Contact author: eddie.chen.dev@gmail.com

Repo address

https://github.com/chenxiangcxc/MADdog

Highlights of this project

1. Using various MAD(Modern Android Development) Skills, following the best practice from Google.
2. Kotlin, MVVM, Coroutine and Jetpack based.
3. Support local storage and offline cache.
4. Support error handling of network request.
5. Unit Tests support (both local unit tests and instrumented unit tests), high coverage and test cases100% passed.
6. Zero warning and error to build the software.
7. All the libraries and dependencies are up-to-date (by 21-Sep-2022).

Components used

1. Retrofit & Moshi
2. Room
3. Flow & Shared Flow
4. LiveData
5. View Model
6. LifeCycle
7. Navigation Graph
8. Coil
9. RecyclerView
10. Constraint Layout
11. Activity and Fragment
12. JUnit
13. Espresso & Idling Resource
14. UI Testing

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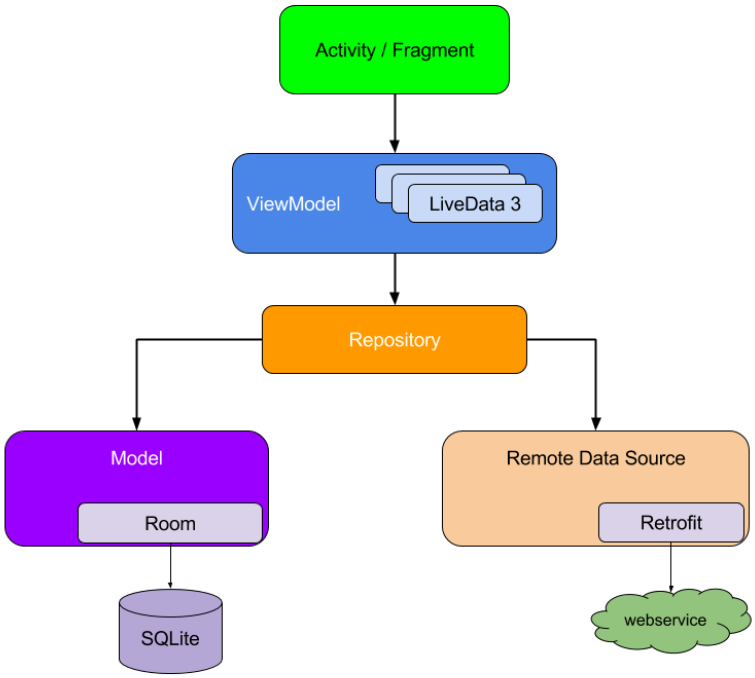
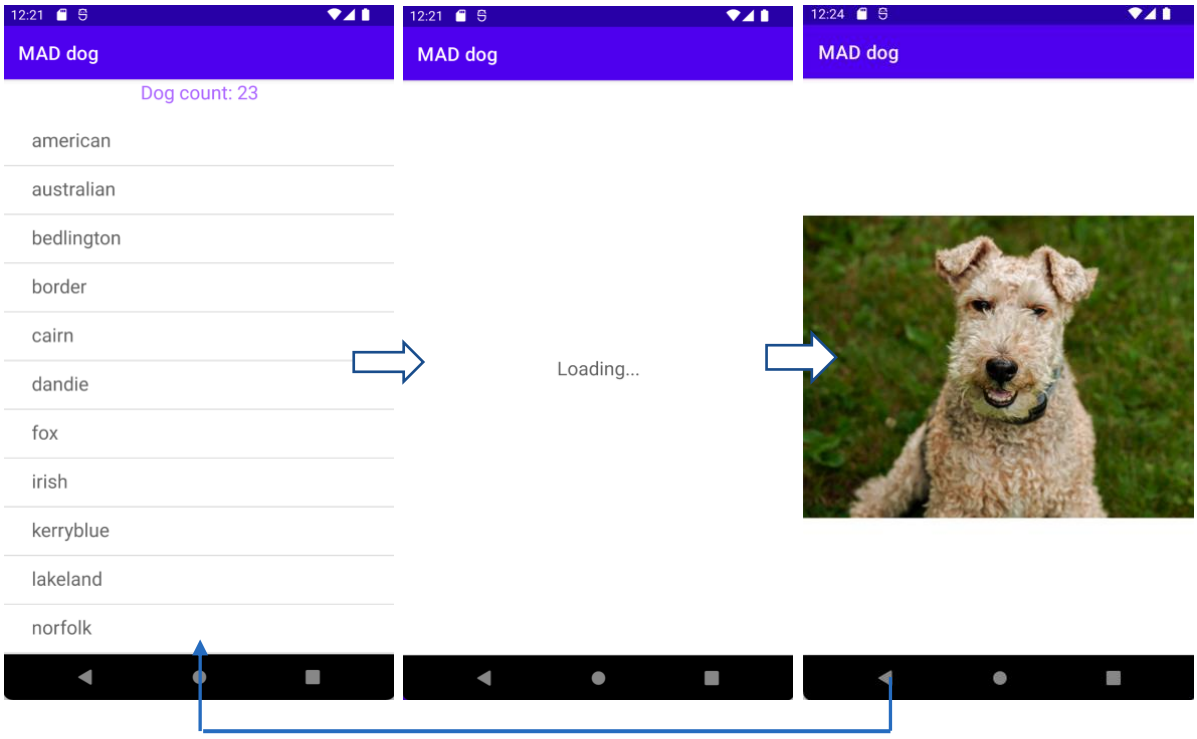
Architecture



UI Preview



Issues and solutions

1. LiveData is sticky

Scenario: Blinking of previous image before showing the correct image when enter FragmentDogImage.

Reason: Once there is a new observer, the observe method will be called no matter the value of the LiveData (image URL) is changed or not. This is the design of LiveData, as it is for UI state rather than event.

Solution: Change LiveData to SharedFlow with default param “replay times 0” can resolve the issue.

2. Cannot find view in fragment

Scenario: When testing fragment, cannot find the view by “findViewById” method.

Reason: FragmentScenario includes the following methods for launching fragments in tests from https://developer.android.com/guide/fragments/test :

- launchInContainer(), for testing a fragment's user interface. FragmentScenario attaches the fragment to an activity's root view controller. This containing activity is otherwise empty.
- launch(), for testing without the fragment's user interface. FragmentScenario attaches this type of fragment to an empty activity, one that doesn't have a root view.

Solution: Use launchInContainer() instead of launch().