Final Deliverable - Project Overview

CS160: Lucy Xiao, Sharon Li, Zixuan Ge, Victor Xu, Jennifer Schick
Group Name: Work In Progress
May 8th, 2017

Project title: ThoughtJot

Team Roles:

- Lucy Xiao: GUI, VUI - 20%
- Sharon Li: GUI - 20%
- Zixuan Ge: GUI - 20%
- Victor Xu: VUI, GUI - 20%
- Jennifer Schick: VUI - 20%

Description:

Our assignments are divided more or less equally among the team; here the distribution is roughly 20%/person for our group. Lucy and Victor refined the VUI (Alexa) and modified utterances. Sharon and Zixuan completed the GUI implementation, working on modifying the functionality of the Android app. Victor modified dialogue flowcharts and made adjustments to the GUI design. Finally, Jennifer completed the VUI, including the integration between Alexa and our Android (GUI) app.

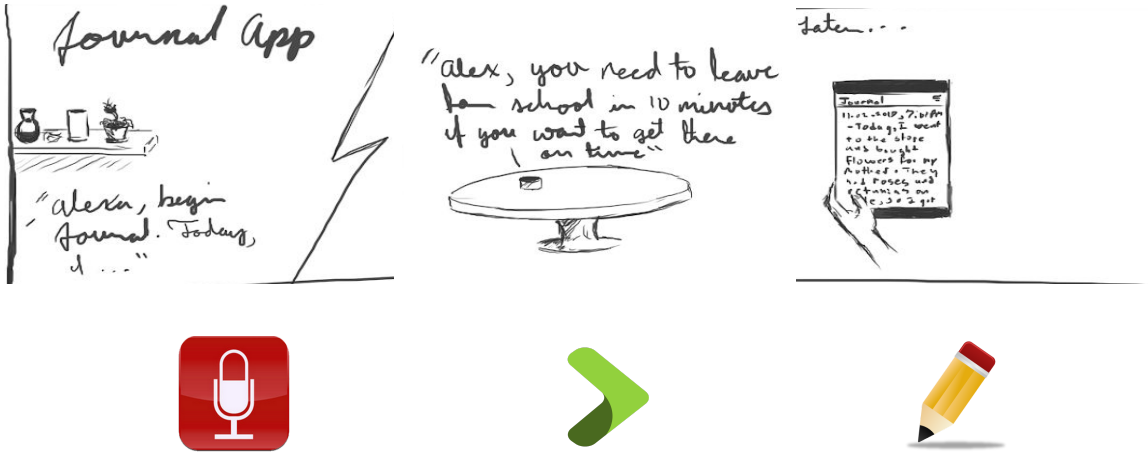
Problem and solution overview

The problem is that writers and journalists have to rely on either typing or writing their thoughts down, when an easier way of saving these thoughts is through verbal communication. We propose that with an Alexa Skill, these people can record their thoughts just by speaking them, focusing on a stream of consciousness style. This way, users can capture the thoughts and feelings passing through their mind at that moment, rather than editing them as they write/type. Furthermore, our proposed Skill would record circumstantial details (time of entry, tags/emotions) and allow the user to search back for the entry for easy organization. The user can also use the companion Android app to further edit the transcribed-to-text entries.

Tasks

- Task 1 [*Hard*]: **Recording** an entry using the VUI (Alexa) was chosen as the primary task, because it is the core functionality of our project (being able to document speech in offices/homes and transcribe it into text). This component is realized through Alexa (starting a recording, VUI).
- Task 2 [*Easy*]: Upon finishing a voice entry, we want the user to be able to **playback** what was recorded to ensure that the entry was saved/recorded properly. The user is therefore able to use the VUI (Alexa, built-in speakers) to quickly recall the entries and check things over. Because we assume users may record multiple entries/day, the task of editing older entries (complicated sorting through multiple files) will be done with the GUI (Android companion app); making it easier to locate a specific entry (filtering/clicking).
- Task 3 [*Medium*]: As aforementioned, our GUI (Android companion app) makes it possible for the user to quickly find older entries (see a transcribed-text version of the entry) and make **edits/revisions** (i.e. correcting errors generated by the transcription process, adding new thoughts). Retrieving the entries in text form may allow the user to share it with friends/family/colleagues.

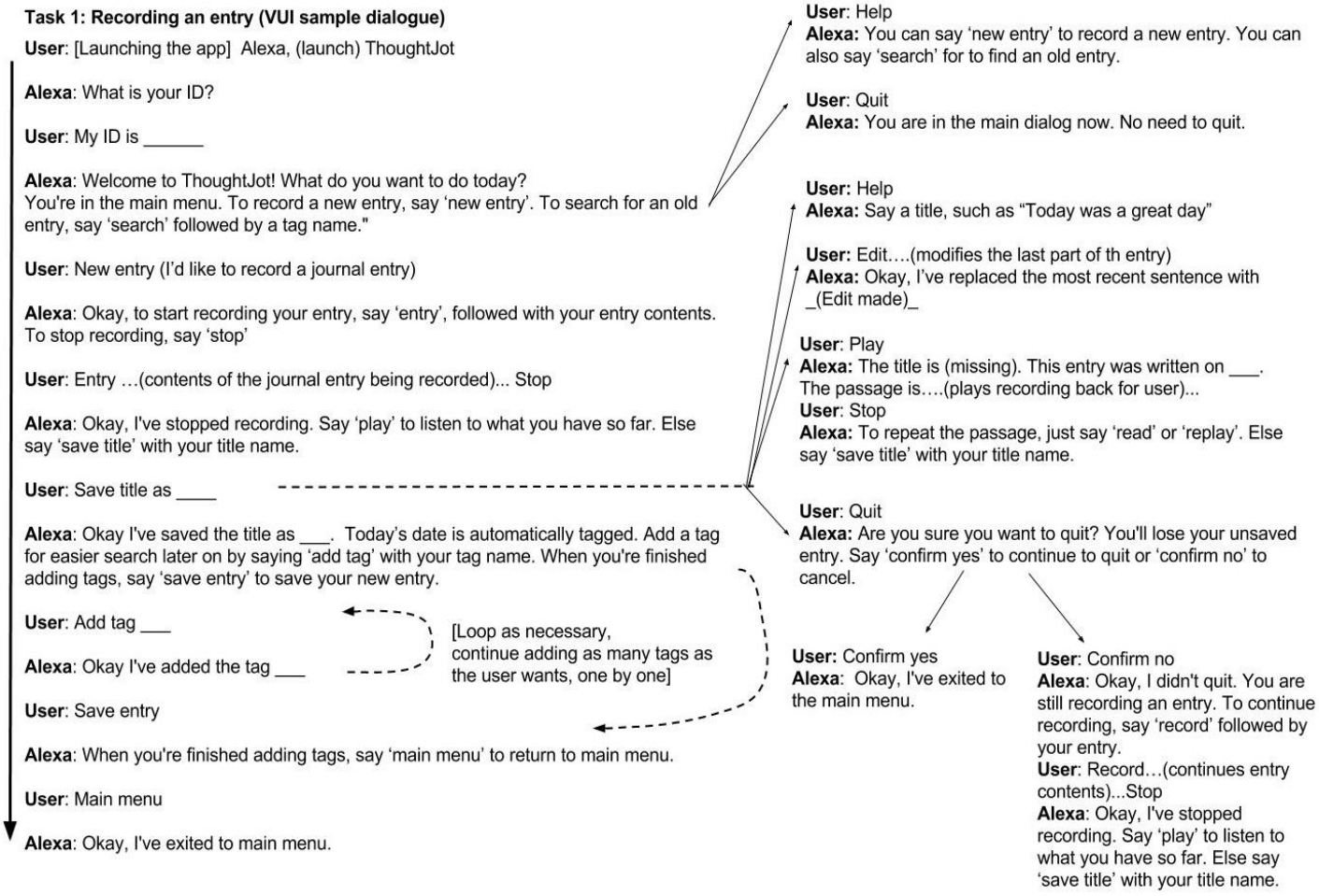
Storyboard overview (3 tasks: recording, playback, editing):



Changes + Revised interface design

Revised VUI Flow Diagram - Arrows/branches represent the possible scenarios and utterances the user can speak at various points in the program

Task 1 - Starting a new entry [VUI]



Changes and rationale:

1. We implemented the user ID dialogue for the VUI so users can sign into their account (start of app), addressing the 'privacy' concern from our original contextual inquiry.

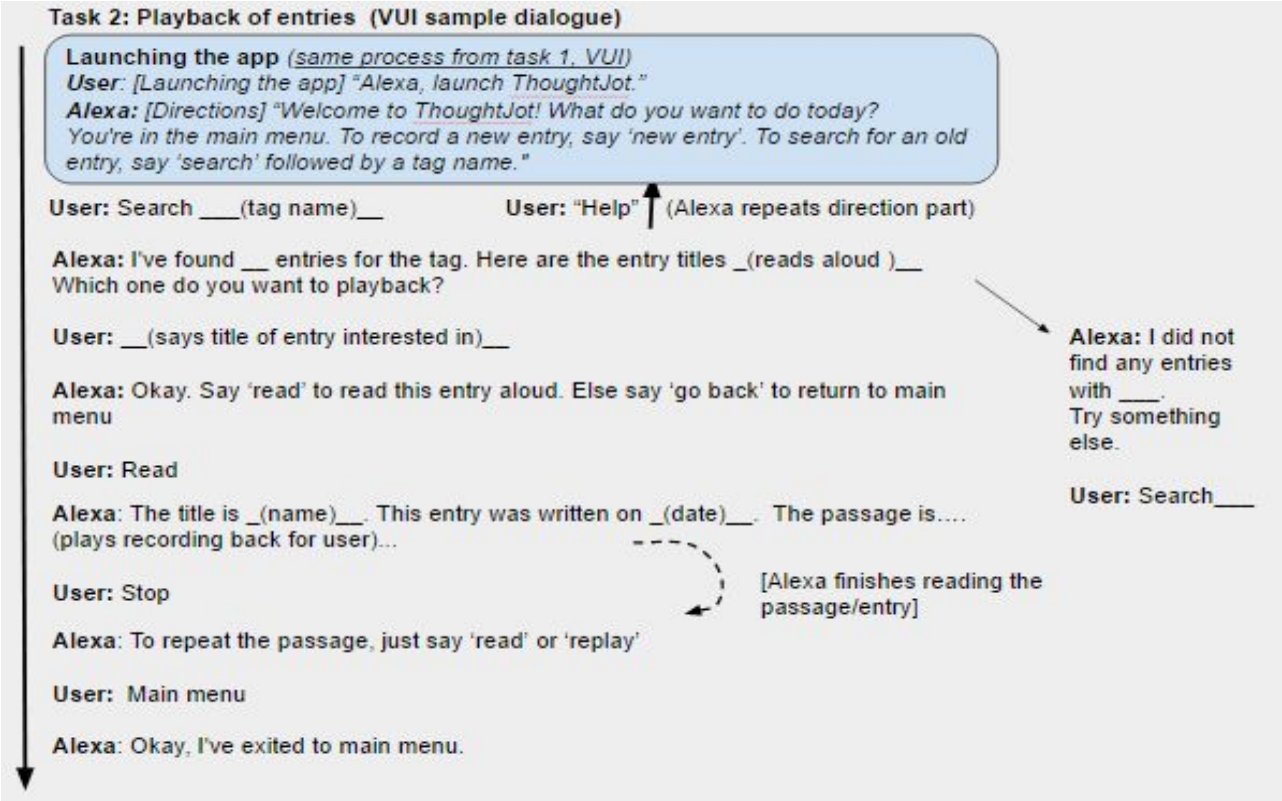
2. The 'emotion' feature has been replaced by a more general/open-ended 'tag' feature. This gives the user the freedom to choose how they later sort through journal entries. The dialogue was also clarified at the end so the user is prompted to return to the main menu when done with the entry. Additional revisions include mentioning that "the date [of the entry] is automatically tagged", and enabling the user to add as many tags as necessary (no longer limited to just one). These changes correspond with the feedback we received from our target demographic (Design 06) and peers (in class). For example, our feedback included remarks such as:

- “Wait, what is the emotion feature supposed to do?...tags are a smart way to sort through entries and could help authors and creatives"
    - This indicated ambiguity in the purpose of adding the emotion (niche) and the preference for general, flexible tagging
- “I think you should add another option to exit the dialogue at the end.“
    - This indicated the dialogue wasn’t clear enough in the previous iteration, and has since been addressed/refined.

3. We also added an edit dialog for the VUI, for when either Alexa didn't correctly understand the user when they're trying to record an entry or when the user messes up. This way, the user has an "undo" function. This change is reflected in the flow diagram above.

4. At the end of our Design 07 (interactive prototype) we considered adding the option to start a new entry (typed) using the GUI too (Android app). However, after feedback from demo day - we realized this feature doesn’t add anything practical. Our project is unique because of voice-to-text transcription (making entry recording faster for users). If someone wanted to write/type their entries out originally - they’d likely just use a piece of paper or start a Word document for convenience.

Task 2 - Playback of recorded entries [VUI]



Changes and rationale:

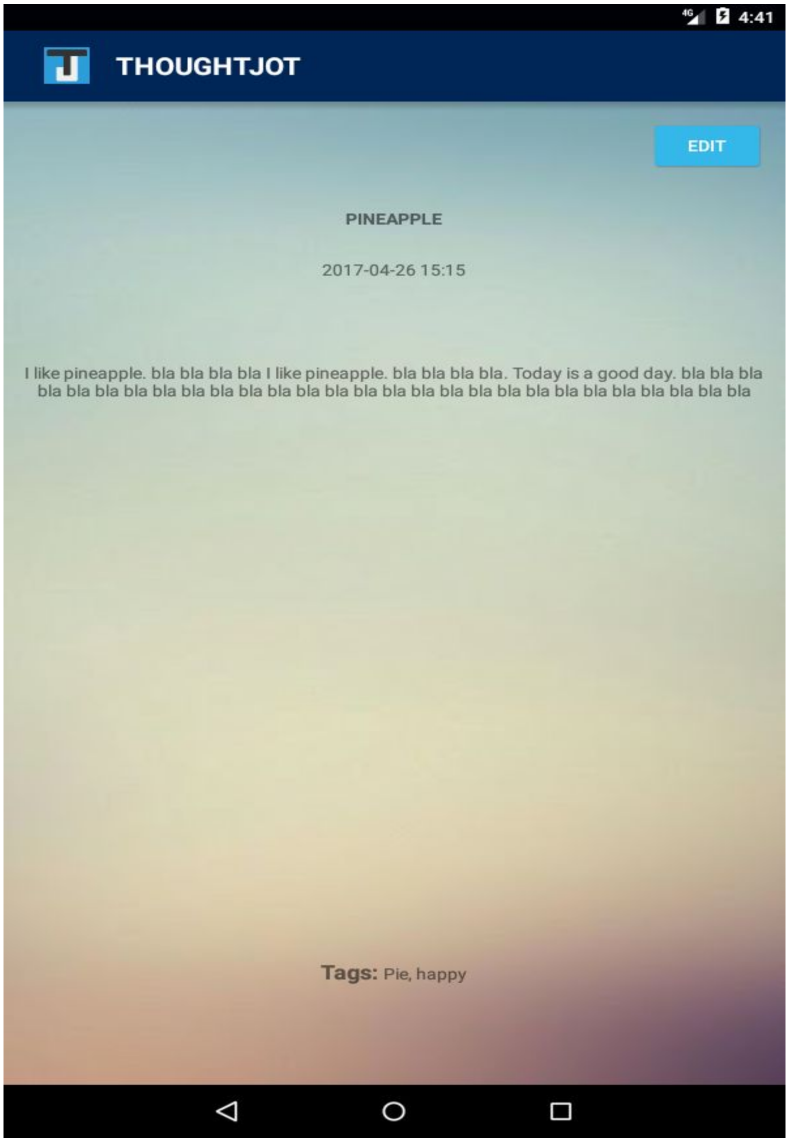
1. The beginning of the dialogue been re-organized so the user realizes the ‘launching’ of the app is the same as before (and may skip ahead to learn the new utterances for playback of entries). The terminology ambiguity issue with ‘recording’ mentioned by interviewee one (Design 06) has also

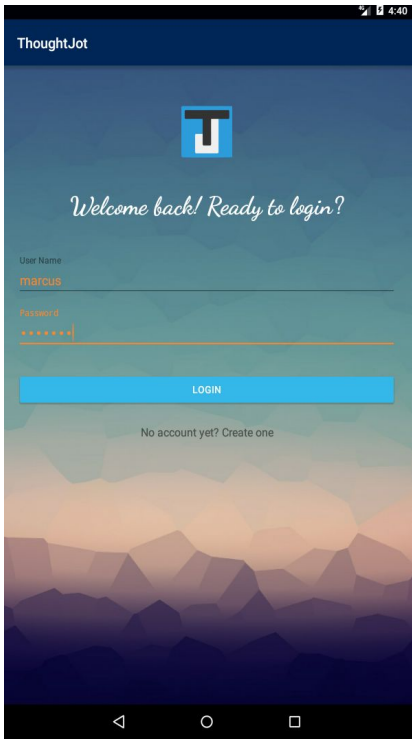
been updated and fixed. Likewise, terminology has been tweaked to reflect changes from task one's dialogue (i.e. 'emotion' has been replaced by 'tags').

2. The biggest change is the user can playback all recorded entries now (versus only the last-recorded entry - accessing everything else on the GUI). This was changed to reflect comments by our peers (in class) noting that it would be "helpful to listen to more than just the last recorded entry." To reflect this change, Alexa has new dialogues for searching tags. The structure of entry playback (read title, then date, then contents) has also been created in the flowchart.

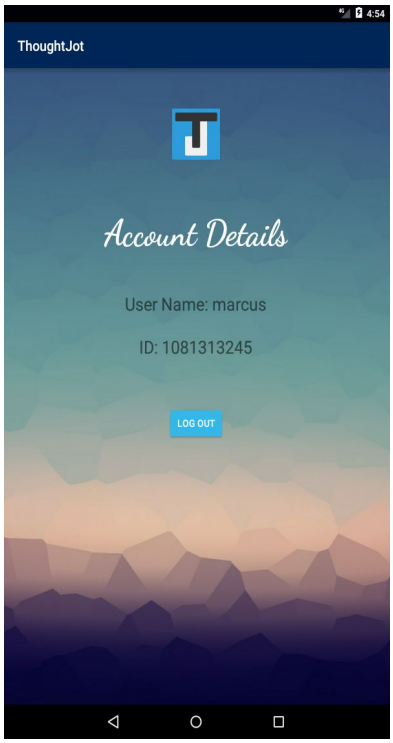
3. Of course, referencing past entries is also doable using our GUI (playback, checking entries over) as per our original project design. However, we more or less lumped this feature into task 3 (editing/sharing using the GUI). These details, with screenshots, are explained below.

Task 3: Editing, seeing text-version of entry, using Android companion app [GUI]

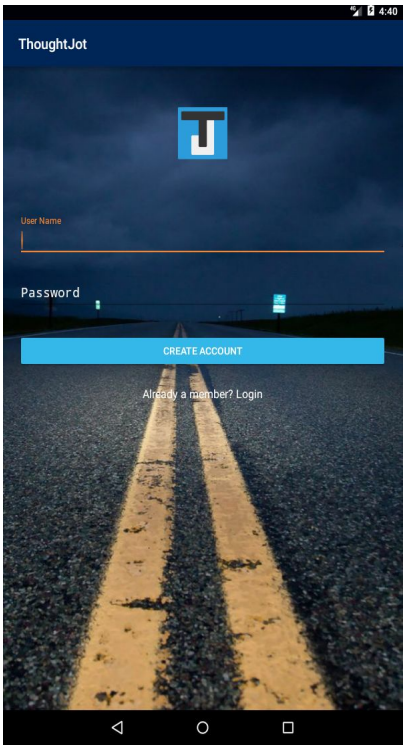




Login Screen



Account Details



Create Account Screen

Changes and rationale:

1. Aesthetic chances including typography and background colors for a sleek, modern look. Changes reflect comments by instructors on our presentation + demo day (“GUI looks too simple...don’t like the look”)

2. The editing functionality remains largely unchanged from our previous high-fidelity prototype because we received positive feedback (“Wow, this looks great! I like the sample entry”) we received. The user is essentially able to change the contents of the entry by tapping ‘edit’ on the top right-hand corner (location prevents accidental hits) and the virtual keyboard will appear. The date (tag) cannot be further edited because we want to preserve the circumstantial details from during the recording - helping the user remember when they access it again.

3. The main screen will display a calendar and search bar (tags, title). One change is a ‘search history’ feature, which allows users to see what’s been searched in the past (search bar). This adheres to ‘recognition rather than recall’ because users can realize what’s already been searched if no entries come up. If you click on an entry, you'll see the whole entry with an option to edit. Again, clicking edit lets you edit it..Full screenshots of our GUI are located in pages 11-12.

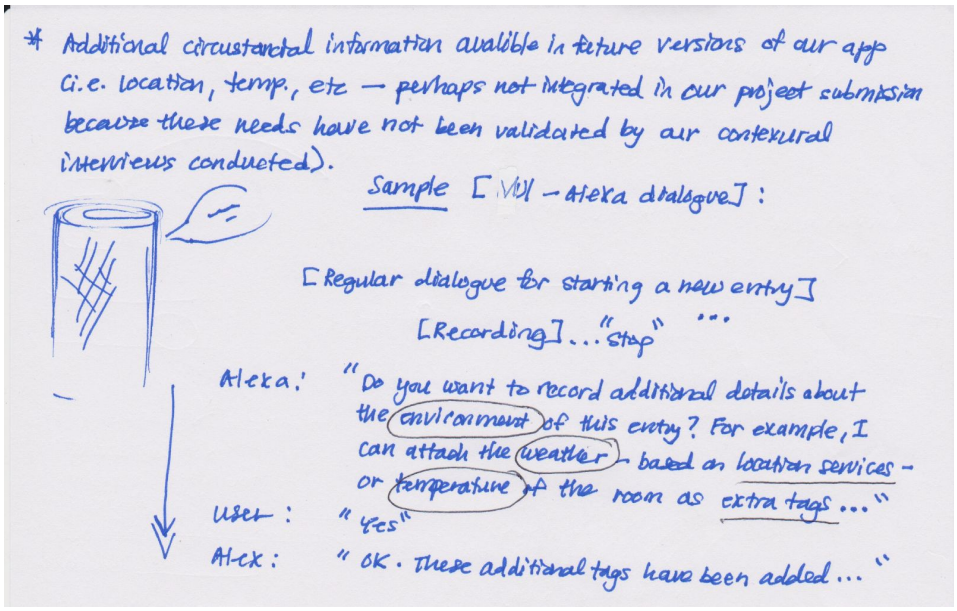
4. As aforementioned in task 1, we added a quick edit feature for the VUI as well, for when either Alexa didn't correctly understand the user when they're trying to record an entry or when the user

messes up. This way, the user has an "undo" function for the last sentence recorded. However, more complex edits/changes are reserved for the GUI (faster using a keyboard + cursor control).

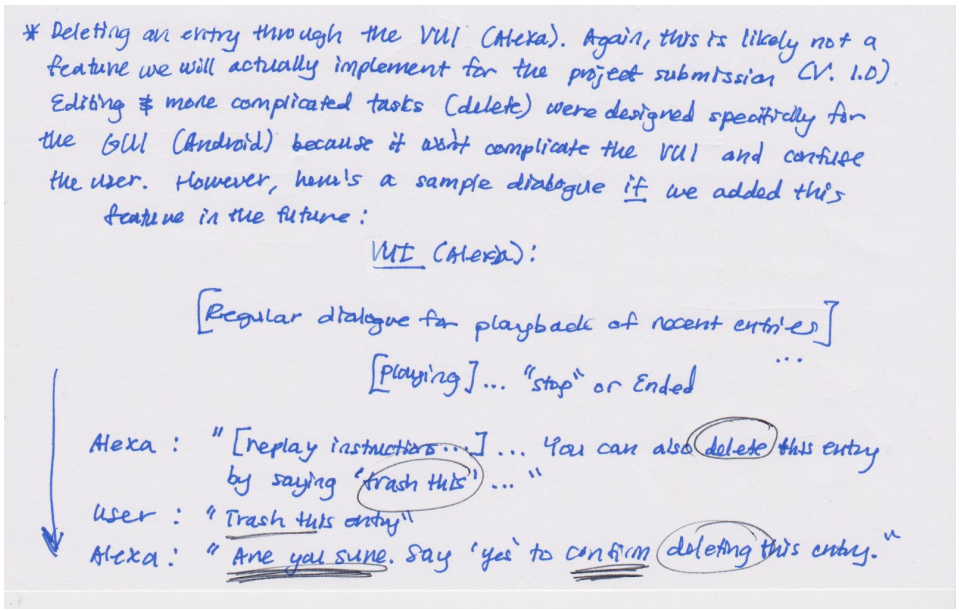
5. Like in task 1 (login when first launching VUI), for the GUI we've added a login, ID display and create new account screen for personalized accounts to ensure privacy for our users. These new additions are shown in the screenshots above.

Sketches for unimplemented portions of the interface

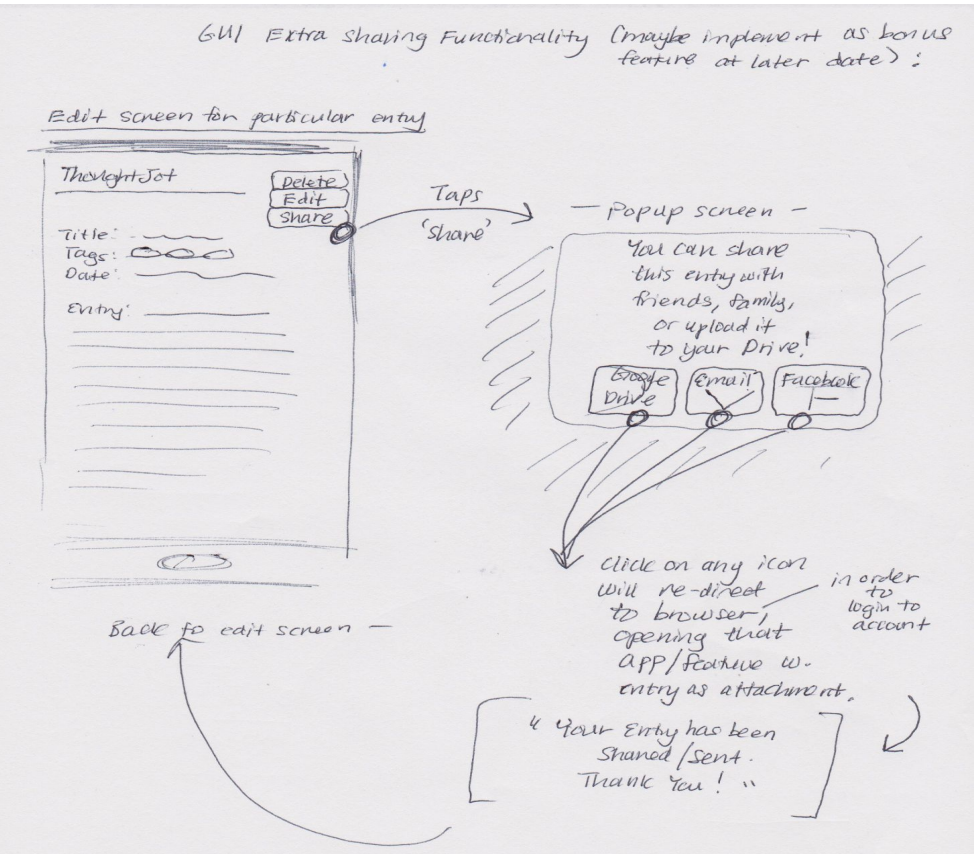
- Weather and location information [VUI - optional future feature]



- Deleting full entries through Alexa VUI [Optional/future feature]



- Sending to social media (Facebook/Twitter) [GUI - optional future feature]



Transition from low-fidelity & interactive prototype to final submission

Limitations of the low-fi & interactive prototype

- From our original task 1: Design weaknesses included a need to expand one particular dialogue (making it clearer what menu the user is in). Also, it is hard for the user to know if the entry has been recorded correctly. Hence, we added the ability to check and quickly edit (undo/revise last sentence of entry)
- From our original task 2: Weaknesses include being able to playback the most recent entry only. The user can now playback all entries using the VUI. We also reworded parts of the dialogue to avoid ambiguity, such as ‘recording’ into something like ‘entry’ to avoid confusion (when the user is playing back an entry versus engaging in the act of recording something new - both using the same term).
- From our original task 3: Instead of using the ‘emotion’ feature (which caused confusion in our follow-up interviews), we morphed it into a general ‘tagging’. The user determines how many tags, and what types of tags to assign.
    - Also, our interactive demo was bare bones in terms of visuals (no background colors, default typography, etc.) even though the features worked. Because this is a design class, instructors recommended we enhance the look of the GUI - which is reflected in this final submission.

Appropriate constraints from the mobile device considered

- Limitations for accuracy of transcription inherent with current Alexa technology?
    - We are relying on Alexa's native voice recognition/transcription feature to make ThoughtJot work. Although accuracy is pretty good, errors in the transcription process (voice to text) is inevitable with longer entries. In addition to letting the user edit the entries on the companion app (GUI), we also integrated a quick edit/undo feature in the VUI.
- We decided to display a calendar on the main screen because that's the easiest way for a user to visually find dates/locate entries. This makes the interface more appealing for vertically-oriented smartphone displays. A list view instead of gridview (displaying search results of entries) also optimizes screen space for users - allowing more content to be glimpsed without scrolling around.

Non-standard interactions described and justified

- Registration function by inputting a user's ID (tied to their account). Users register using the Android app when first using ThoughtJot.
- Previously the 'emotion' feature was non-standard - we morphed this into a general 'tagging' step instead, because it felt somewhat niche and could confuse the user.
- Edge cases/dialogue for VUI tasks have been expanded in the flow diagrams, including exiting during a recording to test how Alexa will respond. A demo for searching up tags (playback feature) has also been implemented, with the edge case of finding no entries matching the tags (search again). These utterances will enhance the functionality and ease-of-use of our app - design tenants we've followed while constructing this project.
- If a response isn't understood, Alexa reprompts saying "If you need help, say 'help' for more options on what you can say".

Demos + Prototyping Details

*Our prototype implements **three** primary tasks through VUI and GUI. In this section we show these modes of interaction:*

- Demos: **Video** of ThoughtJot in context, which demonstrates the main features can be found in the link below (YouTube). Local copy can also be accessed in the zip folder of this report.
- Context + Functionality Demonstration: https://goo.gl/9iDjsq

Overview of the implemented UI (reference figures)

- What was left out and why
    - 1. Weather/location circumstantial and peripheral information - this is a bonus feature which may benefit users while reviewing entries. However, for our T-shaped assignment, it is not a core feature nor something confirmed as useful while conducting our interviews.

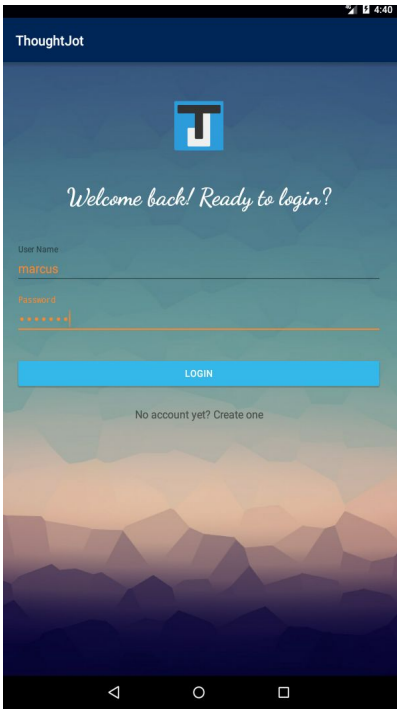
        - Please refer to potential images/sketches on page 7 with additional details
    - 2. Deleting full entries using Alexa (VUI). Our feedback indicated that users would sort entries using the GUI (Android app). As long as the entries are recorded correctly, it makes sense that organization is done through Android, when the user is reviewing past entries. So, deleting entries through Alexa has not been implemented for now.
    - 3. Sending entries to social media (Facebook/Twitter) using the GUI (Android). This feature has been scrapped for several reasons:
        - Conflicting reasoning - in our contextual analysis users highlighted 'security/privacy' as important. Sharing entries would be a violation of this original design consideration.
        - Similar to above omissions, we consider this a bonus/extra feature which isn't required for the T-shaped criteria.

- Limitations and tradeoffs when designing interactive prototypes
    - We give up the color-coded labels for the calendar view (showing existence of an entry by color) because it would take so long to load up the calendar by iterating through the database for every day within the month. To enhance usability/speed, we decided to make this trade-off.
        - Please refer to screenshots of working GUI on pages 11 - 12
    - We removed searching by emotions because our team and other team during the critique both think emotion is somewhat niche, redundant information. If we just use general tags, we can have a clear view without adding confusion. Tags (broader range of uses) can cover emotion as well depending on what the user assigns (greater flexibility).
        - Please refer to screenshots of working GUI on pages 11 - 12 or final VUI flow diagrams on pages 3 & 4

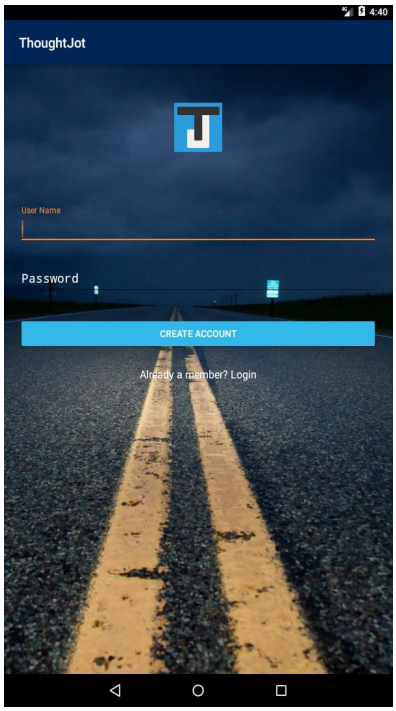
- Any wizard of oz techniques that are required to make it work
    - For VUI: We hard coded the searched entry example during playback (we only give back the first result for a search using Alexa). This is to expedite the VUI for our demo - full searching is implemented on our GUI.
    - For VUI: We hard coded the user ID input (dialogue) to give an idea of what the process (registration login using Alexa) would be like. Any ID (say any string of characters) can be used to login in the prototype.
        - Details can be referenced in our code under this Zip folder.

- Documentation of any code not written by the team (libraries used, etc.)
    - *Not Applicable*

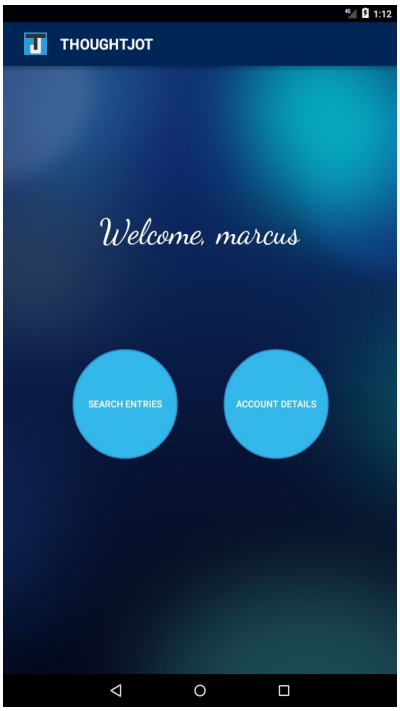
Current - Final prototype screenshots [GUI] - All:



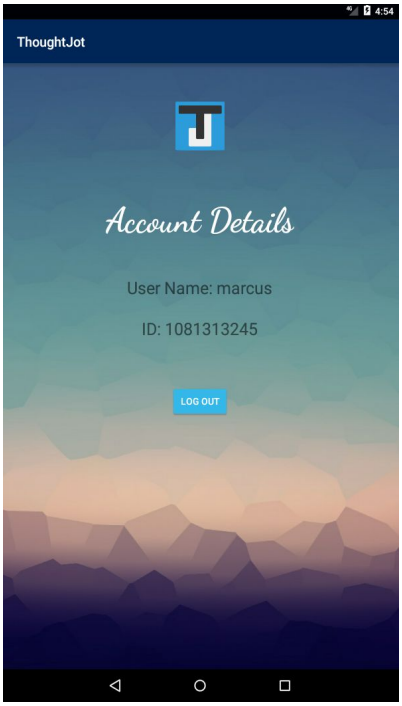
Login Screen



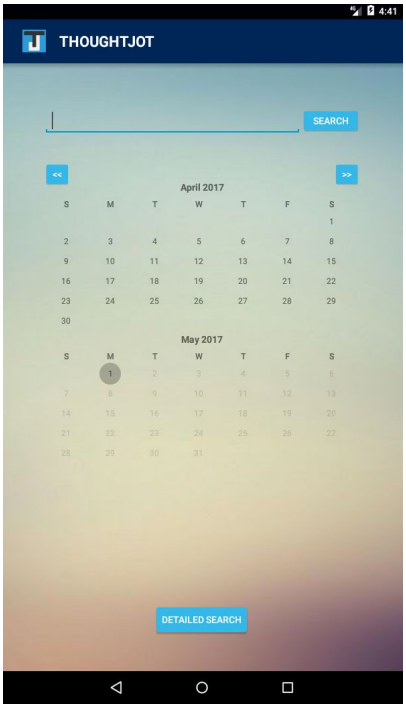
Signup Screen



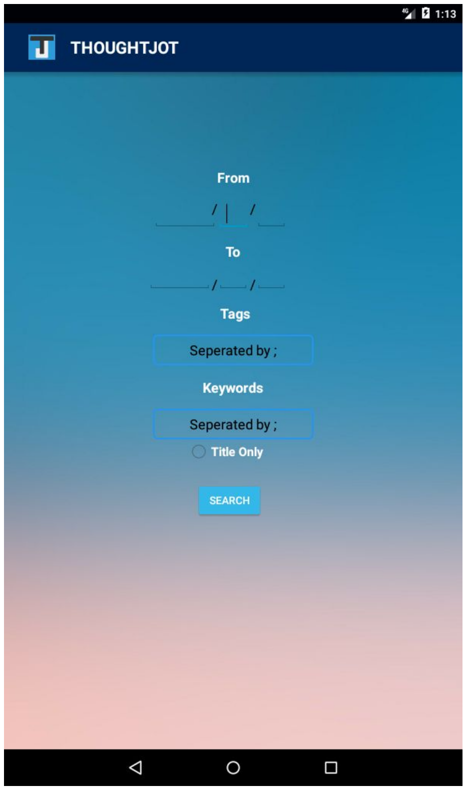
Main Screen

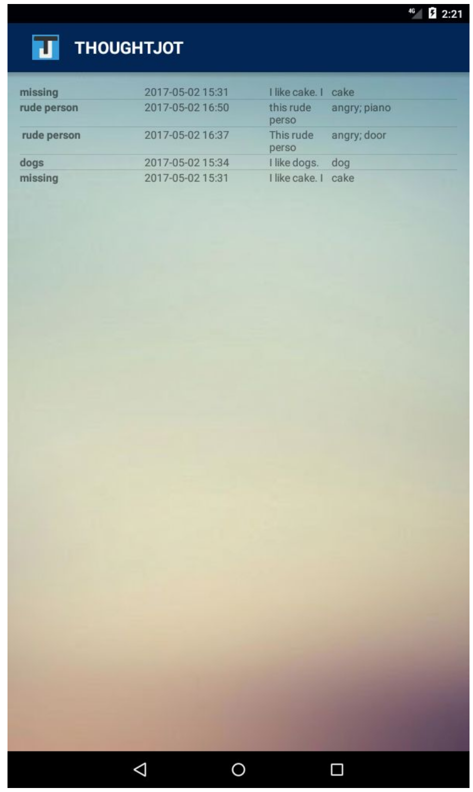


Account Details

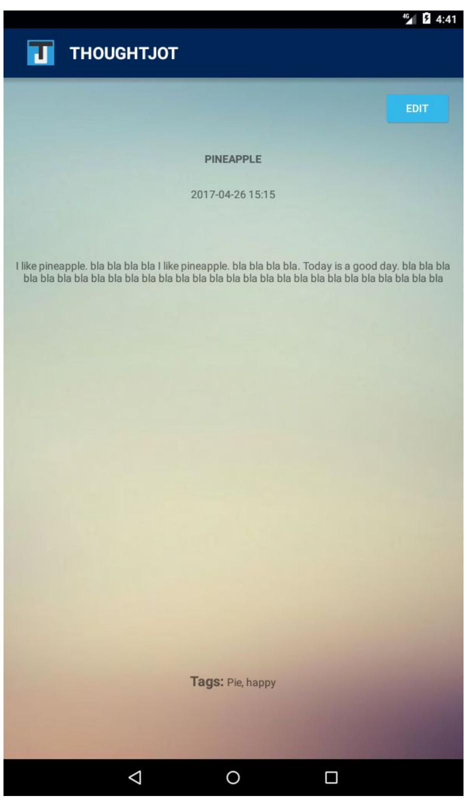


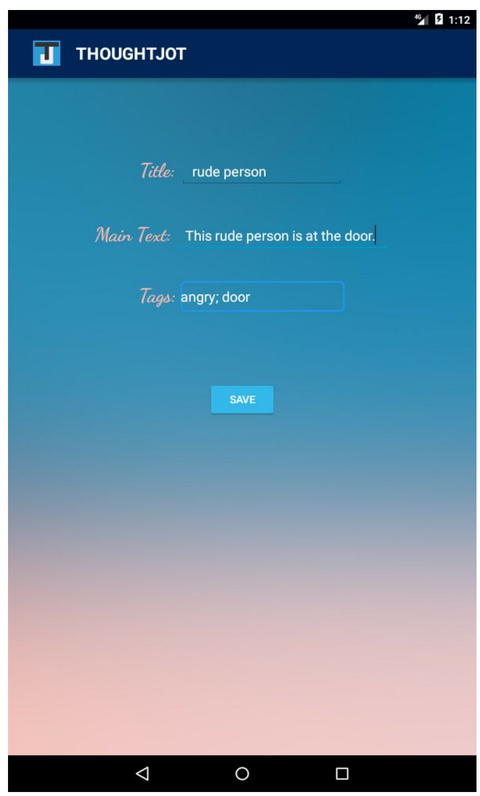
Search Entries





Detailed Search **Search Result List View**

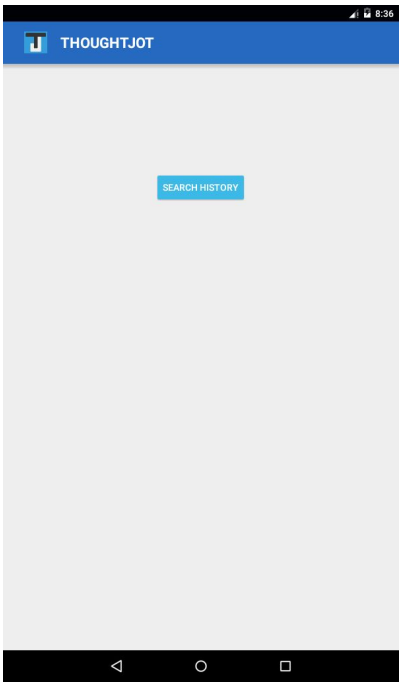




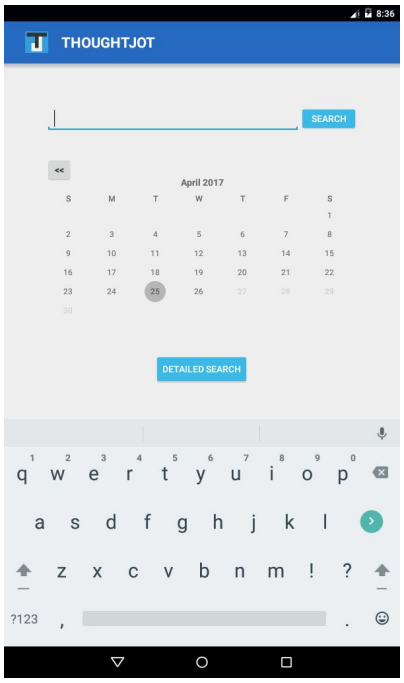
Entry Screen **Edit Screen**

Previous (OLD) - Interactive prototype screenshots [GUI] - All (Additional Images):

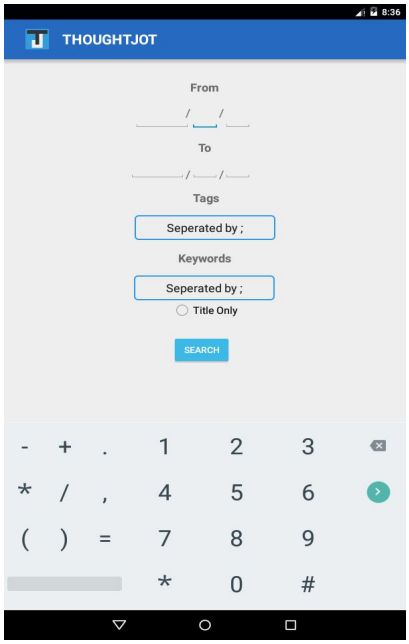
'Search history' for searchbar [new feature]



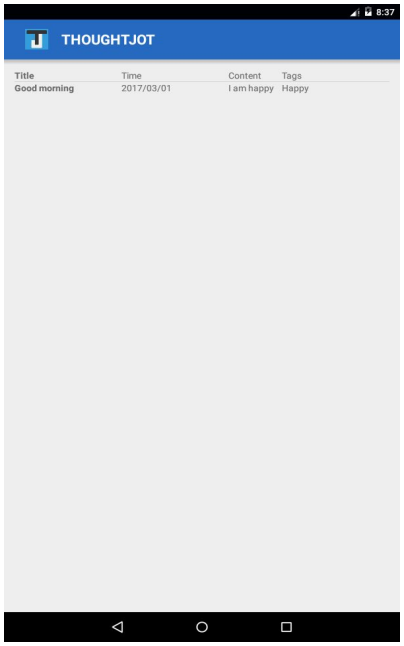
Main search screen(calendar view & search bar)



Advanced search options, filtering searches



Sample list view of entries after searching



Editing a journal entry (title, contents, regular tags)