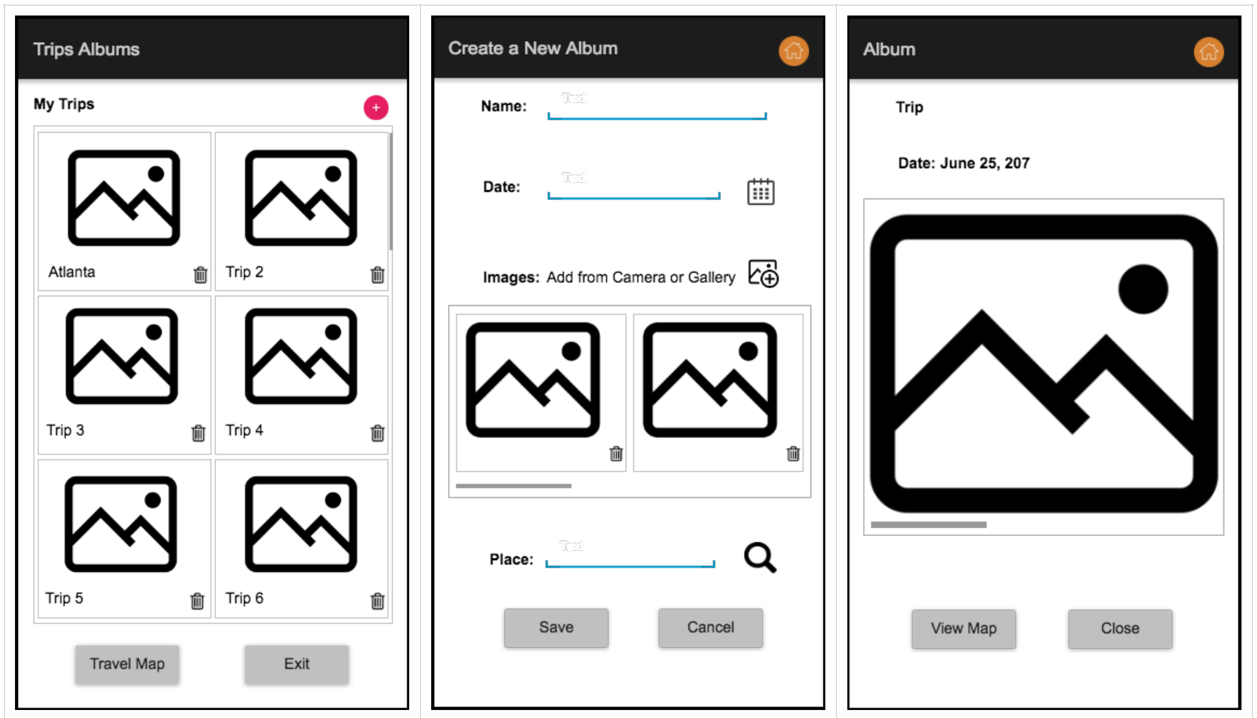
ITIS/ITCS 5180 Mobile Application Development
Final Exam

Basic Instructions:

1. This is the Final Exam.
2. In every file submitted you MUST place the following comments:
    a. Your Full Name. **Do not Edit/Remove any of the comments generated by the IDE. Just add new lines. If Edited/Removed, you will get a zero.**
3. This is an individual effort. Each student is responsible for her/his own assignment and its submission.
4. Once you have picked up the exam, you may not discuss it in any way with anyone until the exam period is over.
5. During the exam, you are allowed to use the course videos, slides, and your code from previous home works and in class assignments. You are NOT allowed to use code provided by other students or from other sources.
6. Answer all the exam parts, all the parts are required.
7. Please download the support files provided with the Final and use them when implementing your project.
8. Your assignment will be graded for functional requirements and efficiency of your submitted solution. You will loose points if your code is not efficient, does unnecessary processing or blocks the UI thread.
9. Export your Android project and create a zip file which includes all the project folder and any required libraries. The file name is very important and should follow the following format: **800#_Final.zip.** Submit the exported file using the provided canvas submission link.
10. **Failure to do the above instructions will result in loss of points.**
11. **Any violation of the rules regarding consultation with others will not be tolerated and will result disciplinary action and failing the course.**

Final Exam (100 points)

In this assignment, you will be building a “Trips Albums” app. You should be able to create and manage photo albums for the past trips. Please follow the instructions properly.



(a) Main Screen | (b) Create New Album Screen | (c) View Album Screen

Figure 1: App Screens

This assignment consists of 5 screens:

1. Main Screen.
2. Travel Map Screen.
3. Create New Album Screen.
4. View Album Screen.
5. View Map Screen.

Main Screen: this is the startup screen for the app. Please read the instructions below:

a. There should be a TextView displaying “My Trips,” see Figure 1 (a).

b. Right beside the TextView there should be an Add Action Button. Clicking on it should take the user the Create a New Album Screen, see Figure 1(a).

c. Next, there should be a RecyclerView with Grid Layout. There, all the albums should be displayed. Each of the albums will occupy one element in the RecyclerView.

d. Each element should contain the first photo of the album, album name, and a delete button, see Figure 1(a). Clicking on any element should open View Album Screen.

e. Clicking on the delete button should delete the element from the List and Firebase.

f. Right below the RecyclerView there should be two buttons: “Travel Map” and “Exit”.

g. Clicking on the “Travel Map” button should open the Travel Map Screen.

h. Clicking on the “Exit” button should close the app.

Travel Map Screen: This screen displays the travel map of the user.

a. Displays markers on the map pointing the places in the albums. For example, the user added 5 albums. So, there should be 5 places. Therefore, this screen should display a Google Map having 5 markers specifying the places.

Create New Album Screen: This screen should provide the users the proper interface to create a new album.

a. There should be a “Home” button to get back to main screen, see Figure 1(b).
b. There should be an EditText to get the title of the album.
c. There should be an EditText and a Date Picker to set the travel date.
d. Next, there should be a browse button to select images from the Gallery to upload., See Figure 1(b).
e. Right below, there should be a RecyclerView/CardView/Dynamic Layout. Each time the user selects an image from the Gallery, it should add it to the ListView/CardView/Dynamic Layout. At this point you are just displaying the local images, see Figure 1(b).
f. Next, the user should write the place name and search it using GeoCode API. For example, the place the user wants to search is, Charlotte,NC. So, the API call should be: https://maps.googleapis.com/maps/api/geocode/json?**address=Charlotte,NC**&key=YOUR_API_KEY*.*
g. In return you should get the location (Lat and Lon) back. Make a toast confirming location is found. You need to use this location to save the album.
h. Clicking on the Save button should save the Name, Date, and Location name, and Location in Firebase. Also, it needs to upload all the images to Firebase cloud storage.
i. Clicking on the Cancel button should work as “Home” button.

View Album Screen: This screen should display the Album, see Figure 1(c).

a. There should be a “Home” button to get back to the main screen.
b. Next, it should display the Date.
c. Then, it should display a RecyclerView/CardView of the photos. These photos should be retrieved from the Firebase Storage.
d. There should be two buttons: View Map and Close.
e. Clicking on View Map should take the user to the View Map Screen.
f. Clicking on the Close button should close this screen and open the main screen.

View Map Screen: This screen should display Google Map with only one marker. It should specify the exact location on the Map.

Database to be used: Firebase
Storage to be used: Firebase Cloud Storage
Maps: GeoCode and GoogleMap.
All the maps should be adjust the bound automatically.
You need to implement the back-stack.

Rubrics: 100 points

1. **Main Screen: 20 points.**
    1. Add action button Logic: 5
    2. RecyclerView: 10
    3. Travel Map button logic: 2.5
    4. Exit button logic: 2.5
2. **Travel Map Screen: 15 points.**
    1. Adjusting bounds: 5
    2. Display Map accordingly: 10
3. **Create a New Album Screen: 40 points.**
    1. Date Picker: 5
    2. Use Gallery app: 5
    3. RecyclerView: 15
    4. Getting the location: 5
    5. Uploading the photos too cloud storage: 7.5
    6. Saving the data in Firebase: 2.5
4. **View album screen: 15 points.**
    1. RecyclerView: 10
    2. ViewMap button logic: 2.5
    3. Close/Home button logic: 2.5
5. **View Map Screen: 10 points.**
    1. Display the Map properly: 10