Project Proposal

Team members:

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Team Number: 21

Project Name: Retriever

Project Synopsis: This is a Lost and Found app made using React Native.

Project Description:

Why is the project being undertaken?

To employ a go-to, unified platform for items lost and found, and to provide an easy method to return these items to the owner.

Describe an opportunity or problem that the project is to address.

Sometimes people find a lost object but don't know how to find its owner, or someone loses an object and wants to place a reward. This app would allow posting an alert by area, essentially the equivalent of physically posting flyers in the area. People who found a lost object would also be able to look for its owners on the app easily.

What will be the end result of the project?

Some features of the end result would include:

- If someone finds an item, they can make a post about it on the app, and either drop it off somewhere or keep it with them so the owner could pick it up from them
- If someone loses an item, they can put up a post including pictures of the item and where they lost it, so that if someone finds it they could contact them about it
- Potentially a reward system

Project Milestones:

First Semester:

1. Learn React Native and decide on backend platform (10/22)
2. Figure out how all platforms will work together (11/5)
3. Decide on a design layout that goes well with the features (11/19)
4. Come up with branding/logo (11/26)
5. Talk about any extra features of the app and what we want to add (12/5)

Second Semester:

1. Assign certain aspects of the app to each person to be in charge of implementing (1/21)
2. Define database organization and further implementation of backend (2/30)
3. Create the design layout for the app, get a simplified version of the app running (3/25)
4. Testing and debugging, simulating user experience. (4/1)
5. Obtain final product (4/8)

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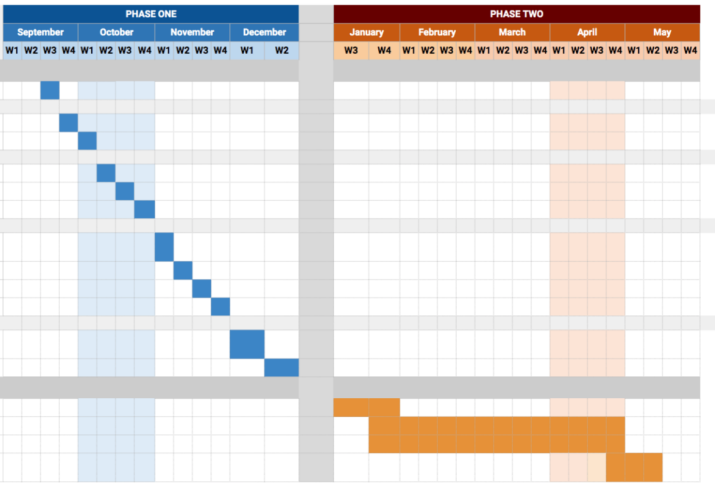
PROJECT TITLE	Retriever	School	Univeristy of Kansas
Team Number	21	DATE	9/22/21

WEEK NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE
Fall Semester				
1	Decide initial idea	Team	9/22/21	9/24/21
Overview				
2	Refresh JavaScript skills	Team	9/24/21	10/1/21
3	Get familiarized with React Native	Team	10/1/21	10/8/21
Backend				
4	Research into backend platforms	Team	10/8/21	10/15/21
5	Decide on backend platform	Team	10/15/21	10/22/21
6	Get familiar with backend platform	Team	10/22/21	10/29/21
Design				
7	Figure out how all platforms will work together	Team	10/29/21	11/5/21
8	Research other apps/ observe layouts	Team	11/5/21	11/12/21
9	Decide on an app layout	Team	11/12/21	11/19/21
10	Come up with branding/logo	Team	11/19/21	11/26/21
Bonus				
11	Talk about any extra features of the app and what we want to add	Team	11/26/21	12/3/21
12	Go over issues that have arisen	Team	12/3/21	12/10/21
Spring Semester				
1	Reassuring tasks	Team	1/20/22	1/27/22
2	Complete frontend of the app	Becky & Yuying	1/27/22	4/25/22
3	Complete the backend of the app	Kayton & Celia	1/27/22	4/25/22
4	Make sure frontend and backend cooperate together	Charan	4/25/22	5/10/22



Project Budget:

- $100 to put the app on the App store
- $25 to put the app on Playstore
- $$ costs for graphics
- $$ undecided backend platform to host all backend files
    - Vendor: Still to be determined (back4app)

Backend platform will be needed by January. The money for placing the app on the stores won't be needed until April/May.

Preliminary Project Design:

How the app works:

Our app would have nine main UI views for users, as follow:

- Login Page
- Sign-Up Page

- Home Feed
- Lost Feed expansion
- Found Feed expansion
- Messages Directory
- Chat Window
- User Profile
- App/Account Settings

1) Login Page: This is the first window users would see upon freshly opening the app. Here, existing users would type in their respective username (email) and password, or they would press ‘forgot password” had they forgotten it. First-time users would be directed to a Sign-Up page.

2) Sign-Up Page: On this window, first-time users would enter personal details (including first name, last name, date of birth, profile picture, etc.) to create an account. Then, they would be asked for permissions in order for the app to function properly (including access to the phone’s location and camera).

3) Home Feed: this is the portion of the app on which users would be spending the majority of their usage time. Here, upon opening, you will see a map on the top of the feed showcasing the area at and around the approximate location of the user. Further, the map would display image bubbles of found (and unclaimed) items pinned at specific locations where they had been found, as an easy way to see if any item the user had lost was anywhere in the vicinity. This map can be expanded and contracted based on the user’s preference. Underneath this map, there is a feed of both lost items and found items, which can both be expanded upon scrolling further down the feed. A new listing can be created by pressing on the plus arrow near the top of the home feed, wherein a popup window would show up and provide instructions for posting details on your lost/found item.

4) Lost Item Feed Expansion: Once expanded, the lost item feed would show individual items listed according to the latest data posted by default, but the sorting order can be changed by the user using sort filters. Each listing would include an item, a small description of the item, where it was lost, when it was lost, and an image or drawing of the item (optional). If the item has a reward for finding it, you will find that too. Each item can be accessed individually by tapping into the listing and moving on to see further details of the item on a pop-up window.

5) Found Item Feed Expansion: Similar to the Lost Item Feed expansion, once expanded, the found item feed would show individual items listed according to the latest data posted by

default, but the sorting order can be changed by the user using sort filters. Each item would have a small description of where it was found, and an image. Not too much information is given here as the owner should be able to recognize the item based on the image alone, and the finder can verify the true owner of the item by asking questions about the item and its description.

6) Messages Directory: this is a window wherein users would see a list of those you have initiated the conversation with and tapping on each listing would open up their individual chat window.

7) Chat Window: this is a generic chat box wherein users would be able to communicate with each other regarding item ownership, rewards, payment options, rendezvous points, et cetera. They could also send and receive images.

8) User Profile: This page includes your user information, your profile picture, and your app history including details on things the user has lost and found to date so that the user could keep in touch with other users if any issues arise as well as get further details if necessary. This is also where the setting menu is located, as well as the edit profile menu.

9) Settings: here, the user can locate and access basic app settings, including the app's theme, app permissions, FAQs, support, account services, payment services, and others.

Frontend and Backend:

For the front end of our app, we chose to implement React Native, with the usage of JavaScript libraries from React JS. We decided on this due to the cross-platform ability of React Native (so that android and apple apps can be made on the same platform) and due to its fast and easy learning curve. Component construction is also fairly simple here, as it implements a method not unlike building a website. Further, the reusability of individual components would help us build multiple screens with similar layouts (for example the lost item feed expansion and the found item feed expansion would be visually and programmatically similar in most ways). Finally, API implementation is very streamlined and easy to access using React JS libraries (which is key to this project, since we would be implementing the Google Maps API and payment portals including Venmo, PayPal, etc.). The backend of the code is built using back4app, a service that allows us to create a backend for our project including data storage, server hosting and running, computation performance, user response, etc.

Design Constraints:

Technical Constraints:

Platform - Our project uses reactNative as the front end and Back4App as the back end. The reactNative will generate both Android and IOS versions for the App, so we have no special constraints on the operating system.

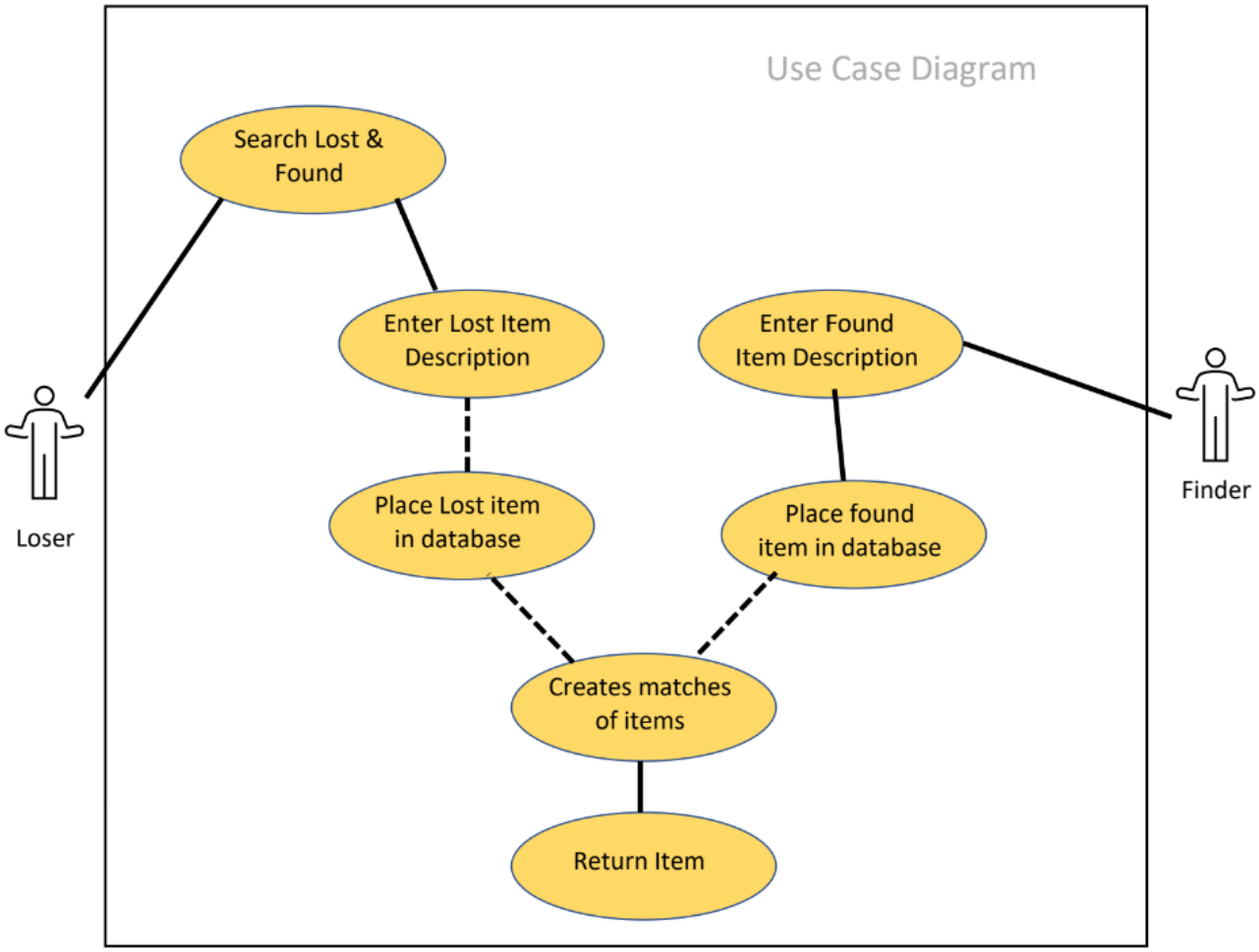
Hardware - Because we are making an App, the initial requirement is that the users must have a smartphone to use our App. And users need to authorize a series of GPS and read photo albums in order to best use all functions. This will cause technical constraints for some people who do not have a smartphone or who do not like to use a smartphone.

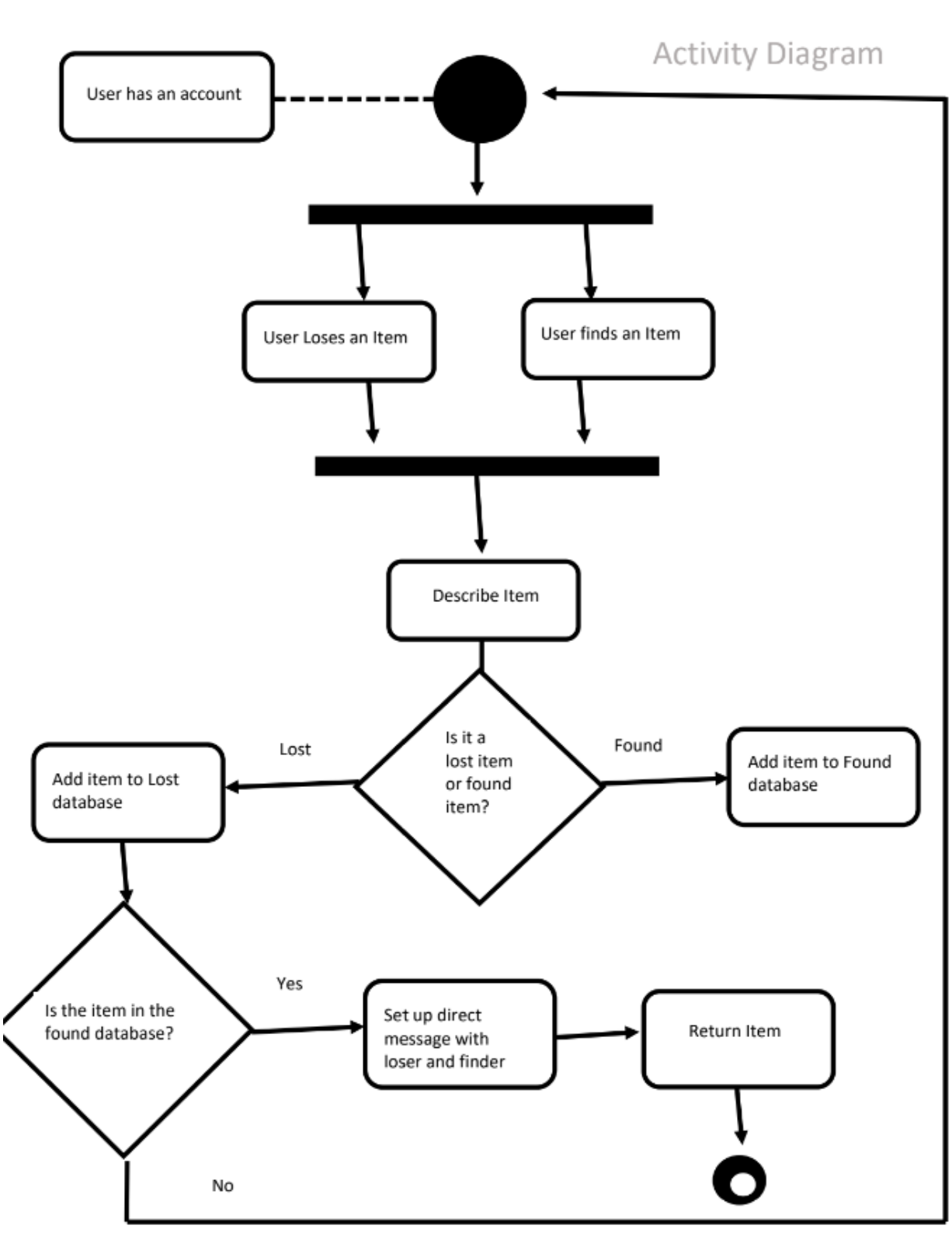
Business Constraints:

Schedule - Because this project lasts for two semesters, our schedule constraint will be from September this year to May of the following year including planning, designing, actual coding, implementing and getting user feedback, etc.

Budget - Since our app uses a database and we hope it can be released in major App Stores, we will also have a corresponding budget constraint.

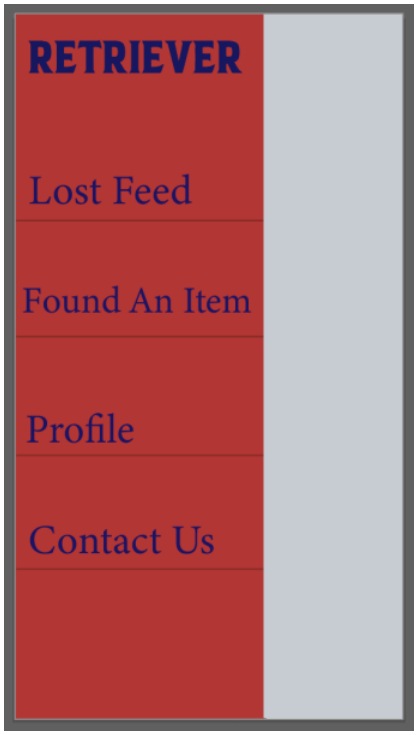
Team composition and make-up - Because each team member's time is relatively different, and each team member has diverse skill sets and interests, we will divide the project to ensure that each team member can contribute in their field of interest. The team members will also supplement and optimize each other's work.




Activity Diagram
User has an account
User Loses an Item
User finds an Item
Describe Item
Is it a lost item or found item?
Lost
Found
Add item to Lost database
Add item to Found database
Is the item in the found database?
Yes
No
Set up direct message with loser and finder
Return Item

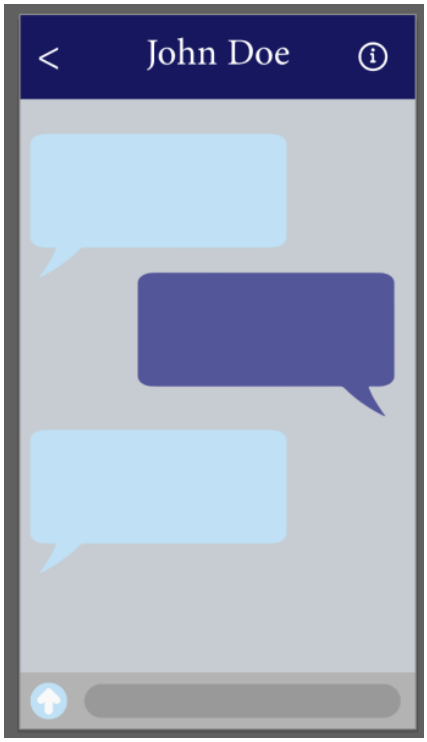
Initial Page / Logo

Log-in View

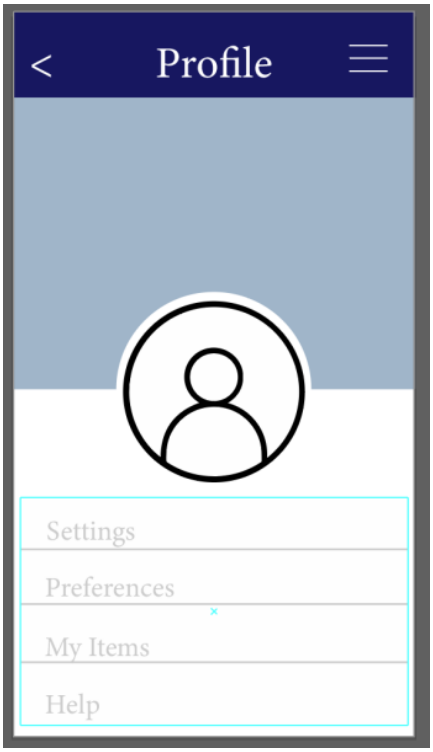


Tool Sidebar

Home Page View



Direct Message View



Personal Profile

Ethical Issues:
The biggest ethical issue with this app is the potential that someone would steal an item posted to the lost and found. A miscreant could see a missing item, go look for it, and then keep it for themself. However, this app is not really bringing any new possibilities for theft that don't already exist. There is nothing stopping people from falsely claiming items from the lost and found in real life. Since basically any tool can be misused, we don't believe the ethical issues in this app are unique to what this app brings. Any person who chooses to post a virtual flyer on the app knows the risks they are running and we hope that the "finders" will be honest in their use of the app as well.

Intellectual Issue:
Even though we came up with the idea of the app ourselves, there is apparently a similar app on the market that is called the Lost and Found App (LOFO). The features and purpose of LOFO seem to also be the same as our incentives for Retriever. However, since it is the expression of an idea that is getting copyrighted instead of the idea itself, we should not run into any intellectual issues since our code would be written from scratch. We also plan to design and create our own app logos. The only possible issue we could have is running into similar designs or logos with other applications by accident.

Change Log:

- Project Milestone: We made some adjustments to the previous milestone based on our current progress. Because learning a new language and platform took more time than we expected, this is so that we can know each step more clearly when we actually write the code and realize the function we want to present to the user.

- Gantt Chart: The Gantt chart was updated to include who is working on what, thus more in line with our current plan.

- App Design Image: After discussion, we believe that the images for App in the previous initial proposal may not be suitable for a more convenient user experience, so we made modifications to it, including style and color matching and layout changes. We also add the App logo on the initial page, a great logo can help users remember our final product.