Project 1 Design Document:
Google Photos

Version 1

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EXECUTIVE SUMMARY

Google Photos is a photo storage and sharing service accessible through web and mobile application. Aimed at providing users an easy and orderly way to store and share photos from the convenience of their phones, the Google Photos mobile application boasts numerous great features, but the app's interface does not necessarily encourage the use of these features. Our goal was to improve this interface of the mobile application to make it easier for users to manage photos and stay connected with friends and family – all whilst having a sense of security.

After conducting initial usability and user experience analysis, which suggested that the app interface might not provide the degree of organization and sociability that would encourage photo storage and sharing, our group developed an interview guide focused on understanding how users like to store photos and engage with others through photo sharing. We used this interview guide to conduct interviews with a number of college students, with a varying fondness for taking and sharing photos. By organizing our research in an affinity diagram, we were able to extrapolate several theme, including privacy concerns, a general enjoyment of taking and sharing photos, and the desire for additional phone storage. Further analysis of these themes helped us create a list of user needs, which was comprised of: providing additional storage, efficiently managing photos, ensuring privacy, connecting with friends and family, and sharing many photos at once.

From the user needs, our group developed personas, scenarios, and a storyboard. Our primary persona was a world traveler with a penchant for taking photos of his travels and sharing them with friends and family. For this persona, we developed a scenario and storyboard that involved his need to share many photos at once during a trip. Our two secondary personas were females in college and high school who enjoyed taking photos for different purposes. From these personas and corresponding scenarios and storyboard, we began the redesign process.

During the redesign process, we explored potential design solutions, which eventually led to a final design solution. The final design, which can be found in the design document, focuses on emphasizing the secure nature of the app and the social aspect of the app, as well as providing clearer organization. To do so, we used a variety of principles of interaction, including metaphors, consistency, and affordances. Potential next steps for the project would include conducting user testing on our new design and further improving the interface design based on this feedback.

INTRODUCTION

Since its release in 2015, Google Photos has provided iOS, Android, and web users with organizational tools for photo storage and sharing unique to the market. Since then, the app has added numerous features and continuously made improvements. However, despite Google Photo's advanced technologies and arguably superior features, the app continues to lack a user base comparable to other similar services.

To improve photo storage and sharing app Google Photos, our group faces the design challenge of developing a mobile app interface that facilitates the management of photos, the storage of photos, socialization through photos, and the guarantee of security. Within this document, we trace our journey to improve Google Photos. In the usability and user experience section, we include observations that influenced our desire to redesign the app. We gathered and analyzed data from users, finding common themes, which we discuss in length in the user research section. Based on these themes, we designed a new version of Google Photos that satisfies the user needs defined.

USABILITY/UX ANALYSIS

Interface Goals

To allow users to share and store photos with ease and order
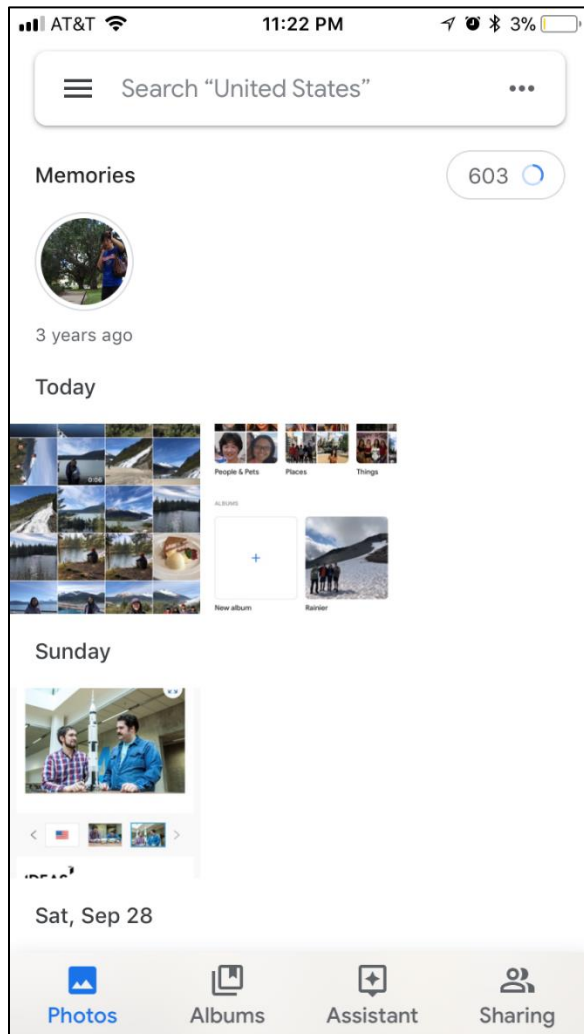
Original Interface

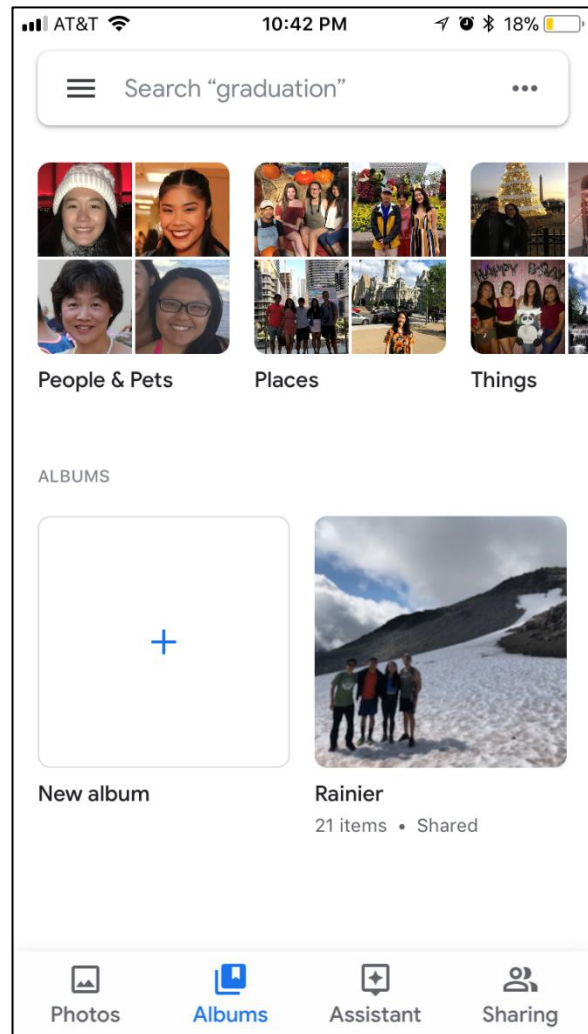*Figure 1: Original interface photos tab*

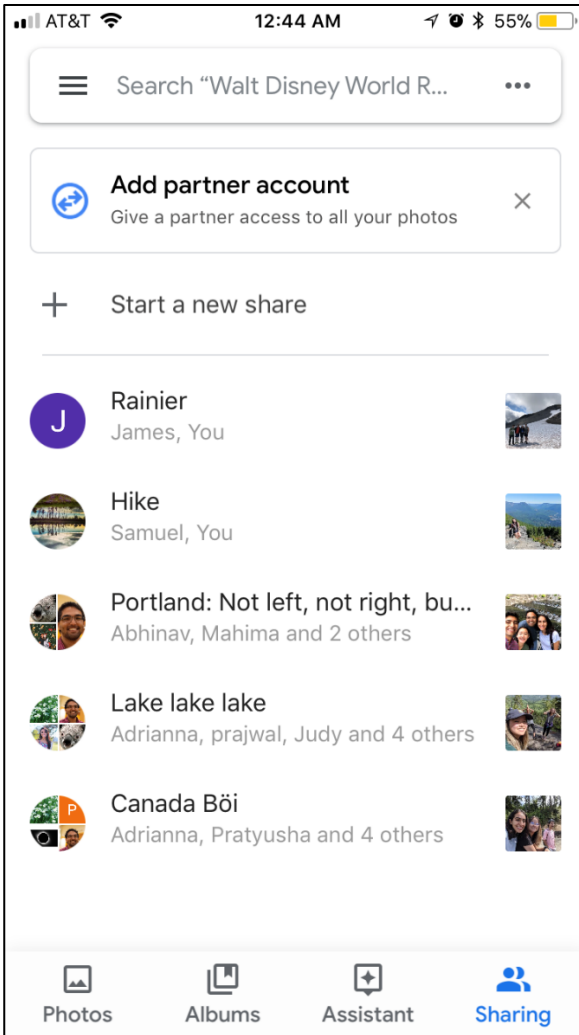*Figure 2: Original interface albums tab*
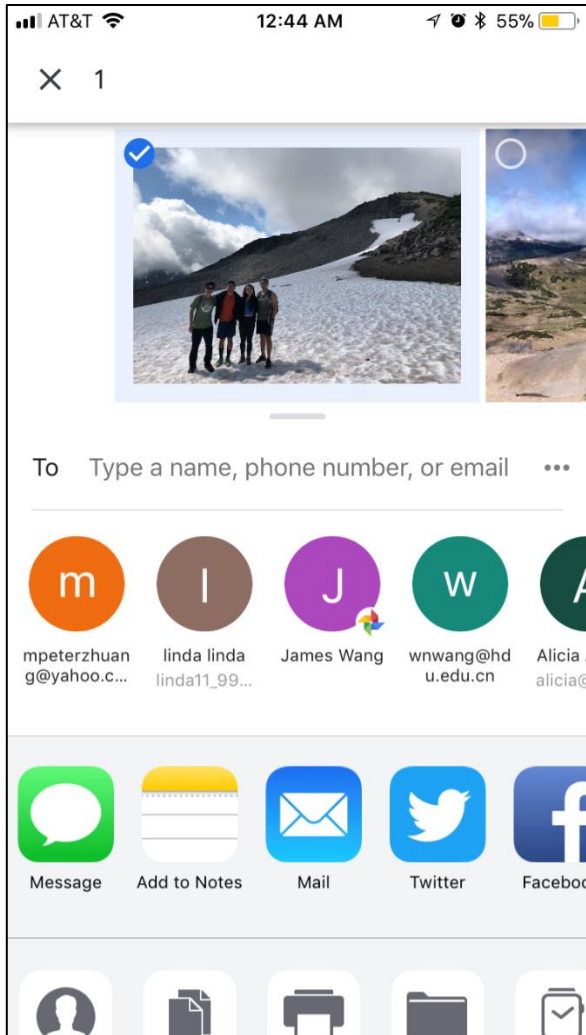
Figure 3: Original interface sharing tab

Figure 4: Original interface sharing photo

Usability Evaluation

- Effectiveness: While the app accomplishes all that it alleges - allowing users to upload, share, and save photos, the processes can be confusing and challenging. The sharing tab does not effectively distinguish between albums shared by the user and to the user.
- Learnability: The organization of the app and its features are counterintuitive, making it difficult to not only find specific features in the app but once a user does, to utilize those features.
- Memorability: Even after using the app multiple times, due to the counterintuitive and seemingly hidden nature of many of the features, it can be difficult to remember how to use everything.
- Efficient: The process of downloading photos from the app to a user's phone is anything but efficient. Considering that transferring these photos is such an important feature of a photo sharing and storage app, the process should not require multiple steps.

User Experience Evaluation

- Helpful: The questionable categorization of features makes them challenging to find and use. For example, the recently deleted album of photos is hidden in the left tab. Thus, instead of being useful and helpful, these features worsen the experience.
- Enjoyable: Where a photo sharing and storage app should be enjoyable to use, Google Photos fails to organize the sharing features in a way that make it enjoyable to use.
- Motivating: The poor organization of the app discourages users from using it to store and share photos.
- Aesthetically pleasing: The default layout in the photos tab classifies phots by day, which can be clustered and unnecessary to users. The ability to change this view to a more uniform view is hidden, so users may not be able to view their photos the way in which they might be accustomed, making the interface visually unappealing to users.

USER RESEARCH

Focus Statement

To understand how user's like to store photos and engage with others through photo sharing

Interviewing

Setting out with the goal of understanding the motivations behind using photo sharing and storage apps, our design team developed a complete interview guide, which can be viewed in its entirety in the Appendix. This questionnaire covered a range of topics, aiming to understand:

- Aspects of potential users: How people might use photos
- Interface goal: Why people might want to store or share their photos
- Usage of interface: People's perceptions towards and usage of photo storage and sharing apps
- Usability dimension: What people consider "effective" within such apps
- UX dimensions: What it takes for people to consider photo storage "helpful" and photo sharing "enjoyable"

We conducted five interviews with potential users from our UX Design class. These interviewees had varying degrees of experience with the Google Photos mobile application, but all used their phones to take photos. The interviewees had a variety of uses of these photos, including memorializing moments and using them to stay connected with friends and family. The notes taken from these interviews can be found in the Appendix.
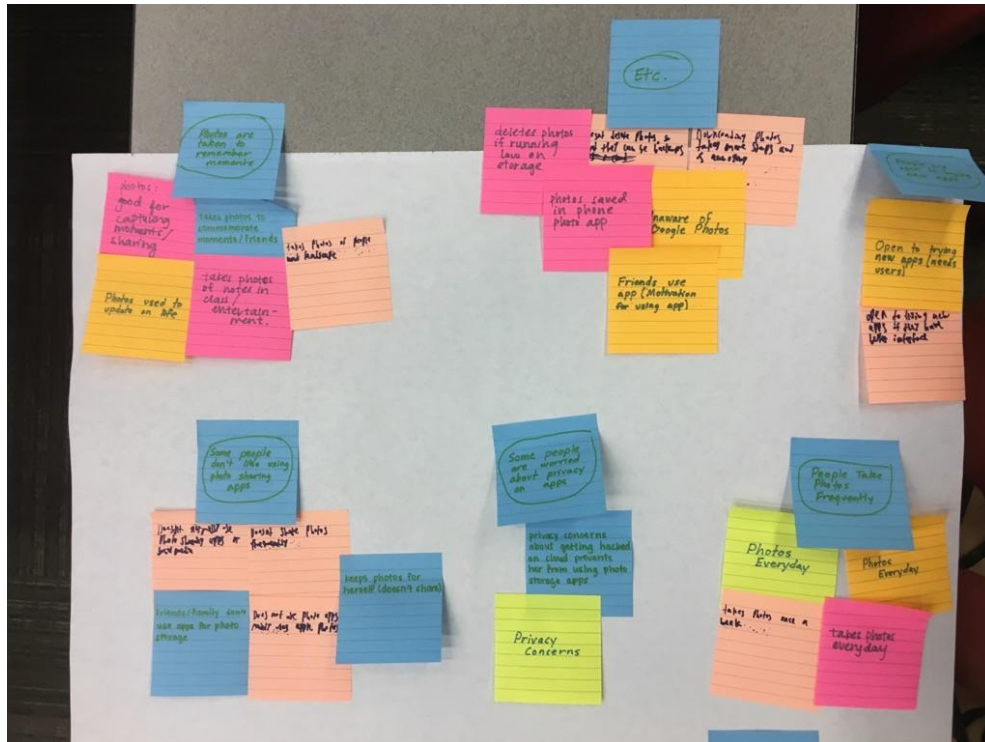
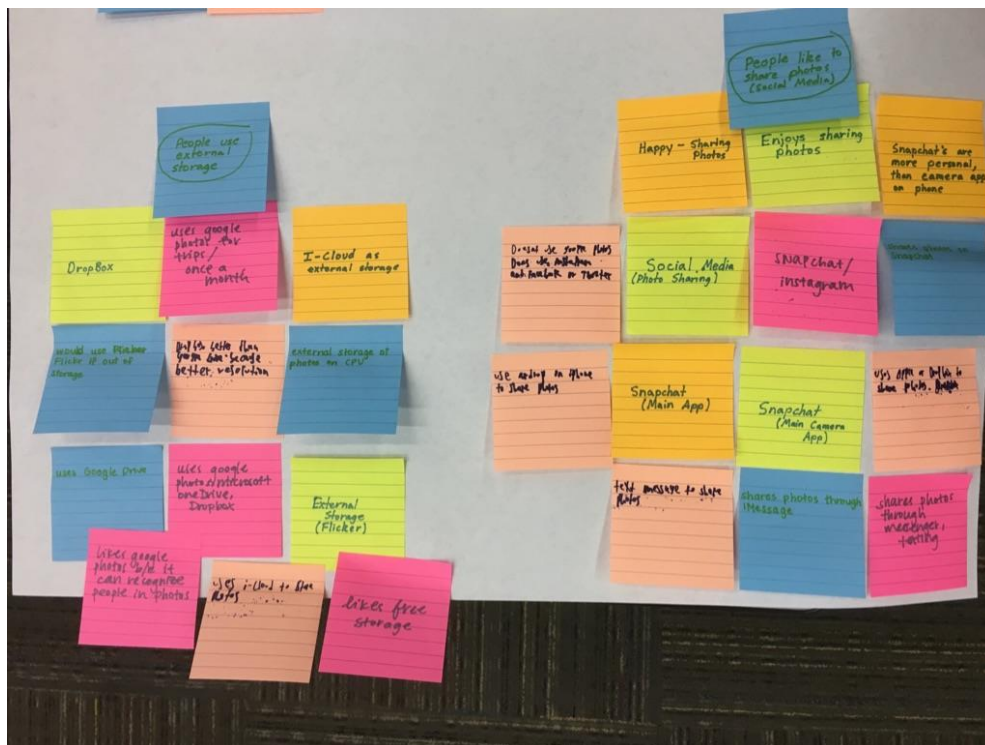# Affinity Diagramming

Figure 5: Affinity diagram view 1

Figure 6: Affinity diagram view 2

What users care about

- Privacy concerns over uploading photos
- Having space on mobile devices
- Remembering moments through photos
- Staying connected with friends by sharing photos

Problems users faced

- Phone often ran out of storage
- Friends and family do not use the same apps
- Some prefer not to share photos publicly
- Concerned with the privacy of photos

How users use the interface

- Store photos externally as backup or to save phone space
- Share large quantities of photos at once
- Manage photos

Positive themes

- Open to trying new photo storage and sharing apps
- Photos provide a great way of connecting with others
- Enjoy sharing and receiving photos from others
- Lots of photos taken on mobile devices
- Often use external storage for photos

Negative themes

- Privacy concerns prevent users from using app or cloud storage
- Friends and family members do not use the app
- Many competitors (Dropbox, Flickr, etc.)
- Prefer to use social media apps to share photos

Holes

- How much does the type of phone (Android vs. Apple) impact user enjoyment of the app?
- Do users care about photo resolution when sharing?

Design ideas (opportunities)

- Emphasize security of the app
- Focus on social aspect of the app
- Highlights multi-purpose uses of app (photo storage and sharing)
- Allow for simpler and more efficient management of photos

User Needs

1. Have additional photo storage to save phone space
2. Upload, access, and manage photos easily and quickly
3. Ensure the privacy of photos uploaded
4. Connect with friends and family through photos
5. Share large quantities of photos at once

Personas

Dean

Age: 26
Gender: Male
Occupation: Traveler
Likes: Exploring new places, swimming, rock climbing, hiking, photography
Dislikes: Doing nothing, politics

About: Dean has a hunger for adventure. In his 26 years, he has traveled to places like Thailand, Hawaii, Spain, and Croatia - the list goes on and on. On his trips, he loves going hiking. He loves to take photos when he travels to capture the beautiful landscapes, using his phone to avoid the trouble of lugging around a heavy camera. He sends these photos to friends and family, who use the photos to keep up with his travels.

Figure 7: Persona 1 (primary)

Alyssa

Age: 21
Gender: Female
Occupation: College student
Likes: Social media, hanging out with friends and family, partying, football
Dislikes: Feeling left out, humidity

About: Alyssa is a senior at the University of Florida. She loves to take pictures with her friends, saving them on her iPhone 8. She enjoys sharing these photos with friends through popular social media apps like Instagram and Twitter. With the amount of photos she takes on a daily basis, her phone storage often fills up. When this happens, she usually uploads the pictures to her laptop and deletes them from her phone.

Figure 8: Persona 2 (secondary)

Natalie

Age: 18
Gender: Female
Occupation: High school student
Likes: Writing, reading, chemistry
Dislikes: Social media, high school cliques, cold weather, being apart from friends

About: Natalie attends high school at Cypress Bay in South Florida after moving from Cherry Hill, New Jersey. Although she enjoys Florida's warmer weather, she misses her friends back in New Jersey. She stays connected to them by texting them, Snapchatting them, sending them memes, and Facetiming them. Whenever she sees something she wants to show them, she uses her Android to snap a photo to send them.

Figure 9: Persona 3 (secondary)

Scenarios

Primary: Dean

Dean is on an adventure in Venice - this time with a group of friends to accompany him. They have a great weekend away, exploring the city and snapping photos in front of all the iconic landmarks. At the end of the trip, his friends ask him to send the photos they took together, but after two days of nonstop photo taking, there are too many to send over text. He considers emailing them, but that would require several separate emails. Instead, he uploads them all into a single album in Google Photos from his mobile device. Once uploaded, he can easily view all of the photos from the trip. He can easily delete any photos from the trip he prefers not to share with friends. Then, he can share the entire album with his friends. His friends are now able to view and download the photos at any time from the convenience of their phones. The app also does a great job of maintaining the quality of the photos. Whenever Dean goes on a trip now, whether with friends or by himself, he makes a new album on the app to not only share them with friends but keep them backed up.

Secondary: Alyssa

It's game day in The Swamp, and no one is more excited than Alyssa. Before the game, she meets with friends, but her lack of phone storage halts her plans to take pictures. Without her laptop, she cannot backup the photos the way she typically does, but her friend suggests she use Google Photos. In a flash, she is able to upload her photos onto the mobile app. The photos now safely backed up, she deletes them from her phone and gets back to taking photos. Later, she is able to painlessly access the photos in the Google Photos app and download anything she wants stored on her phone's built-in storage. Now, Alyssa regularly uses Google Photos to back up her photos and clear her phone storage.

Storyboard

Dean is excited to take a trip with his friends to Venice, Italy.

Dean takes many photos using his iPhone during the trip.

Dean is disappointed because he wants to share the photos with his friends, but there are too many to send through text or email.

Dean happily uses Google Photos to save all his traveling photos.

All of Dean's friends are excited to be able to access and download all the photos from the trip.

Dean is able to upload all the photos to Google Photos and share the album with his friends.
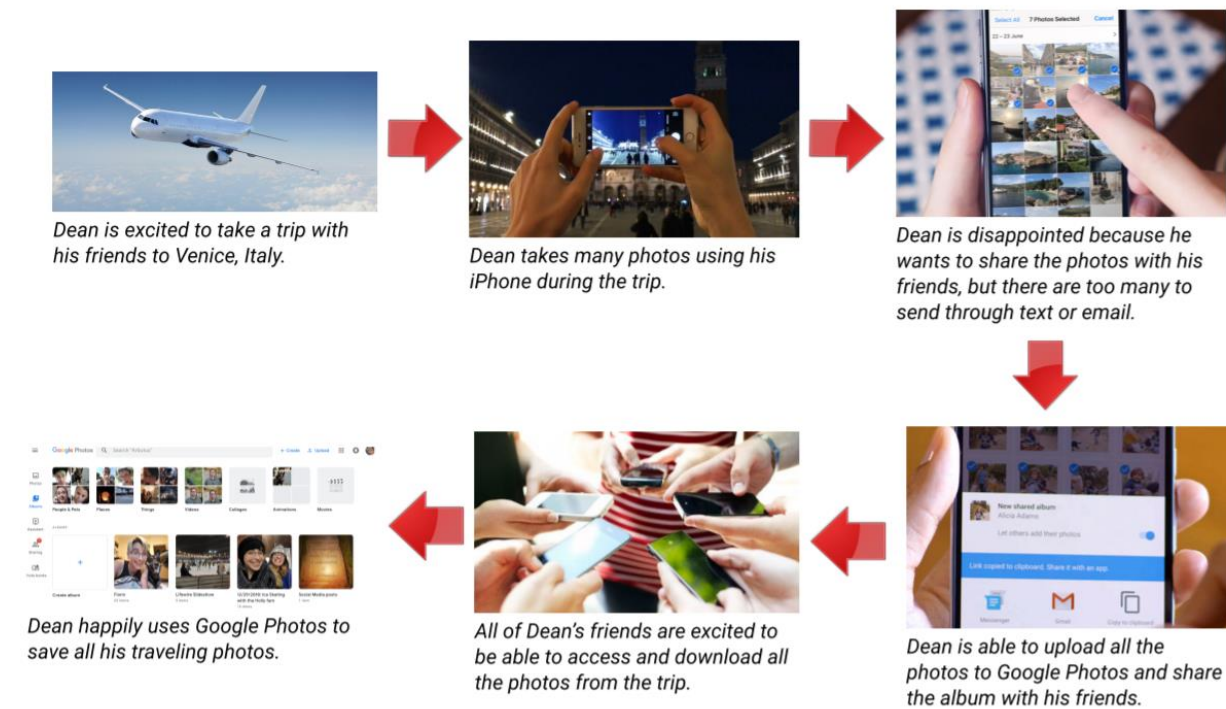
Figure 10: Dean's storyboard

POTENTIAL DESIGN SOLUTIONS

Based on user feedback, our design challenge was to develop a mobile app interface that facilitates the management of photos, the storage of photos, and socialization through photos.

An influence that made users hesitant to store photos on Google Photos was the question of security. We considered a variety of different methods to ensure security, including a number of different metaphors that represented security, including locks, keys, and shields, among other symbols. After choosing symbols, namely locks, we considered how we could incorporate such symbols to signify privacy. One opportunity we had was allowing users to make albums private, a design we initially incorporated rather timidly, adding a small lock icon. In another iteration, we capitalized on this opportunity by expanding the lock icon and blurring the photo to signify privacy.
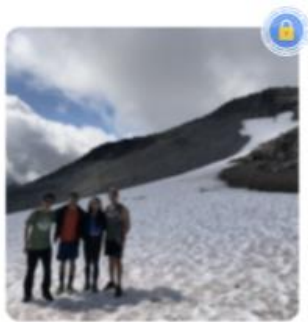

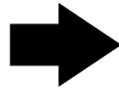*Figure 11: Potential security solution*   *Figure 12: Security solution*

One major theme we found while conducting interviews was the desire for users to use the same apps as their friends were using. Thus, we explored increasing the app's compatibility with the iPhone interface, which would promote more use among both iPhone users and subsequently, Android users who have friends or family that use the iPhone. We looked for ways to incorporate a format similar to the iPhone in the Google Photos redesign, while continuing to maintain the existing unique features of the app.
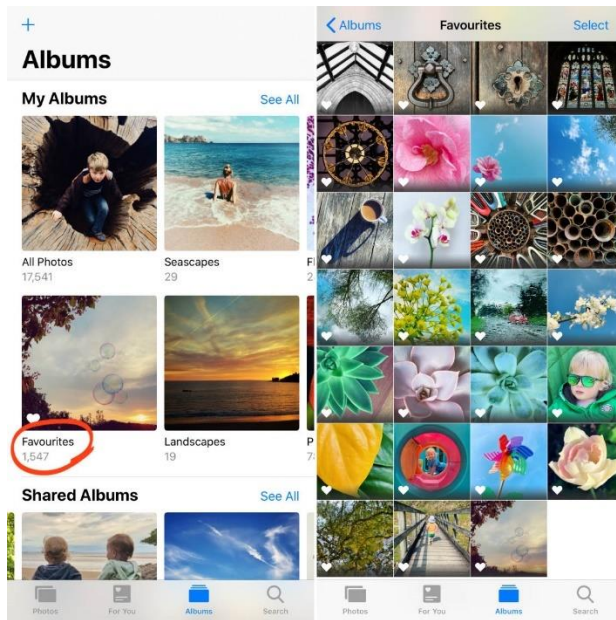
Figure 13: iPhone photo interface

Additionally, we considered how users could more effectively manage their photos and albums. The possibility of combining or changing tabs was considered, especially because albums and sharing both contain photo albums. We considered this classification to be potentially confusing. Eventually, however, we realized the importance of separating the two folders to emphasize each individual feature of the app, as we realized that sharing photos was an essential component sought out by users. Instead, we chose to work on each individual tab to ensure it was clearly distinguishable from the other tabs, ensuring no confusion between the tabs.

Figure 14: Potential reclassification of tabs

We also considered adding more of a social media feel to the sharing section, considering including a visual of friends and family members on the app at the time or changing the layout of the section to allow users to view their friends' "feeds." However, after reviewing the intention of the app, we refocused our design. Instead of revamping the entire app to look like a social media app, we added more socialization by incorporating memories while still maintaining the goal of album sharing.
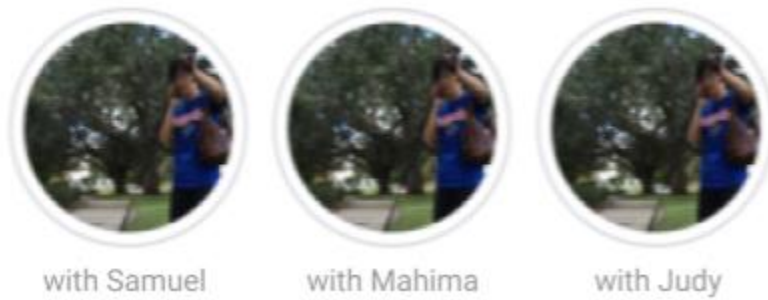

Figure 15: Memories

From these potential design solutions, we eventually developed a more formal design solution, finalizing it after receiving critiques from potential users.

FINAL DESIGN SOLUTION

*The numbers in bold italics within annotations specifies the user need that the design change addresses:

1. Have additional photo storage to save phone space
2. Upload, access, and manage photos easily and quickly
3. Ensure the privacy of photos uploaded
4. Connect with friends and family through photos
5. Share large quantities of photos at once
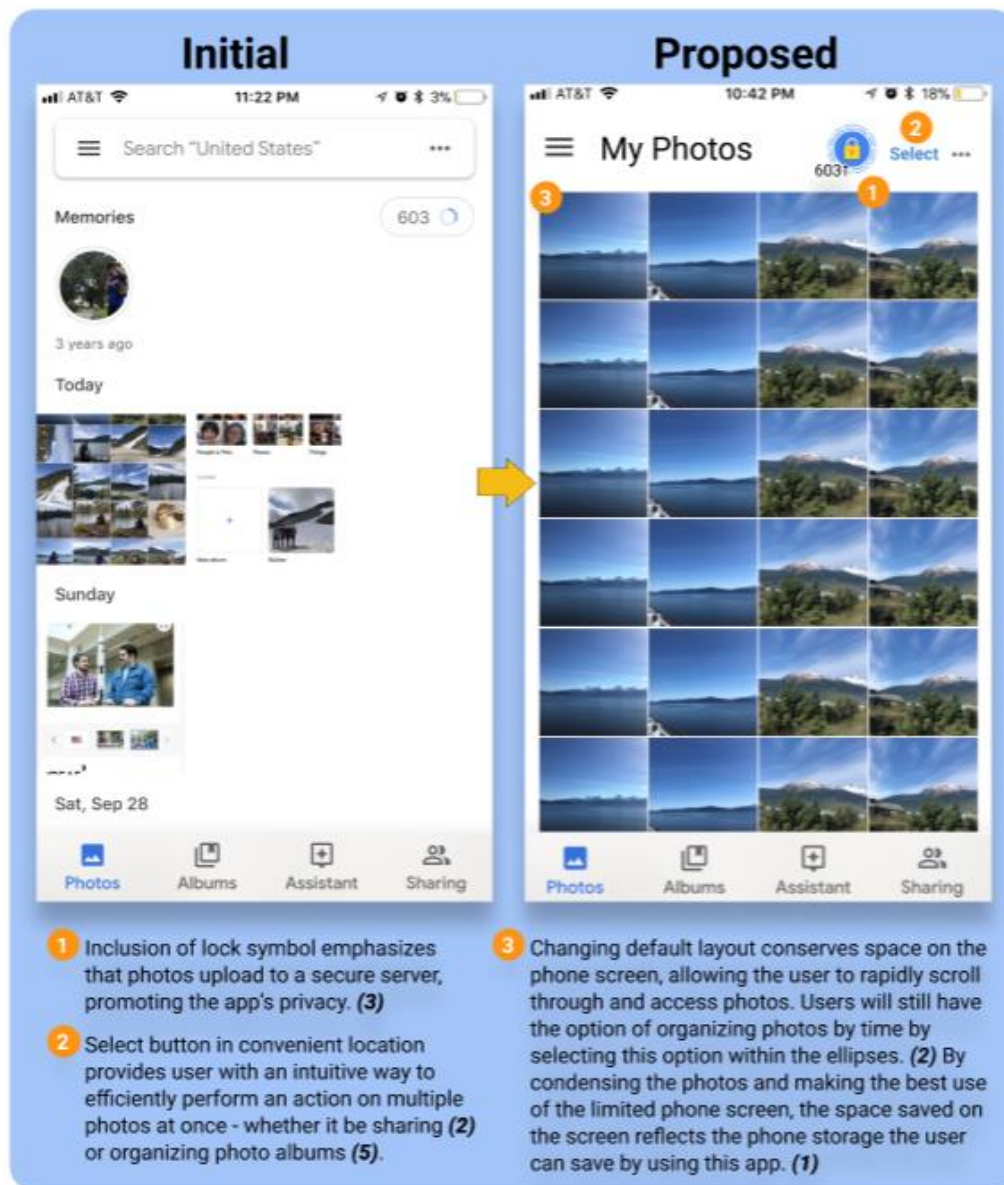
Within the photos tab, we changed the default layout of the photos. Although the new layout is currently obtainable by zooming out and can be changed back by zooming in, the feature is not intuitive and has poor visibility. Now, the users will have a more condensed layout by default,

which provides the *conventions* that users may be more accustomed to, especially if they use the iPhone. However, the former layout will stay remain accessible within the ellipses. Currently, the ellipses provides some options to change layout, but adding all options to change layout in the ellipses will ensure internal *consistency*, as well as greater *visibility*.

Initial

Proposed

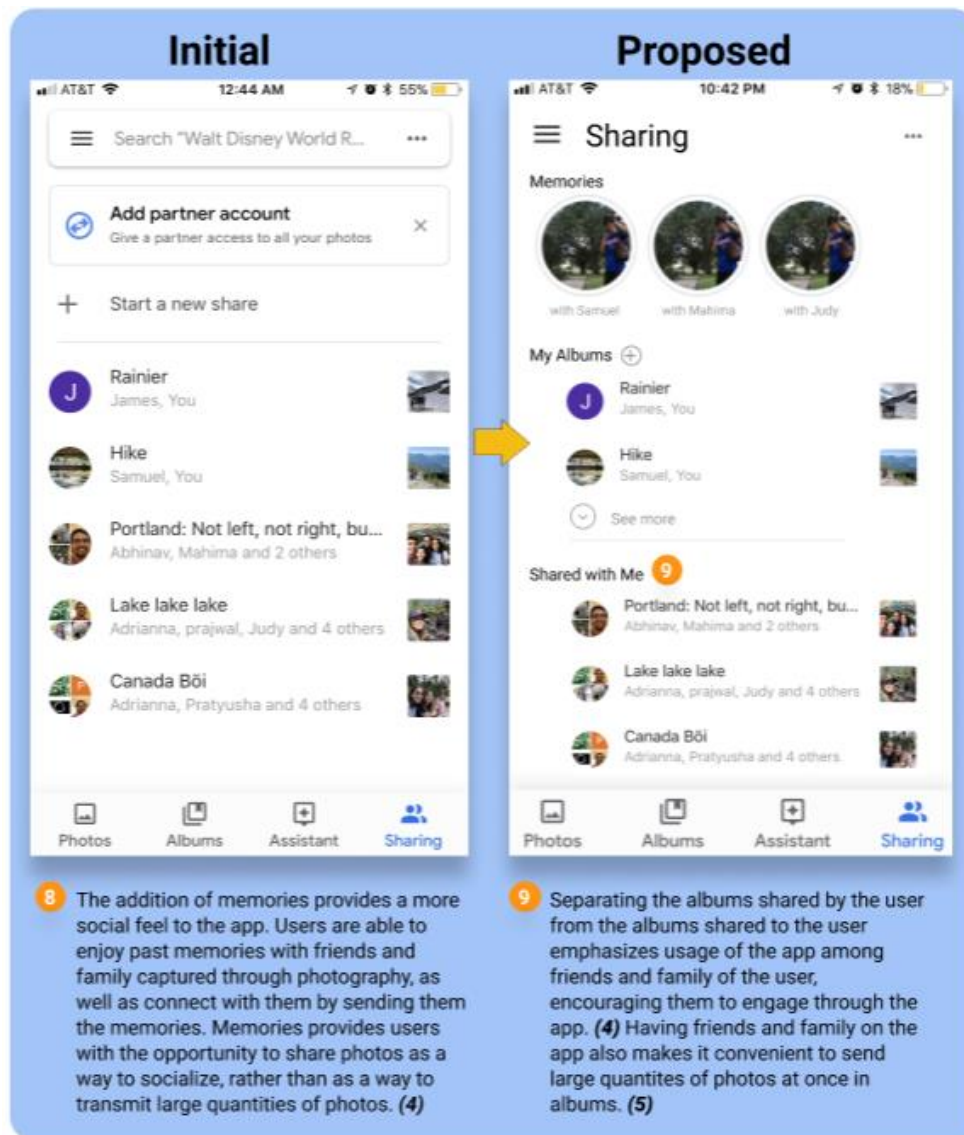**4** The varying use of shapes distinguish the albums automatically created by the app from the albums created the by the user. The distinction keeps the photos organized, making it easier for the user to manage. *(2)*

5 The recently deleted folder in the albums tab makes it visible to users, rather than hidden in the sidebar as it was formerly. Increasing visibility helps the user manage photos. *(2)*

6 The users icon indicates the album has been shared with other users, underscoring Google Photo's ability to share entire albums with other users. *(5)*

7 The blurring of the photo and lock icon indicates the album is private and requires a password to view. This gives users more security and expands the ability to keep preferred photos private. *(3)*

Within the albums tab, we reworked the layout of the albums to ensure that the albums can be more easily distinguished from each other. We added a recently deleted folder in the albums page, pulling it out of its former hiden location within the left tab and thus increasing its *visibility*. We also included *metaphors*, in the form of the lock symbol and the multiple user symbol, which represent private albums and shared albums, respectively.

Initial → **Proposed**

8 The addition of memories provides a more social feel to the app. Users are able to enjoy past memories with friends and family captured through photography, as well as connect with them by sending them the memories. Memories provides users with the opportunity to share photos as a way to socialize, rather than as a way to transmit large quantities of photos. *(4)*

9 Separating the albums shared by the user from the albums shared to the user emphasizes usage of the app among friends and family of the user, encouraging them to engage through the app. *(4)* Having friends and family on the app also makes it convenient to send large quantites of photos at once in albums. *(5)*

Within the sharing tab, we separated the albums created by the owner and those created by others and shared to the user to emphasize the distinction and thus provide greater *visibility* to the albums shared to the user. This visibility increases the user's awareness of others using the app, which encourages more frequent use, a theme we found from user research. The addition of downward arrow to expand the folder downwards is an *affordance*, as the button expands the list of albums just as it suggests it would.

APPENDIX

The Appendix includes the complete interview guide, as well as the notes from each of the three individual interviews. The Appendix also includes the table of figures.

Interview Guide

1. Aspects of potential user: To understand how people might use photos
   a. How often do you take photos?
   b. What kind of photos do you take?
   c. What do you usually do with these photos?
   d. What kind of device do you use to take photos?
2. Interface goal: To understand why people want to store or share their photos
   a. Why do you keep photos, rather than deleting them?
   b. How do you feel when you share or receive photos?
   c. Are there any factors that make you want to use photo sharing apps? What are they?
3. Usage of interface: To understand people's perceptions towards and usage of photo storage/sharing apps
   a. What photo storage or sharing apps do you know of?
   b. Do you personally use any of these apps? If so, which ones? If not, why not?
   c. Do you have any concerns about storing your photos on and sharing them through an app? If so, what?
4. Usability dimensions: To understand what people consider "effective" within such apps
   a. For what purposes would you use a photo storage and sharing app?
   b. Why don't you stick with your phone's existing software to save and share photos?
   c. What separates your preferred app from another common app?
5. UX dimensions: To understand what it takes for people to consider photo storage "helpful" and photo sharing "enjoyable"
   a. Do you enjoy sharing photos? Why or why not?
   b. Is external photo storage helpful to you? Why or why not?
   c. What would make you want to continue using photo storage and sharing apps?

Interview 1: Paula

- Usually never takes photos on her camera app, only usually on Snapchat (descriptive)
- When she does keep photos, she usually takes photos of special moments, birthdays, funny photos, and friends (descriptive)
- Doesn't usually share those photos, only sometimes (descriptive)
- Usually sends photos through iMessage (descriptive)
- Hasn't really used any photo sharing apps (descriptive)
- Sometimes uses Google Drive (descriptive)
- Stores photos on phone or on computer hard drive (descriptive)
- Friends or family don't really use apps to store photos (descriptive)

- Indifferent to all the different photo apps (descriptive)
- Does not use iCloud because she's scared about getting hacked (descriptive)
- Stores photos on the computer and she's worried about her privacy (descriptive)
- Can see use for Google Drive for photographers who want to display work
- Understands appeal of photo sharing for those who enjoy posting a lot of content and those who want to see what's going on (inferential)
- If she ran out of storage in computer, she would use Flickr for photo storage (inferential)
- Does not really enjoy posting a lot on social media, only likes to have the photos for
- herself (descriptive)
- Uses Twitter, Instagram, and Facebook (descriptive)
- Follows friends, family, and celebrities on Instagram to keep up with what's going on in their lives (descriptive)
- Uses Twitter for memes and share funny stuff (descriptive)

Interview 2: Justin

- Takes photos once a week (descriptive)
- Uses phone's back camera (descriptive)
- Takes photos of both people and landscapes, but it typically depends on the situation (descriptive)
- Does not use any photo apps, but mainly utilizes Apple's Photos (descriptive)
- Sometimes share photos with others and occasionally posts on social media (descriptive)
- Uses airdrop on iPhone or text message to share photos (descriptive)
- Keeps photos as a backup, uses iCloud (descriptive)
- Friends and family don't use Google Photos but does use Instagram and Facebook (descriptive)
- Knows of Google Photos, Facebook, Twitter for photo sharing (descriptive)
- Does not normally use the photo sharing apps (descriptive)
- Understands why people use social media, but doesn't need it for himself (evaluative)
- Personal preference for photo sharing apps, this is why people use different apps (evaluative)
- Apple's Photo app is good since it is based on date and location (evaluative)
- If outside of Apple, uses Dropbox to share photos (descriptive)
- Have used Google Drive but thinks Dropbox is a good alternative to sharing apps because of better resolution (inferential)
- Downloading photos takes more steps and is kind of annoying to do (evaluative)
- External photo storage? Good backup for the photos. (evaluative)
- Open to trying new photo sharing apps? Open to trying new apps and if these new apps have a better interface, then it would be cool to try out (inferential)

Interview 3: Ashley

- Takes photos every day, throughout the day (descriptive)

- Types of photos: notes in class, entertainment, landscapes (descriptive)
- Always takes on phone, no external camera (descriptive)
- Sit on phone, unless need to check something (descriptive)
- Photos saved because no need to save them, a lot of storage, only delete if running low (descriptive)
- Don't run out of storage very often, has lots of photos on phone, once a year might delete (descriptive)
- Like to share/receive photos, positive feeling (inferential)
- Uses Instagram, Google Photos (descriptive)
- Android Phone (descriptive)
- Easier within app, you can search for photos on Google Photos (descriptive)
- Android sorted by year/dates (descriptive)
- Likes Google Photos because can recognize people in photos or can search by phone (inferential)
- Friends use Instagram, family use iCloud (have iPhones) (descriptive)
- Share photos through Messenger, SMS (descriptive)
- Google Photos (good amount of free storage), Microsoft OneDrive, Dropbox (descriptive)
- Has not tried other apps for photos because happy with current one, Google Photos seems like meant for that (branding) vs other apps (descriptive)
- No concerns about using photo sharing apps (descriptive)
- Google Photos, uses other than storage: videos with photos, share with others
- (descriptive)
- Use Google Photos use every few months, if perhaps for a trip (descriptive)
- Perception of why other people use: ease of use, different features, compatibility with what you already have (platform) (evaluative)
- Good for capturing memories and sharing with other people (evaluative)
- Open to trying different apps, would be interested in something that could automatically
- Categorize in albums (descriptive)

Interview 4: Jessica

- Takes photos every other day/ everyday of assignments (descriptive)
- Use snapchat to take selfies and cat (descriptive)
- Use phone to take photos (descriptive)
- Snapchat = send to closest friends / mom, assignment = look at photos later (descriptive)
- Forget about the photos and take up all memory on phone, have to go through them at the year (descriptive)
- Enjoys sharing/receiving photos, share photos with friends, doesn't use Instagram anymore (descriptive)
- Friends/family and self use Instagram and Facebook, as well as Flickr (descriptive)
- Instagram, Facebook, Flickr, Google Photos (descriptive)

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- Prefers Facebook and Instagram because friends and family use them, they are the popular ones (descriptive)
- Concerns: other people (unwanted strangers) might be able to see them (descriptive)
- Flicker - don't have to use phone storage (descriptive)
- Galaxy S8 (Samsung Android) (descriptive)
- GroupMe/Messenger to share photos because ease (descriptive)
- Dropbox - issues that can cause computer to crash, easy to use, have it on Phone, easy to transfer photos between devices (downloading pics straight to computer with Android is easy) (descriptive)

Interview 5: Kevin

- Take photos every day, a couple times a day (descriptive)
- Take selfies, friends (descriptive)
- Snapchat - send it to ppl and also saves them most of the time (descriptive)
- Feels happy most of the time when sharing photos (descriptive)
- Snapchat, Instagram - family uses Facebook more to share photos, friends use more of
- Instagram and Snapchat (descriptive)
- To share important memories / keep people updated on life (descriptive)
- Snapchat's more personal, photos are more fresh in the moment rather than choosing from camera (descriptive)
- Doesn't know google photos has a sharing section (descriptive)
- Different appliances on different apps (descriptive)
- Like to keep people updated (descriptive)
- Purchased iCloud storage when ran out of storage (descriptive)
- iOS makes it easy for storage - pay for unlimited space (descriptive)
- All friends are using Snapchat - only daily basis easy to share (descriptive)
- More professional photos - use camera app (descriptive)
- Open to try something new but if there aren't a lot of people on it then won't use (descriptive)
- No opinion about Google Photos (evaluative)

Table of Figures