

Flow and Room

ICT2105-CSC2007 Mobile Application Development Spring 2023

Overview

This lab provides exercises and guidelines to gain familiarity with the Android Flow, Coroutine, Room, and Network.

You are going to build an app to check if an input repository is among the popular **Android** repositories in GitHub by querying GitHub API using and store the found one in a local Room Database, using **flow** to implement the data flow in the MVVM (to replace LiveData).

Flow and Room

<https://developer.android.com/codelabs/basic-android-kotlin-training-intro-room-flow>
<https://medium.com/androiddevelopers/migrating-from-livedata-to-kotlins-flow-379292f419fb>

Coroutines

<https://developer.android.com/kotlin/coroutines/>

Retrofit

<https://developer.android.com/codelabs/android-paging#4/>
<https://amitshekhar.me/blog/retrofit-with-kotlin-flow>
<https://narendrasinhdodiya.medium.com/android-architecture-mvvm-with-coroutines-retrofit-hilt-kotlin-flow-room-48e67ca3b2c8>

Outcomes

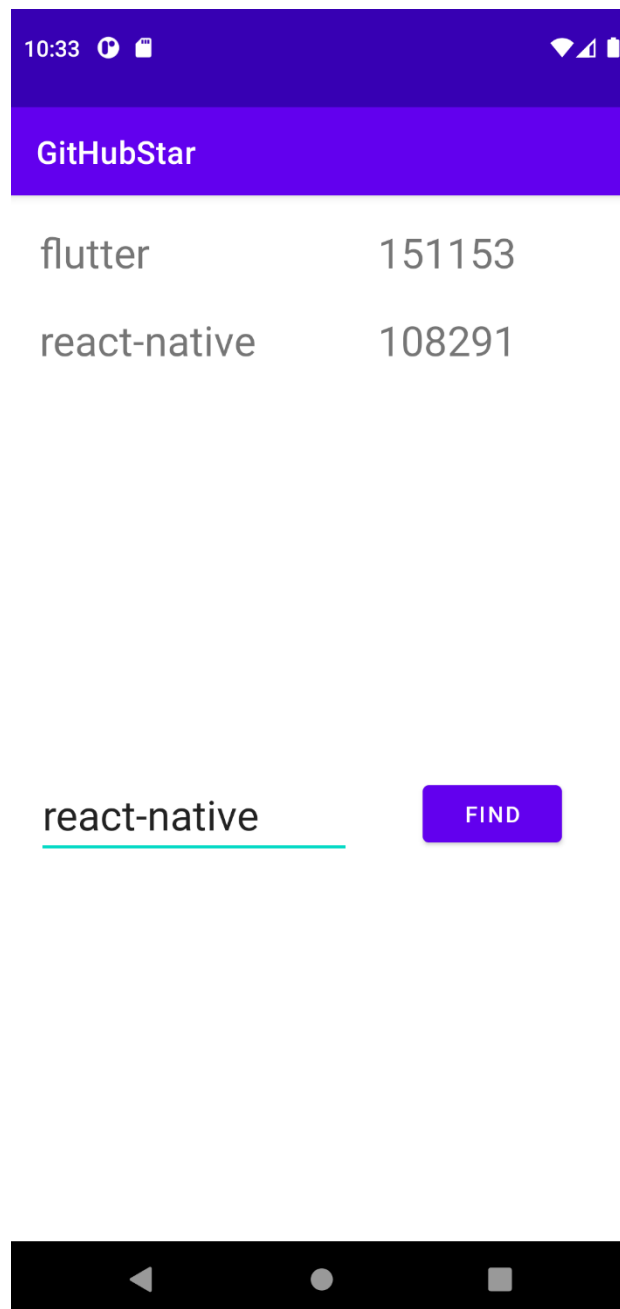
Upon completion of the session, you should be able to:

- Use flow with Room Database.
- Retrieve data using HTTP client, like Retrofit.

Creating and using flow with Room Database

The goal of this exercise is to practice using flow in the MVVM architecture as well as performing HTTP request.

Fork the repo **ict2105/csc2007-lab06-2023** and inspect the code within the project.
This code is incomplete as usual.



Note that the top part is a RecyclerView (id: **reporecyclerview**), the columns in the RecyclerView are the repo name and number of stars (ids for each item are: **reponame**, **repostar**). The EditText field is editable (id: **inputname**), the name of one repo to search will be entered. Hit the FIND Button (id: **findbutton**) to start the query. As always, you need to recreate a UI similar to the screenshot above.

IMPORTANT:

Please make sure the ids are correct.

Do not edit any existing package, class, variable, method or layout file names.

Your task is to create an app using MVVM architecture with a Room Database, HTTP client (e.g., Retrofit), Flow, RecyclerView, Repository, ViewModel and etc.

1. Check if the input Repo name is already in local Room Database.
2. If it is not in the local Room Database., then query <https://api.github.com/search/repositories?sort=stars&q=Android> to check if it is among the top 50 repositories about Android sorted by the number of stars. You can set the response page-size to realize this.
3. If it is among the top 50, then add it into the Room Database, otherwise ignore the input.
4. The data in Room Database will be displayed in the RecyclerView.

Lab Exercise 6

Due Date: Wed, Mar 22 2023 2359 hrs

Fork the repo **ict2105/csc2007-lab06-2023** and then clone it.

1. Implement the code needed to create the MVVM architecture with Room Database with Flow, RecyclerView, Repository, ViewModel and etc.
2. Implement the code needed for query GitHub API (e.g., Retrofit).
3. Commit and push all changes to your forked repository.

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