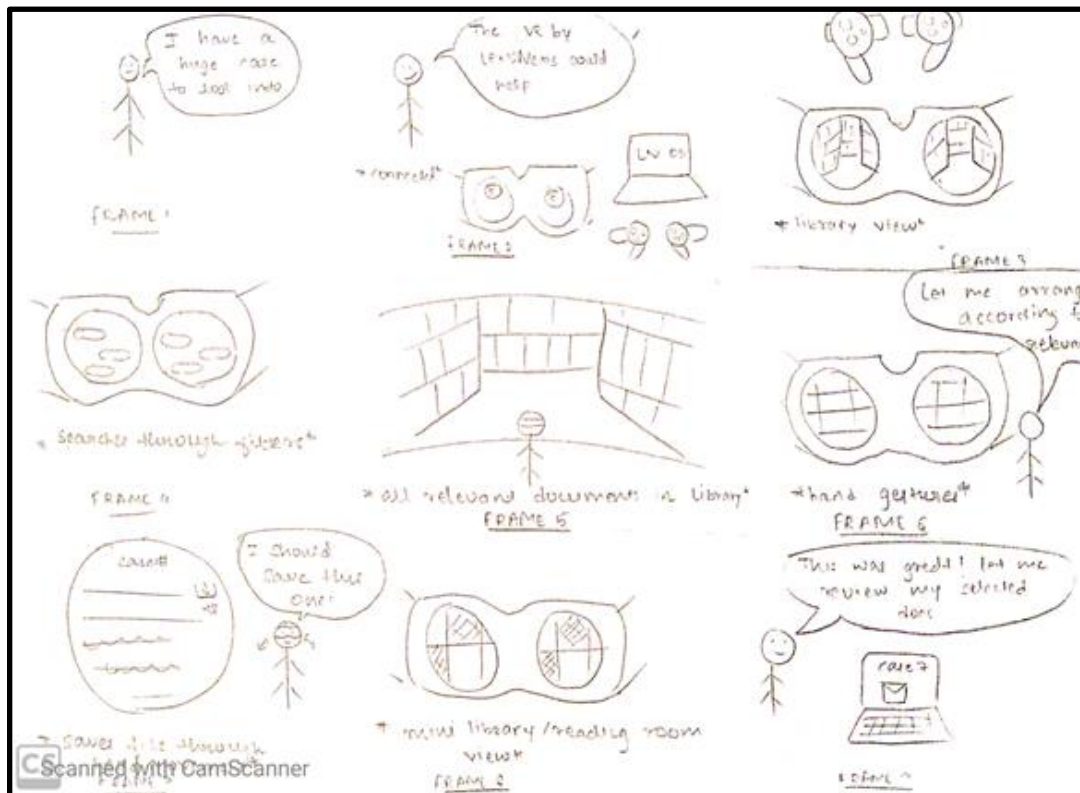**Critique to Solution #3 - Cheng(vr search by shelf)**

1. Questions?
- What's the options of ordering shelves?

2. Comments
- Save for later is useful
- Giving options for shelves will improve efficiency.

Summary

This idea is trying to bring the real library experience into VR, it's a good way to help bring what lawyers want to themselves. Searching by shelf is a good way to organize the cases. Save for later function is good, like the way we don't have to read lots of lines in the VR gadget. But it's relatively simple, that did not take much advantage from VR. May also met some problems when presenting cases on the shelf, since there might not be enough place to show the detail.

Critique to Solution #4 - Vishwa(search results as library or shelf)
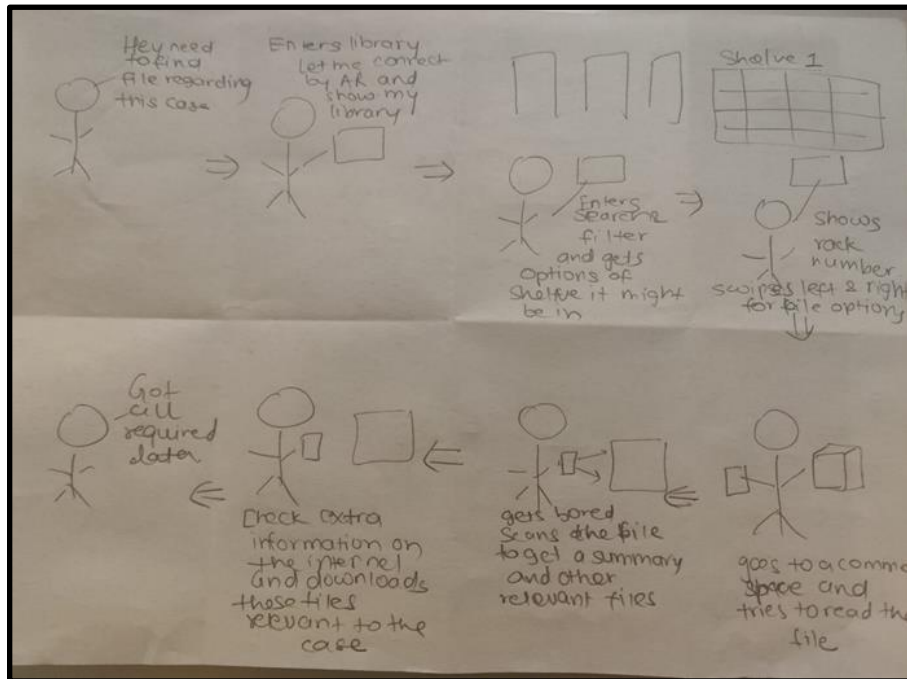

1. Questions?
   ● What is the relevance of the mini "library"?
   ● As for the additional features coming with the mini "library"/ reading room, how do the lawyers access the same?

2. Comments
   ● Forming reading room/library from all the filtered documents is innovative
   ● The reading room created will be great for lawyers in terms of accessibility and comprehensiveness
   ● The features coming with the reading room/ library are good, but more features to increase accessibility of individual documents could certainly be added

Summary

This idea was innovative and well received owing to the fact that it creates a different library/ reading room for every case document thereby creating a nice personal virtual library space for each case. The features associated with each document involving hand gestures and head movements for starring documents, viewing documents in full view, and sorting documents priority wise is good, but more document specific functionality could be added.

Critique to Solution #5 - Shreya (ar in a physical library)
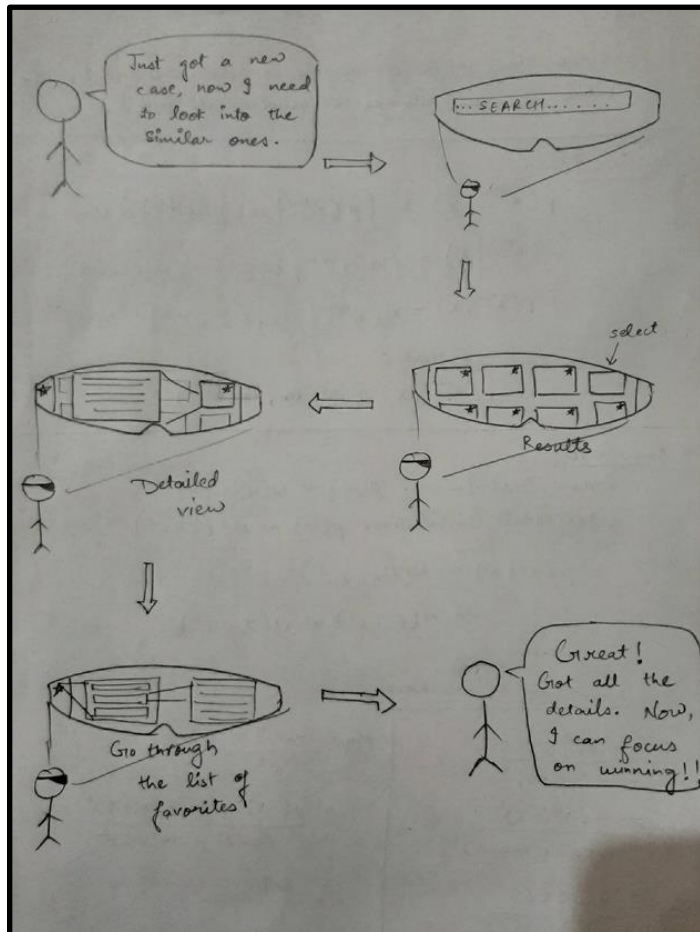

1. Questions?
- Does the lawyer need to enter a physical library?
- Does the lawyer have to show his surroundings to get results?
- How does the lawyer perform right and left swipes for file options?

2. Comments
- The idea of getting a summary of the file/document just by scanning the file is really innovative
- Searching shelf by shelf using AR is pretty cool

Summary
The idea is different from the other ideas stated as it is an idea using AR. This idea is more inclined towards the AR used in libraries. Some of the functionalities such as getting summary just by scanning sounded pretty cool. The idea of scanning physical copy just to store into the virtual library was an additional point added after the discussion. This additional point will help avoid maintaining all physical documents. But this idea did not have many additional features which are not part of the traditional method.

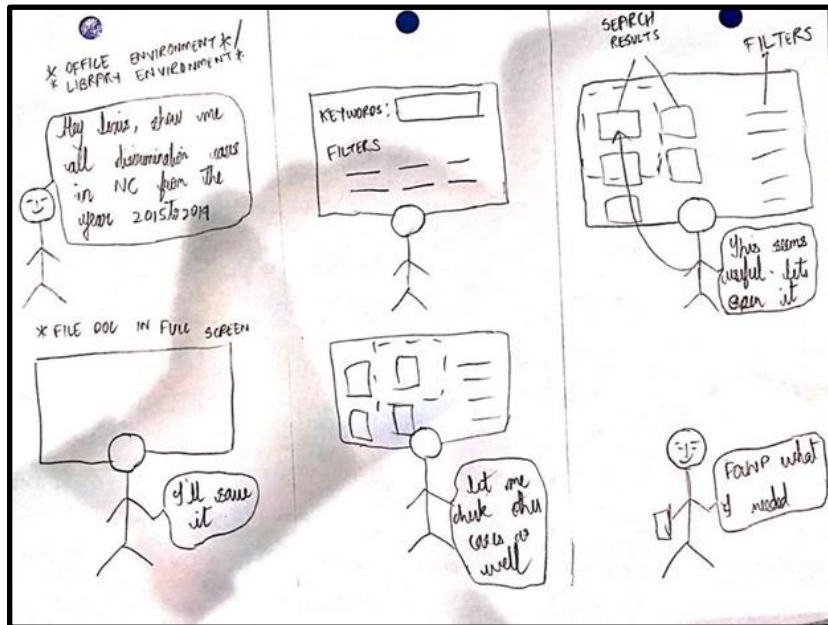**Critique to Solution #6 - Nidhi**

1. Questions?
   ● What can the voice recognition feature do? Is it just for taking notes and searching or is it capable to do other things as well?
   ● How will we navigate?

2. Comments
   ● Voice recognition feature is useful but redundant.
   ● Taking verbal notes is an innovative idea.

Summary
The idea seemed innovative and had several good features like voice search and note-taking, and the use of 3D space (360-degree view) for a better visual experience. But most of these features got covered before we discussed this one. So, we decided not to move forward with this during voting.

Critique to Solution #7 - Anmol

1. Questions?
- How is the office setting useful and how is it relevant ?
- How would the keywords use yield better search results ?
- How do the lawyers access all the features?

2. Comments
- The idea of narrating the case seems useful
- The use of keywords to filter and sort the search results could prove to be extremely useful
- The hand gestures would certainly ease the use of the device

Summary
The idea was well received as it creates a different type of environment according to the users wish. Some of the other VR features include voice based narration of the entire case. Hand gestures should be used to navigate through the documents, zoom in/out of the documents, open documents, view documents in full screen mode, sort the documents. Also, for searching and retrieving the results, the filters can include a set of keywords in descending order or priority and the search results are sorted based on that.

Straw and decider votes:

LIST OF IDEAS AFTER DISCUSSION:
1) ar + vr
2) voice assistant
3) vr search by shelf
4) search results as library or shelf
5) ar in a physical library
6) annotating documents with stickies
7) scanning the physical into virtual

FINAL VOTES

Jennifer : 4,6,7
Ben Watson : 4,6
Shreya Parikh : 2,6
Sameer Thummalapally : 2,6
Vishwa Shah : 4, 6
Anmol Desai : 2,6
Jash Bhupendra Dhakad : 2,3
Nidhi Goenka : 2, 4
Cheng : 6

SCORE OF IDEAS :
1) 0
2) 5
3) 1
4) 4
5) 0
6) 7
7) 1

TOP 3 IDEAS :
1. annotating documents with stickies
2. voice assistant
3. search results as library or shelf

Merge or not: whether you will merge parallelize work on winners

The top 3 ideas selected have received a substantial number of votes. After looking at the top 3 ideas, the team along with Professor Ben Watson and our mentor Jennifer discussed whether we should use only the idea which received the highest number of votes or combine them together to get a model with all desired functionalities. After a fruitful discussion, we reached a general consensus that we should combine all the 3 ideas into one single solution.

Storyboard: finished storyboard of solution

1. I have a huge case to look into let me put on my smart glasses and do some research
   The person puts on glasses
2. The user can view the entire virtual library.
3. Lawyer : Hey Lexi, I need help !
4. Lexi : Hey, how can I help you?
5. Lawyer : I am looking for case documents for the current case and I would like to apply the following filters. Show me documents pertaining to keywords : discrimination, domestic violence, family law, divorce, and consumer protection.
6. User view's the mini library/reading room with only relevant case documents.
7. Lawyer : Let me arrange the documents priority wise.
8. The lawyer will use the hand gesture feature to arrange the documents.
9. Lawyer : Lexi, open document 452 to full view.
10. Full view document
11. The lawyer will use a hand gesture to zoom in and out for better visibility.
12. This file/document seems important, I should save this file.
13. Saves files using head moments(Nodding head downwards)
14. Lawyer : I should star this file. Lexi, star this file
15. Lexi :This file is starred.
16. Lawyer : This file does not seem relevant, I should delete this file.
17. The lawyer will move his head towards the left to delete the file.
18. The lawyer will view the mini library again with starred documents assigned to different colours.
19. User opens starred documents. Lawyer : Bring document 7 to full view, I want to make some notes
20. Lawyer: Lexi, open new Nexi note for me.
21. Note view Note : Case Number, Document 7, User notes :
22. Lawyer : very relevant proceeding about criminal justice and divorce
23. Lawyer: Lexi, open another new Nexi note for me.
24. Note view Note : Case Number, Document 8, User notes :
25. Lawyer : 2019 case justice decision for discrimination
26. Lawyer : I have viewed all the relevant documents. Lexi, take me to the Nexi Note Room.
27. View of Nexi Note room. (User view's Nexi Note Room)
28. Lawyer will connect the dots using the sticky notes in the note room using hand gestures.
29. Text summary generated using the connected map of sticky notes.
30. Lawyer : I have all the information I need. Bye Lexi.