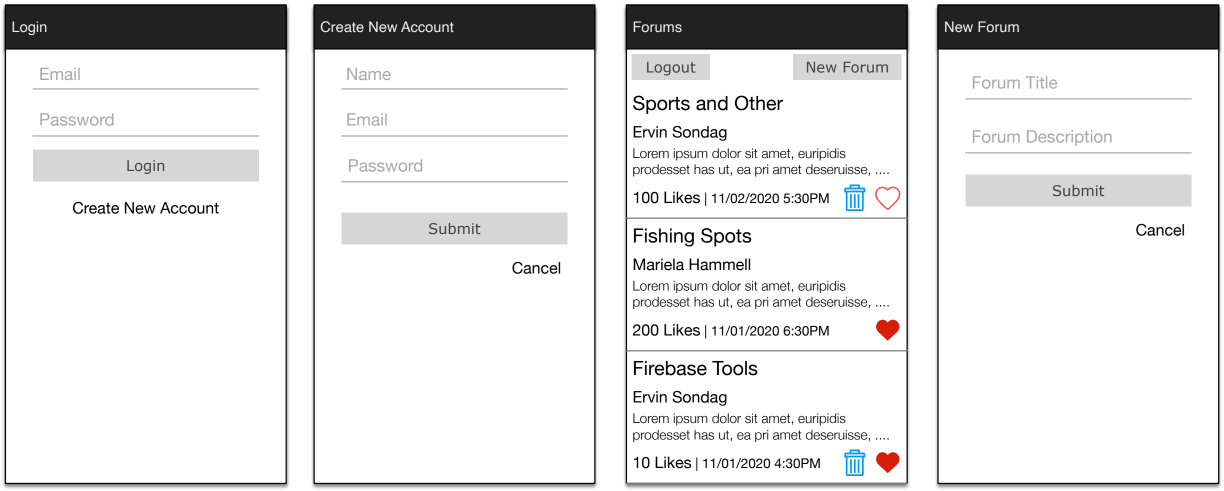
Mobile App Development
Homework 07

Basic Instructions:

1. In every file submitted you MUST place the following comments:
   a. Assignment #.
   b. File Name.
   c. Student Full Name.
2. 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.
3. Please download the support files provided with this assignment and use them when implementing your project.
4. Create a zip file which includes all the project folder, any required libraries, and your presentation material.
5. Submission details:
   a. You should submit the assignment through canvas: Submit the zip file.
6. **Failure to follow the above instructions will result in point deductions.**

Homework 07 (100 Points)

In this assignment you will get familiar with RecyclerViews and using Firebase Authentication and Firestore. You will develop a forums application which enable you to list, create, and delete forums. The app should use Firebase Firestore to store and manage the forums and user accounts. Your application should contain only **one Activity and multiple fragments** to implement the required screens.


Login
Email
Password
Login
Create New Account
Create New Account
Name
Email
Password
Submit
Cancel
Forums
Logout
New Forum
Sports and Other
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New Forum
Forum Title
Forum Description
Submit
Cancel

(a) Login Fragment (b) Register Fragment (c) Forums Fragment (D) Create Forum

Figure 1, Application Wireframe

Part 1: Login Fragment (5 Points)

The interface should be created to match the UI presented in Figure 1(a). The requirements are as follows:

1. Clicking the "Create New Account" button should replace this fragment with the Create New Account Fragment.
2. Clicking the "Submit" button, the app should check if email and password fields are entered and display an alert dialog if any of the entries is missing indicating that the missing field is required.
   a. Use the Firebase Auth to login the user. If the login is successful then replace the current fragment with the Forums Fragment.
   b. If the login is not successful then display an alert dialog indicating the reason returned by Firebase Auth.

Part 2: Create New Account Fragment (5 Points)

The interface should be created to match the UI presented in Figure 1(b). The requirements are as follows:

1. This screens allows the user to register a new user account using email and password.
2. Clicking the "Cancel" button should dismiss this Screen and show the Login Fragment.

3. Clicking the “Submit” button, the app should check if email and password fields are entered and display an alert dialog if any of the entries is missing indicating that the missing field is required.
    a. Use the Firebase Auth to register a new user. If the registration is successful then replace the current screen with the Forums Fragment.
    b. If the registration is not successful then display an alert dialog indicating the reason returned by Firebase Auth.

Part 3 : Forums Fragment (40 Points)

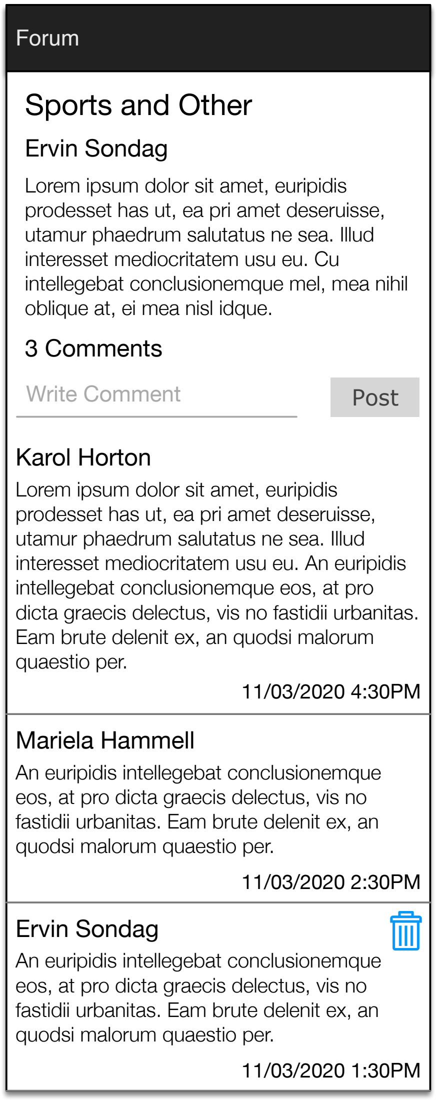
This screen enables the user to view the list of forums created by all the users and to interact with these forums. As shown in Figure 1(c), The requirements are as follows:

1. This screen should retrieve the list of users from Firestore.
    a. You should create a Forum class to store the forum information.
    b. Set up realtime updates to retrieve the forums from Firebase.
2. Clicking the “Logout” menu button should logout the currently logged in user and replace this fragment with the Login Fragment.
3. Clicking the “New Forum” button should:
    a. Replace the current fragment with the New Forum Fragment and Push the current fragment on the back stack.
4. The list of forums should be retrieved from firestorm and should setup realtime updates.
5. The forums list should be displayed using a RecyclerView as shown in Fig 1(c). Each row item should display a forum:
    a. Forum title, name of forum creator, the forum description, the date/time the forum was created.
    b. **The trash “Delete”** icon should **only** be displayed for forum items that were created by the currently logged in user.
        i. If the user clicks the “Delete” icon the forum should be deleted on Firestore.
        ii. You are required to initially setup realtime updates which should trigger when the forum is delete and refresh the displayed list after deletion to reflect this change.
    c. The like or unlike indicator which are represented by un-filled heart icon and filled heart respectively. Each Forum should contain a list or map of user IDs that have liked this forum. If the currently logged in user has liked a forum then the filled heart should be displayed, and otherwise the un-filled heart icon should be displayed for that forum list item.
        i. The user can like the forum by clicking the un-filled heart icon, which should add the currently logged in user’s ID to the list/map on Firestore for this forum. Upon as successful update the list of forums should be refreshed to reflect this change.
        ii. The user can un-like the forum by clicking the filled heart icon, which should remove the currently logged in user’s ID to the list/map on Firestore for this forum. Upon as successful update the list of forums should be refreshed to reflect this change.
6. Clicking on a row item should replace the current fragment with the Forum Fragment and Push the current fragment on the back stack.

Part 4 : New Forum Fragment (10 Points)

The interface should be created to match Figure 1(d). The requirements are as follows:

1. Clicking the “Cancel” button should:
    a. Pop the back stack which should return back to the Forums Fragment.
2. Clicking the “Submit” button, the app should check if all the fields are entered and display an alert dialog if any of the entries is missing indicating that the missing field is required.
    a. If all the fields are entered, the app should store a new forum on Firestore, upon a successful update the app should pop the back stack to display the Forums fragment.
    b. Upon returning to the Forums fragment, the list should be refreshed to show the newly added forum.



Sports and Other

Ervin Sondag

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3 Comments

Karol Horton

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Mariela Hammell

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Figure 2, Forum Details

Part 5 : Forum Fragment (40 Points)

The Forum fragment enables the user to view the forum details and comments made by other users on this forum. In addition, this fragment enables the user to post comments on the forum. The requirements are as follows:

1. The Forum screen should display details about the selected forum, number of comments, and show the list of comments as shown in Fig 2.
2. At the top of the screen, the forum title, forum creator name, and forum description should be displayed.
3. You should set up realtime updates to retrieve the list comments for this forum from Firestore.
4. The list of comments should be displayed using a RecyclerView as shown in Fig 3. Each row item should display a comment:
    a. Name of comment creator, comment text, the date/time the comment was created.
    b. **The trash “Delete” icon should only be displayed for comment items that were created by the currently logged in user.**
5. If the user clicks the “Delete” icon the comment should be deleted from the forum’s comment collection from Firestore. The previously setup realtime updates which should be triggered which should refresh the comments list to reflect this change.
6. The number of comments should be shown under the description as shown in Fig 3.
7. Creating a comment:
    a. The write comment EditText should allow the

user to enter a text comment. Clicking the “Post” button should check if there is a comment entered.

b. If there is a comment entered then save the comment on Firestore under the forum’s comment collection. The previously setup realtime updates which should be triggered which should refresh the comments list to reflect this change.

8. Pressing the back button should pop the back stack to show the Forums Fragment.