CS5520 Final Project Report

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I. Introduction

For this project, I will be making a mobile application about helping users to keep track of their travel memories. The user can create an account using an email and a password. The login authentication is done using Firebase's Authentication. Once they are logged in, they will be brought to the home screen which has a navigation bar at the bottom. The home fragment of the mobile application would allow them to mark a city or place as visited and add notes or photos to that place so that they can "revisit" or have a memory kept for that city or place. This is done by implementing a custom marker on the map to allow the user to input information, upload photos, and mark as favorite. To place a marker, just click on the place on the map and a dialog will pop up asking the user for information. You can also utilize the search bar at the top of the fragment to search a place to bring you closer in the map, just like how you would in other map applications. The search is done using Google's Geocoder which gets a position and outputs a coordinate and set the camera to that coordinate. All the marker information is stored in Firebase's realtime database, and the markers are stored under each user. Therefore, whenever they log back in, they will be able to see the existing markers that they have put on the interactive map. The user can click on a marker to see the detail information about the marker via a dialog, or they can click the dashboard button in the navigation bar to navigate to the dashboard fragment to see the details of all their markers. They can delete a marker using the delete button. The dashboard fragment loads the information about all the markers the user has and displays them in a recycler view. The profile fragment displays the user's username/email and the total count of their markers.

II. Proposal

- Primary goals - goals you are 100% committed to completing.
    - 1.1 The app would display a map (world or USA)
    - 1.2 The app would be able to zoom in and out.
    - 1.3 The app would allow the user to select a city/place.
    - 1.4 The app would allow the user to add notes to a city/place.
    - 1.5 The app would have a marker for the user to put on the map.
- Secondary goals - goals you “think” you’ll be able to complete.
    - 2.1 Allow the user to add photos to a city/place.
    - 2.2 Allow the user to select the color he/she wants the cities/places to be marked as visited.
    - 2.3 Have a navigation bar for cleaner interface.
    - 2.4 Login functionality
- Tertiary goals - dream goals you likely won’t get to
    - 3.1 Allow the user to mark a city/place as “wanted” so that he/she can also add notes such as future travel plans or travel notes from others that he/she finds interesting and would like to refer to when visiting.
    - 3.2 Allow the user to mark a city/place as “favorite”.
    - 3.3 Give a feed every day about a city/place that the user never visited.

III. Objective Analysis

All primary goals achieved, all secondary achieved, 1 tertiary goal achieved (3.2).

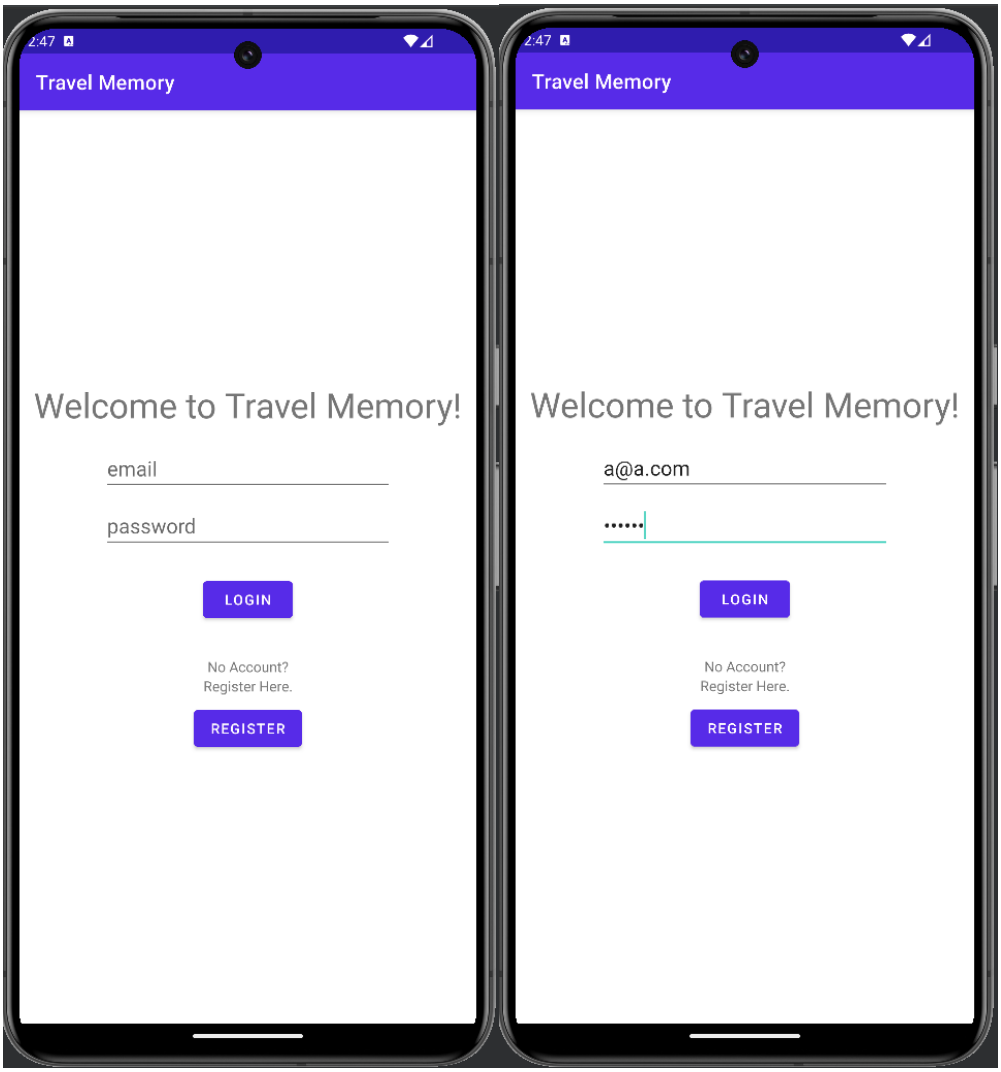
Things not listed in the Proposal but worth mentioning:

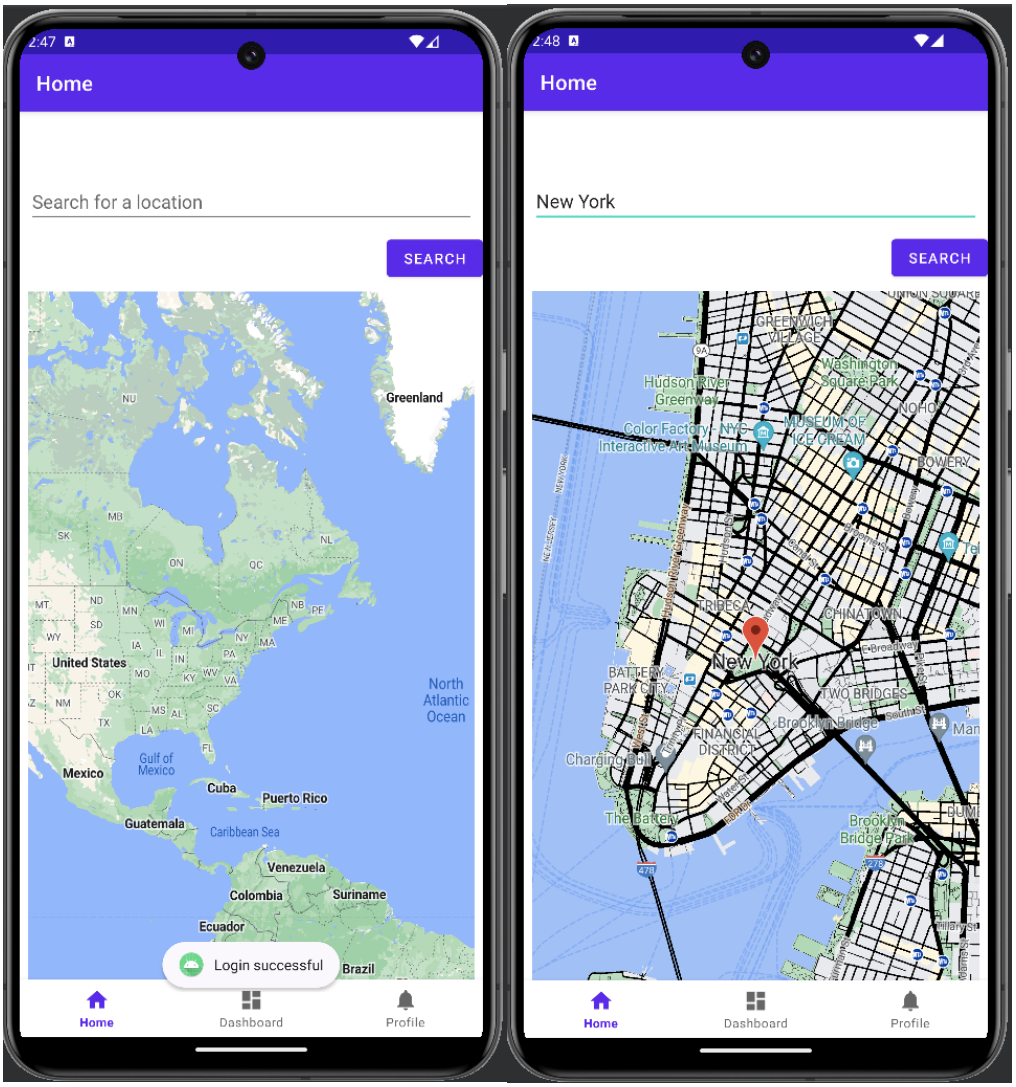
- Firebase Implementation (Authentication and Realtime Database)
- Google Maps api with custom markers

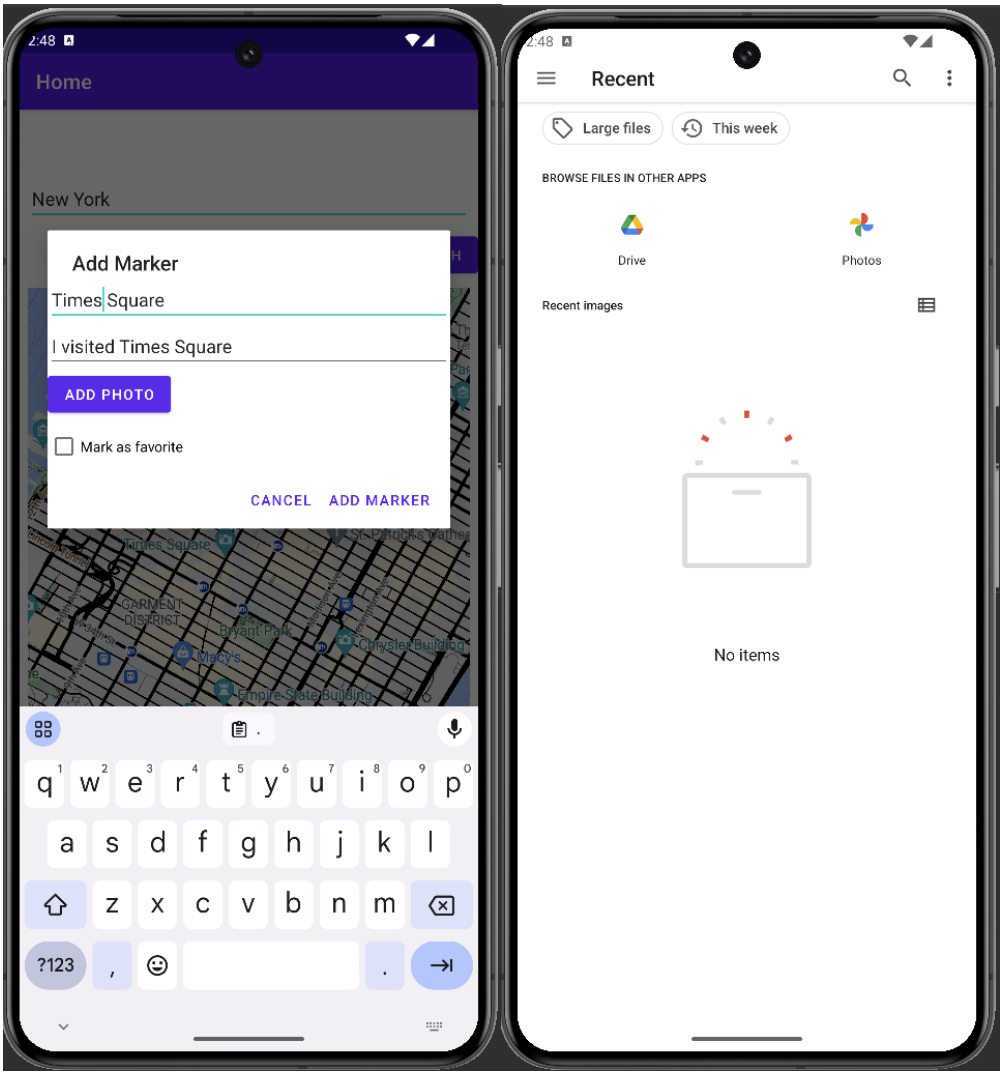
- Google’s Geocoder for latitude longitude conversion
- User Permission for photo library
- Dialog for adding markers and view marker information

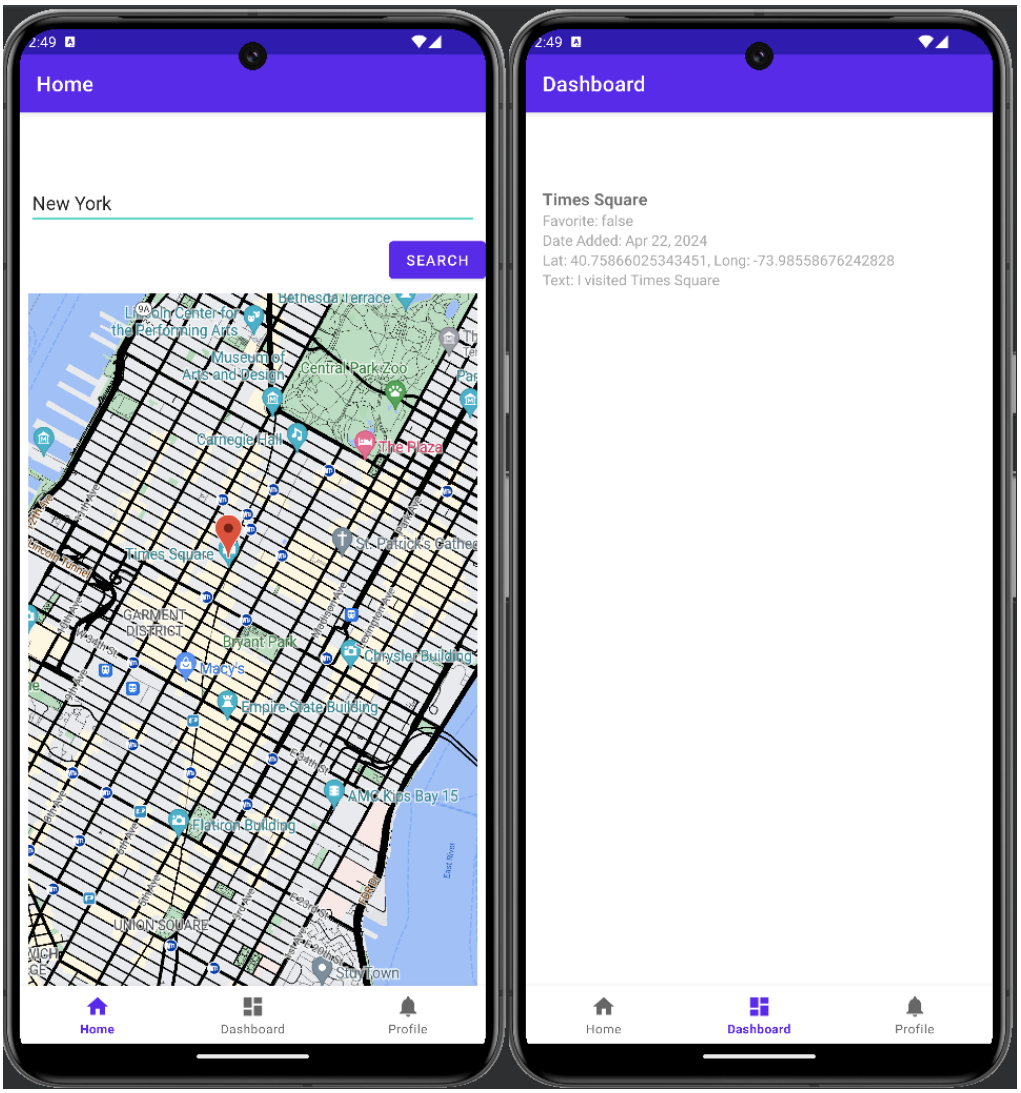
IV. App Demo

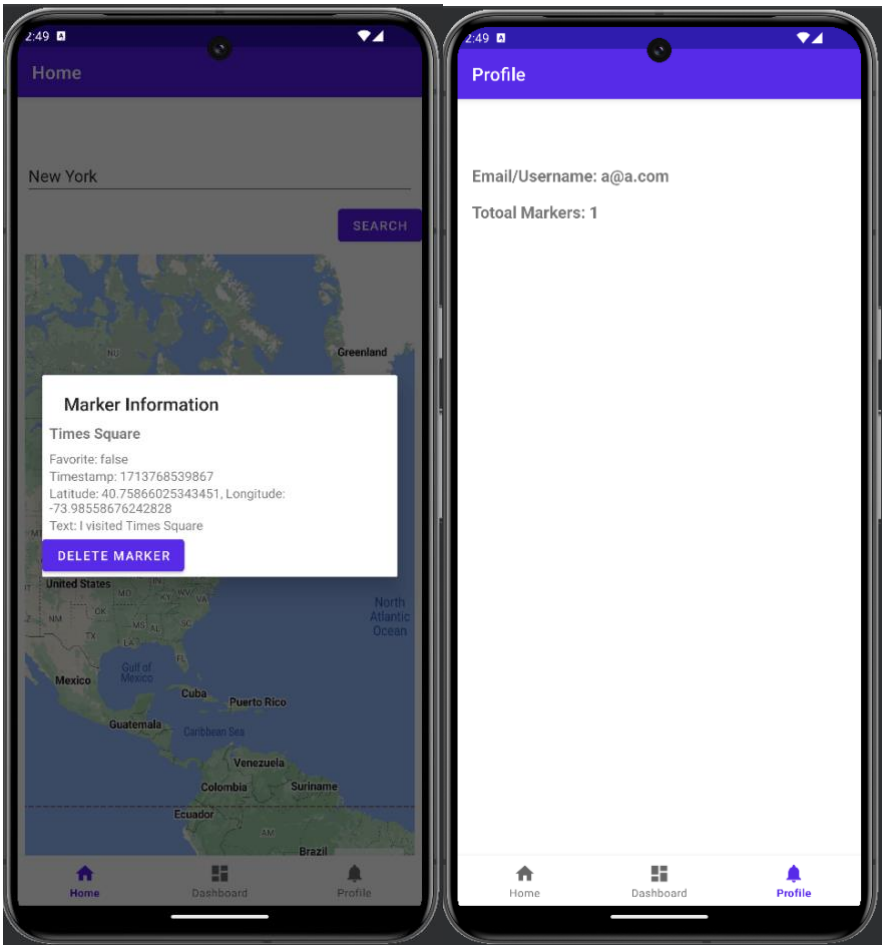
Virtual Device:



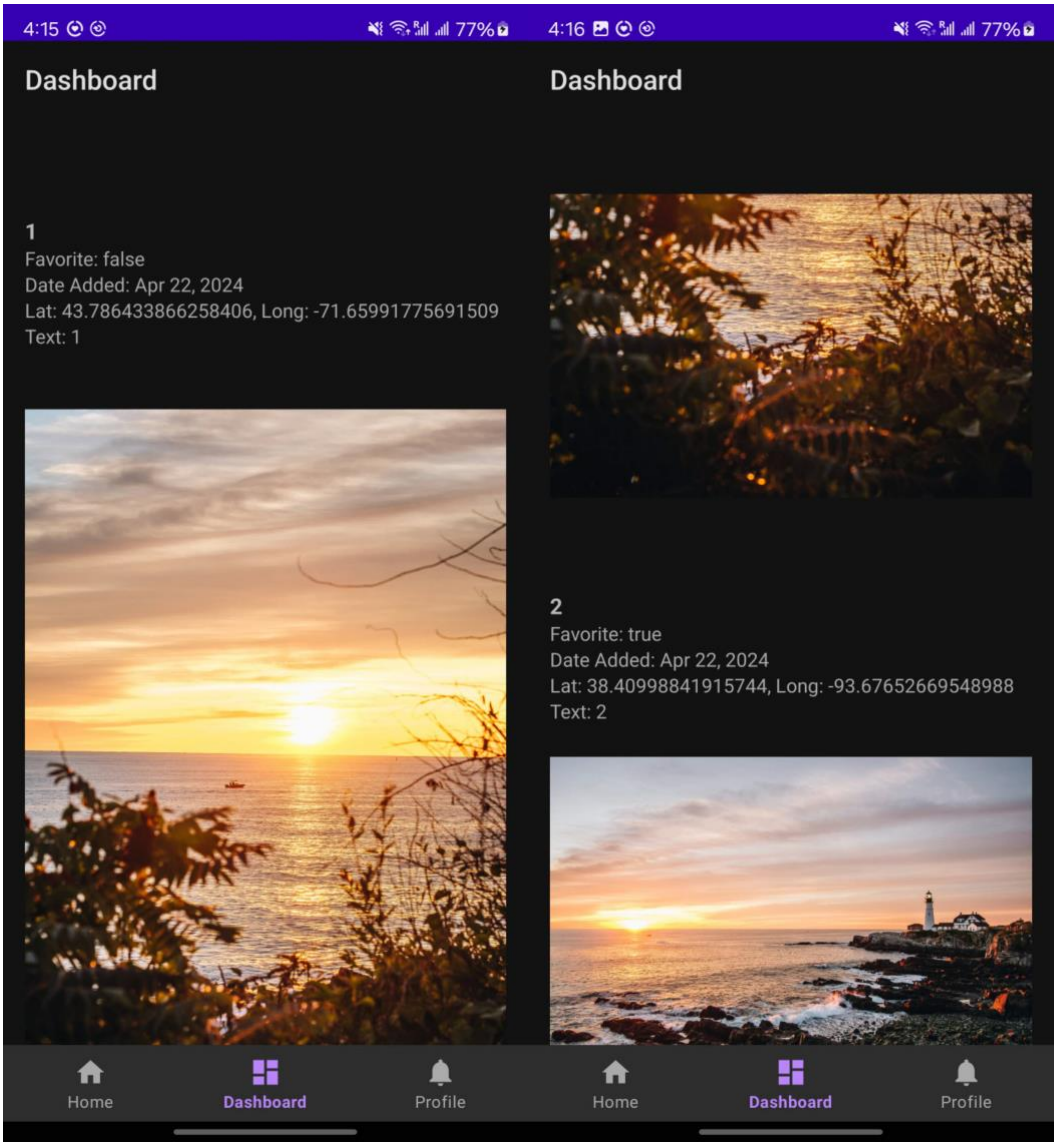

2:47
Home
Search for a location
SEARCH
Greenland
United States
Mexico
Gulf of Mexico
Cuba
Puerto Rico
Guatemala
Caribbean Sea
Venezuela
Colombia
Suriname
Ecuador
Brazil
North Atlantic Ocean
Login successful
Home
Dashboard
Profile
2:48
Home
New York
SEARCH
GREENWICH VILLAGE
Washington Square Park
Hudson River Greenway
Color Factory
NYC Interactive Art Museum
MUSEUM OF ICE CREAM
NOHO
BOWERY
TRIBECA
CHINATOWN
New York
BATTERY PARK CITY
TWO BRIDGES
FINANCIAL DISTRICT
The Battery
Brooklyn Bridge Park
Home
Dashboard
Profile

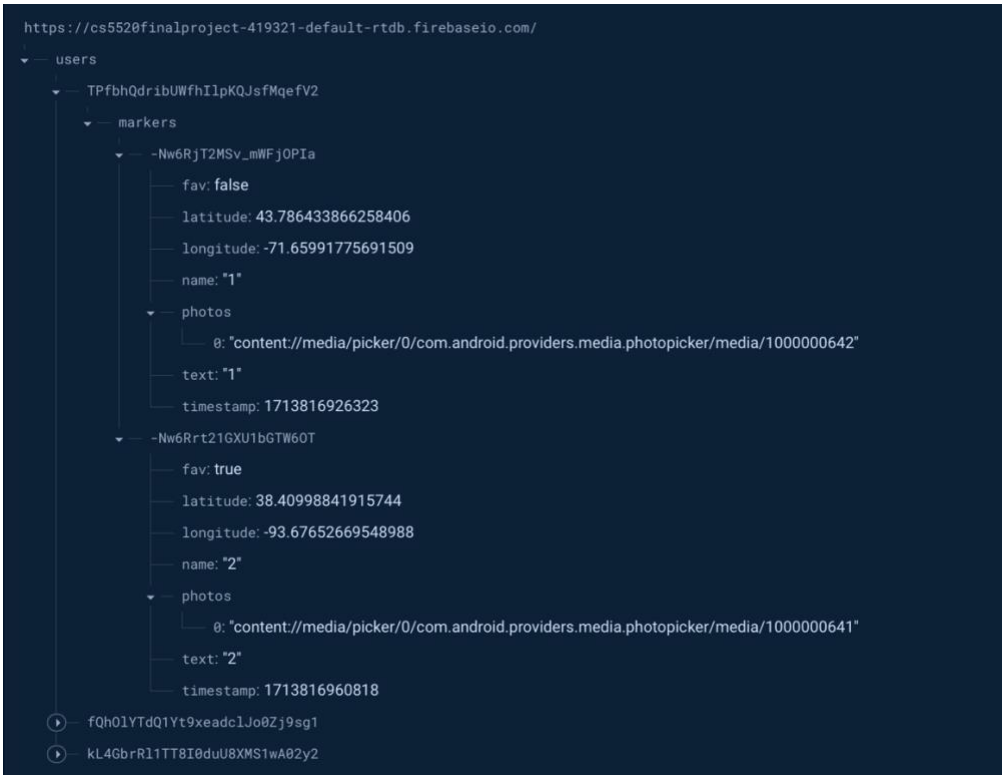

2:48
Home
New York
Add Marker
Times Square
I visited Times Square
ADD PHOTO
Mark as favorite
CANCEL
ADD MARKER
Times Square
GARMENT DISTRICT
Bryant Park
Macy's
Chrysler Building
Empire State Building
2:48
Recent
Large files
This week
BROWSE FILES IN OTHER APPS
Drive
Photos
Recent images
No items


2:49
Home
New York
SEARCH
Bethesda Terrace
Lincoln Center for the Performing Arts
Museum of Arts and Design
Central Park Zoo
Carnegie Hall
The Plaza
Times Square
St. Patrick's Cathed
GARMENT DISTRICT
Bryant Park
Chrysler Building
Macy's
Empire State Building
AMC Kips Bay 15
Flatiron Building
UNION SQUARE
Stuyvesant Town
East River
Home
Dashboard
Profile
2:49
Dashboard
Times Square
Favorite: false
Date Added: Apr 22, 2024
Lat: 40.75866025343451, Long: -73.98558676242828
Text: I visited Times Square
Home
Dashboard
Profile


2:49
Home
New York
SEARCH
Greenland
Marker Information
Times Square
Favorite: false
Timestamp: 1713768539867
Latitude: 40.75866025343451, Longitude: -73.98558676242828
Text: I visited Times Square
DELETE MARKER
United States
North Atlantic Ocean
Mexico
Gulf of Mexico
Cuba
Puerto Rico
Guatemala
Caribbean Sea
Venezuela
Colombia
Suriname
Ecuador
Brazil
Home
Dashboard
Profile
2:49
Profile
Email/Username: a@a.com
Totoal Markers: 1
Home
Dashboard
Profile

Physical Device (Showing Photos):

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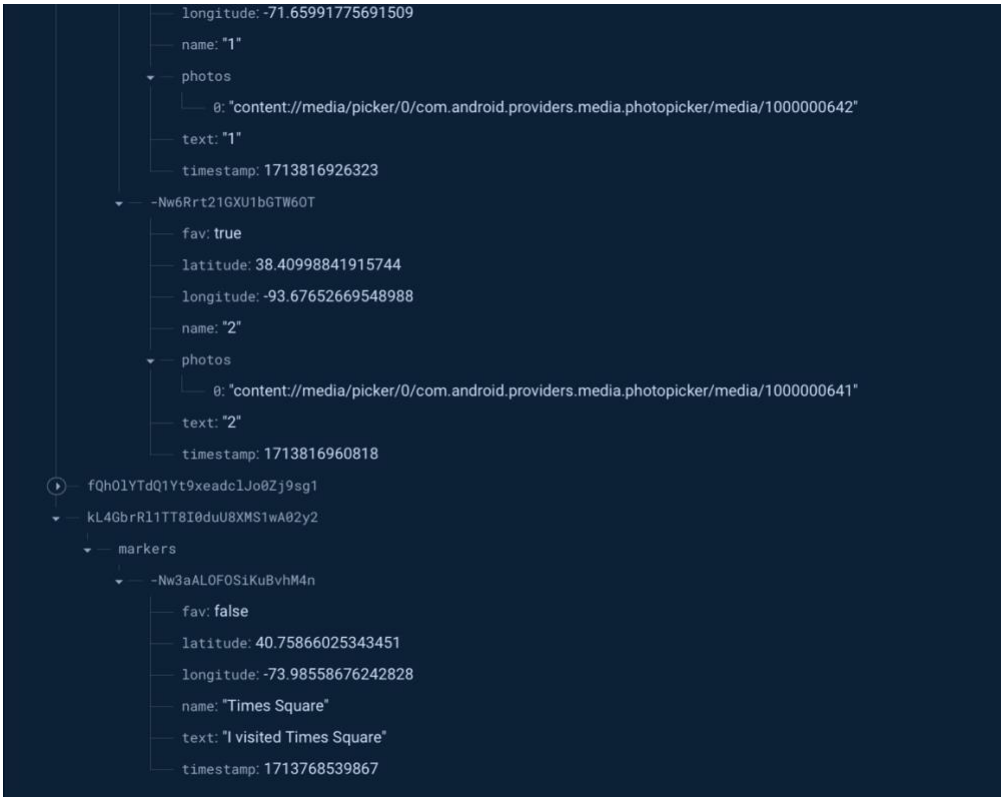
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markers
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fav: false
latitude: 40.75866025343451
longitude: -73.98558676242828
name: "Times Square"
text: "I visited Times Square"
timestamp: 1713768539867

V. Lesson Learned

I am able to use what I learned during the semester and along with researching about Google Maps api to build this application. I find myself using the recycler view a lot since it is a nice way to present the information with neat layout. I learned a lot about Google Maps api such as how to add a map view to display a map and how to use the Geocoder to convert latitude and longitude to a position. I was able to create my own MarkerData class to allow the customization of a map marker as well as using that class to store data into the Firebase realtime database. I was able to store and load the user markers from the database associates with the correct user. I learned how to get permission from the user and how to get the photos they select so that it can be put into the database. I was able to build dialogs for better interaction and clearer prompt for the user to input information. My biggest challenge is researching and using the Google Maps api, adding the photos to the custom marker, and saving and loading data from the database.

VI. Feedback

This app is still in its early release stage so there are some minor issues that I still need to fix but the overall functionality is complete.

Some of the issues includes:

- When the image is too big or in a certain format, the app would break. This happens to the large files on my physical device but the photos I took with the phone and the regular photos saved from the internet works fine.
- When the user logs back in, the photos they add to a marker previously might not appear, but the data is still in the database. I did research on this, and it seems like you can either give more access to the app so that it can read your photo library (not ideal because of privacy) or you can

turn the photos into a downloadable url, which will give you the image without needing to access your photo library.

Due to time limit, I wasn't able to fully fix these issues but those are my next to-dos in future development.