



**YALOVA UNIVERSITY**

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**HUAWEI**

# **Android Programming with Huawei Mobile Services**

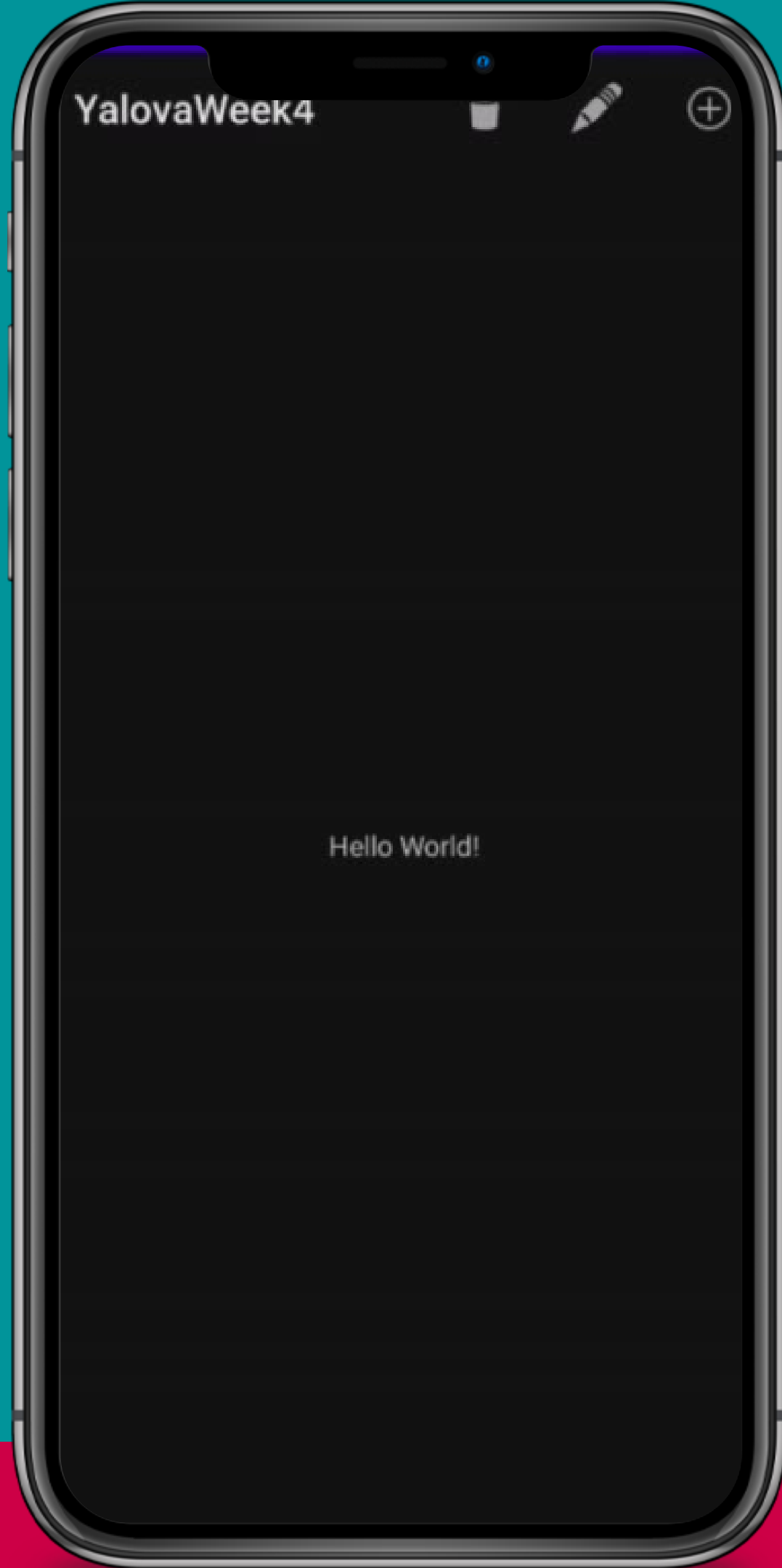
Berk Ozyurt  
Mehmet Yozgatli  
Cengiz Toru

# W7: ANDROID

## CONTENT

- **Menus**
- **Fragments**
- **Navigation Component**
- **VCS**

<https://github.com/HSDTurkey/UserListMVVMRetrofit.git>





# Menus in Android

<https://material.io/components/menus/android>

<https://developer.android.com/guide/topics/ui/menus>

<https://medium.com/@tomerpacific/an-introduction-to-android-menus-c9f382264b49>

<https://medium.com/@androidcookies1/menu-types-in-android-with-tutorial-4ebd402ebf83>

This TextView opens a context menu when long pressed.

Option 1

Option 2

## Context Menu

SHOW MENU

Option 1

Option 2

Option 3

## Popup Menu



Menus



Menus

Option 1

Option 2

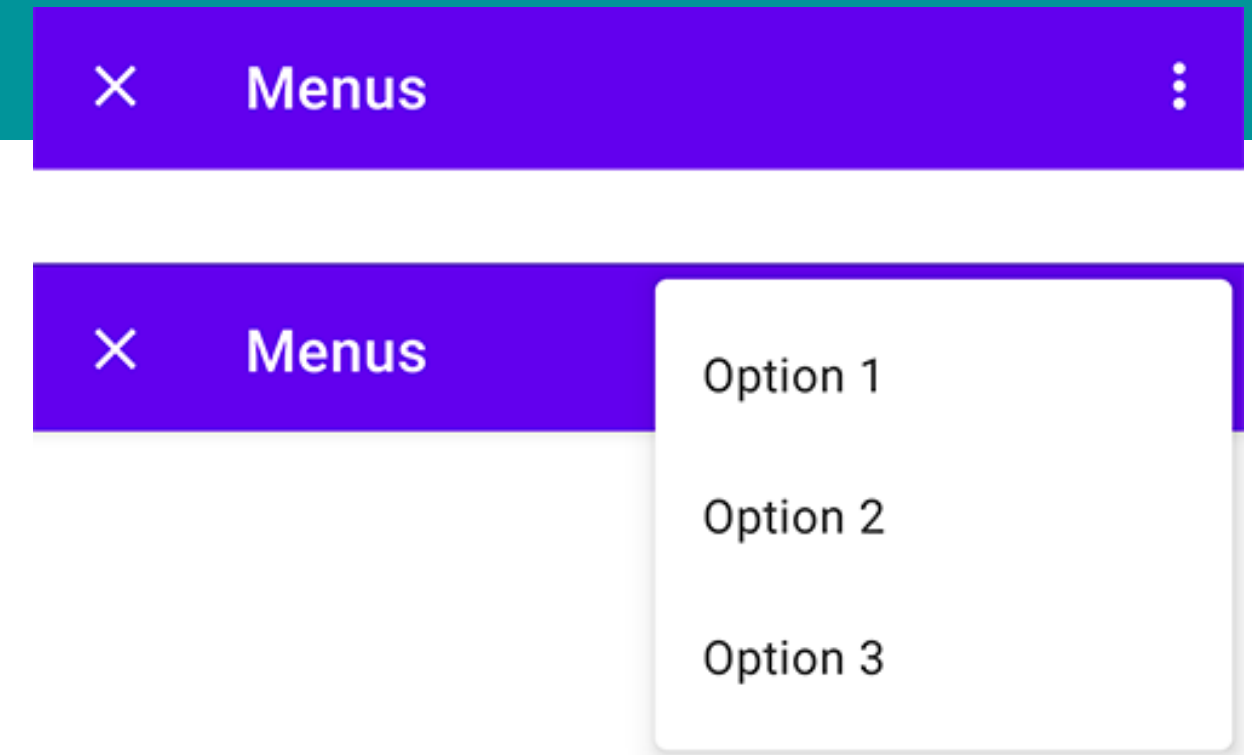
Option 3

## Options Menu

# Let's Create an Options Menu

## STEPS

- ✓ Create a menu folder
- ✓ Create a menu file to hold menu items
- ✓ Inflate the menu
- ✓ Handle the menu items click action





# Fragments

<https://developer.android.com/guide/fragments>

<https://www.geeksforgeeks.org/difference-between-a-fragment-and-an-activity-in-android/>

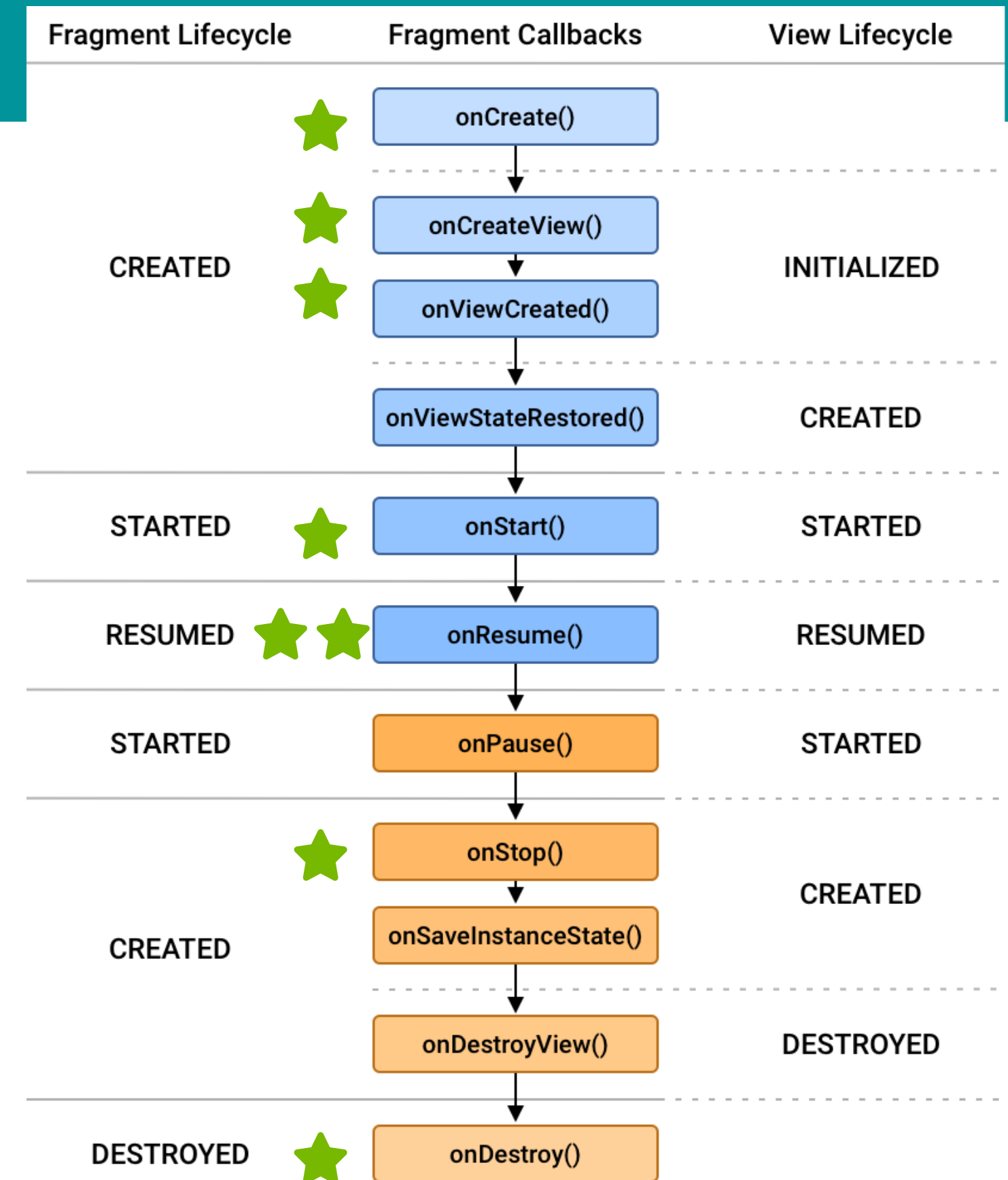
<https://oozou.com/blog/reasons-to-use-android-single-activity-architecture-with-navigation-component-36>

# Fragments

✓ Has own layout and lifecycle

Lifecycle.State		
enum Lifecycle.State		
Enum Values		
CREATED		Created state for a LifecycleOwner.
DESTROYED		Destroyed state for a LifecycleOwner.
INITIALIZED		Initialized state for a LifecycleOwner.
RESUMED		Resumed state for a LifecycleOwner.
STARTED		Started state for a LifecycleOwner.

<https://developer.android.com/reference/androidx/lifecycle/Lifecycle.State>

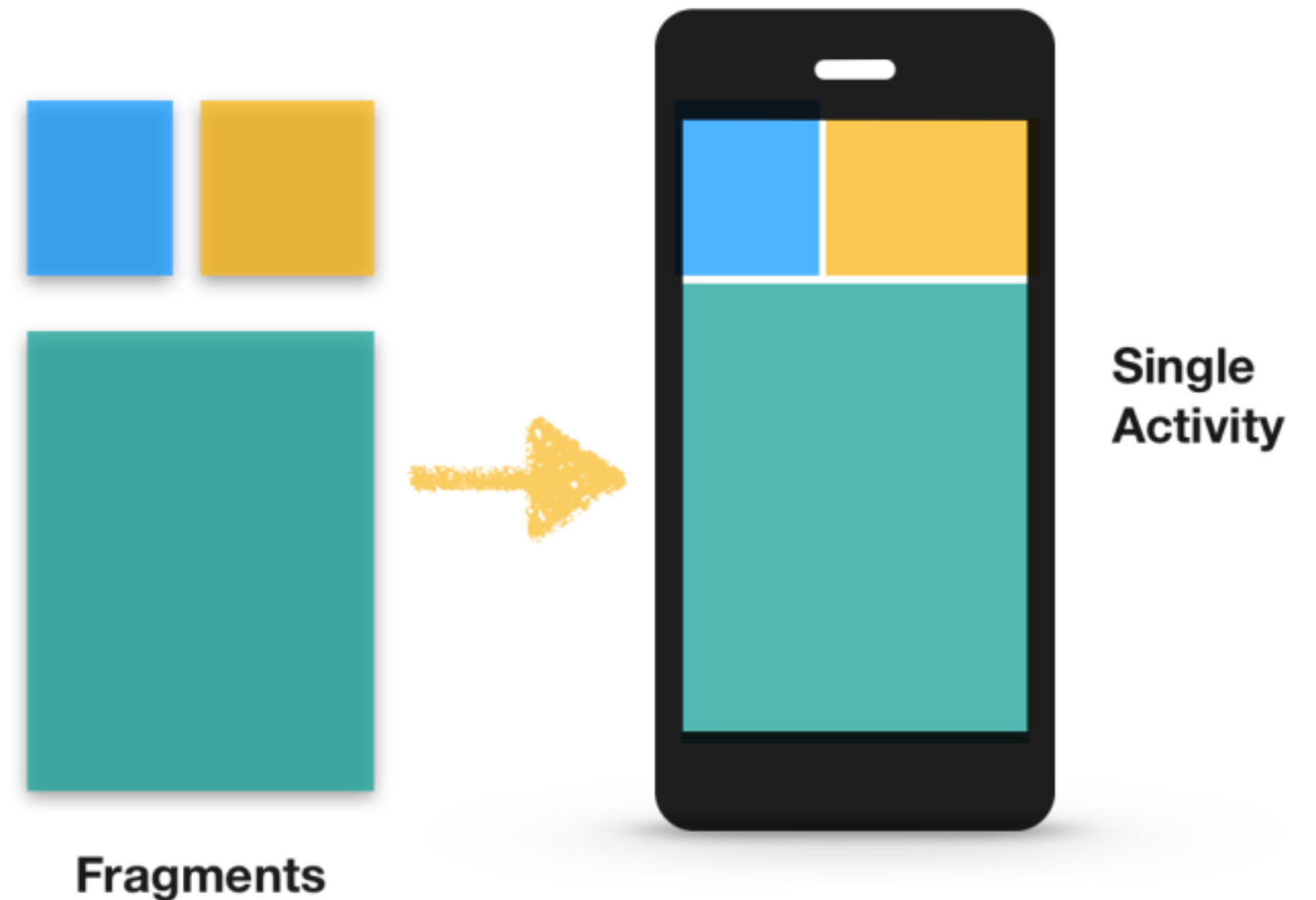


<https://developer.android.com/guide/fragments/lifecycle>



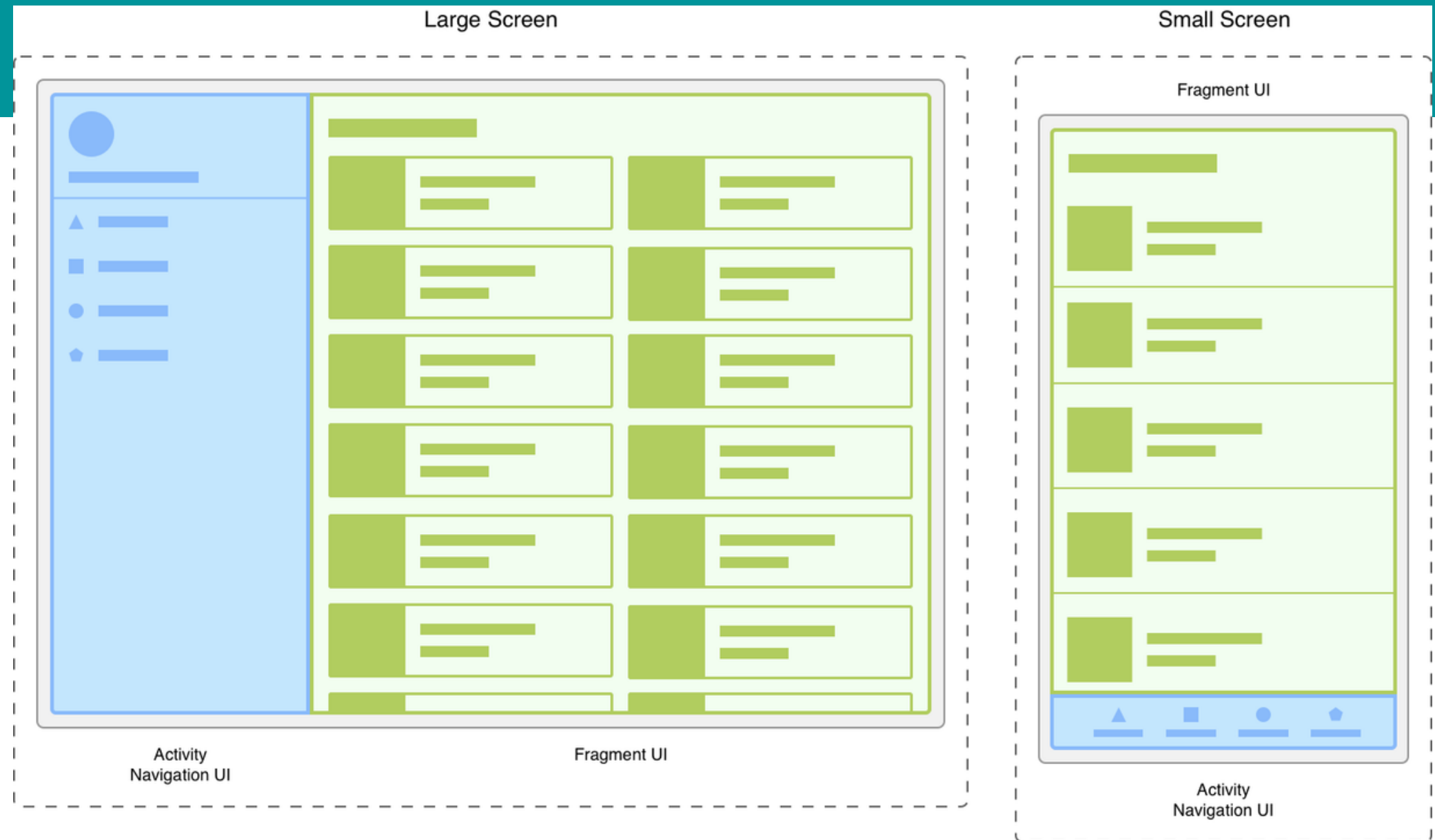
# Fragments

- ✓ Must be hosted by an activity or another fragment
- ✓ Change at runtime, store records into **backstack**
- ✓ Reusability ex: Comment List
- ✓ Modularity



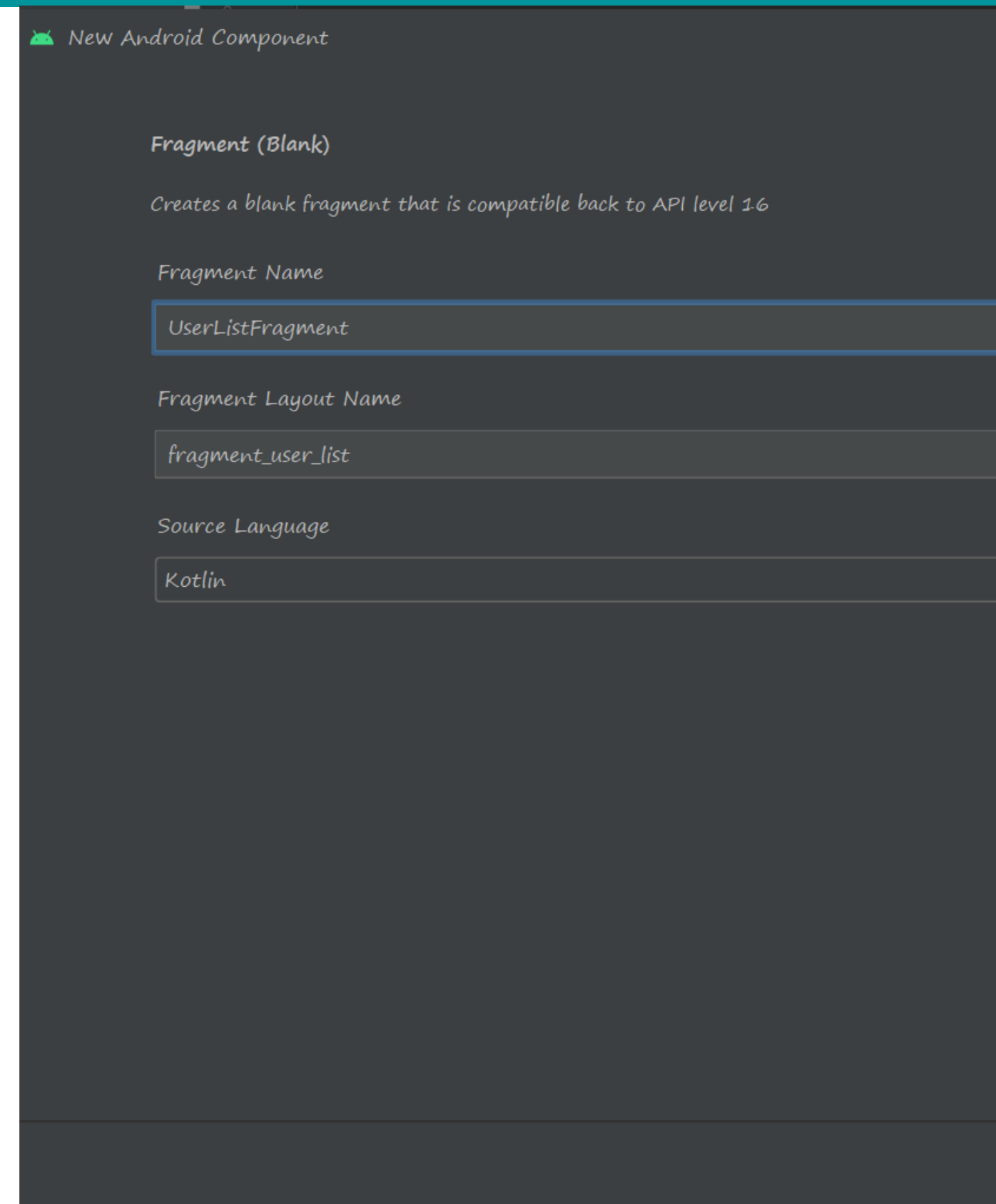
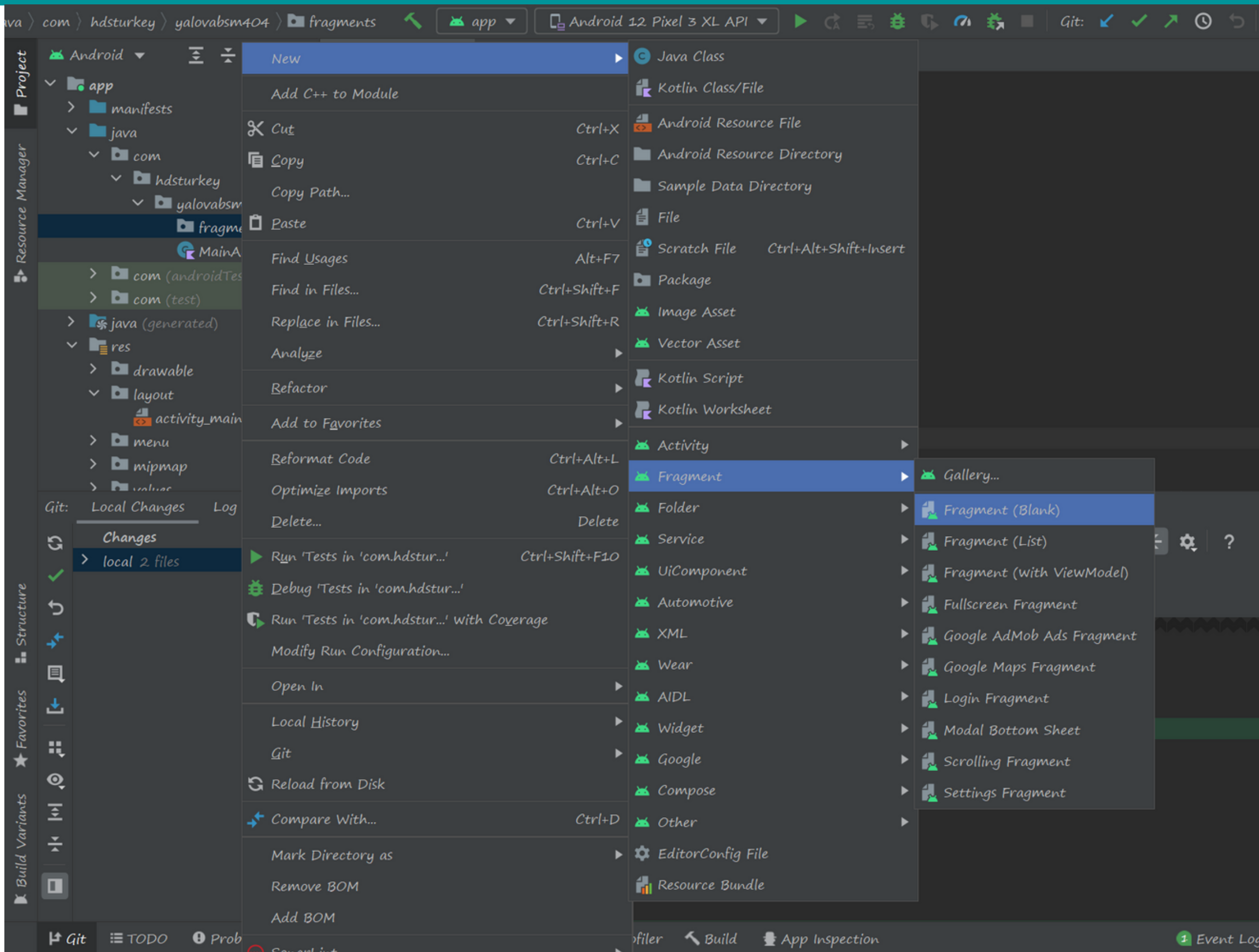
# Fragments vs Activities

- ✓ Has lifecycle both
- ✓ Reusability ex: Comment List
- ✓ Fragments must be hosted by an activity or another fragment
- ✓ Modularity, multi-pane UI
- ✓ More smooth transition animations with fragments
- ✓ Passing data between activities Singleton (accessible from everyone), Intent(object type-safety)



Activity	Fragment
Activity is an application component that gives a user interface where the user can interact.	The fragment is only part of an activity, it basically contributes its UI to that activity.
Activity is not dependent on fragment	Fragment is dependent on activity. It can't exist independently.
we need to mention all activity it in the manifest.xml file	Fragment is not required to mention in the manifest file
We can't create multi-screen UI without using fragment in an activity,	After using multiple fragments in a single activity, we can create a multi-screen UI.
Activity can exist without a Fragment	Fragment cannot be used without an Activity.
Creating a project using only Activity then it's difficult to manage	While Using fragments in the project, the project structure will be good and we can handle it easily.
Lifecycle methods are hosted by OS. The activity has its own life cycle.	Lifecycle methods in fragments are hosted by hosting the activity.
Activity is not lite weight.	The fragment is the lite weight.

# Fragment Creating Example





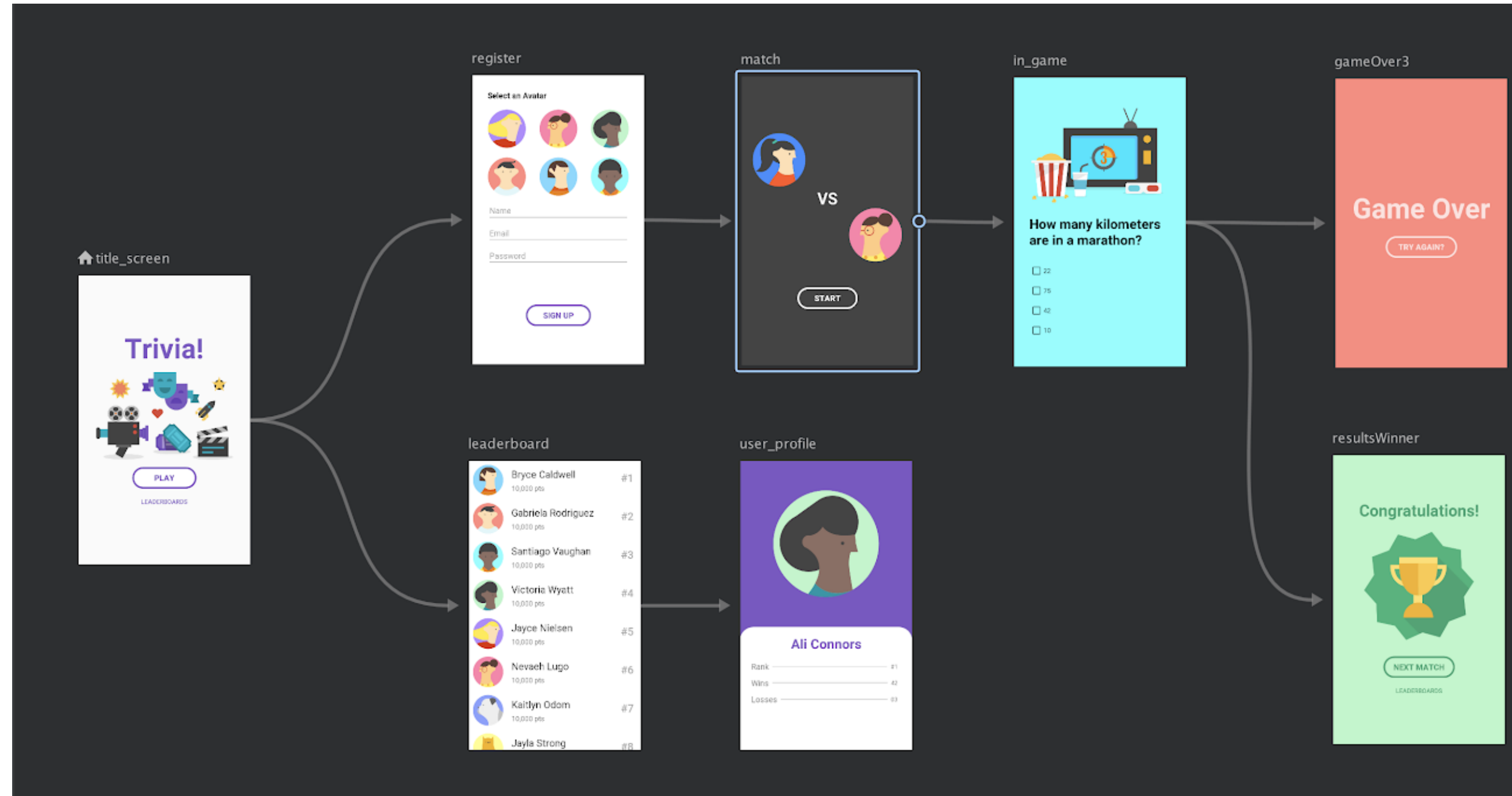
# Navigation Component

<https://developer.android.com/guide/navigation>

<https://cengiztoru.medium.com/navigation-architecture-component-1-ekranlar-aras%C4%B1-ge%C3%A7i%C5%9F-i%CC%87%C5%9Flemleri-59937bdb7703>

# Navigation Component

- ✓ Navigation Graph
- ✓ NavHost
- ✓ Navigation Controller
- ✓ Safe Args



# Navigation Component

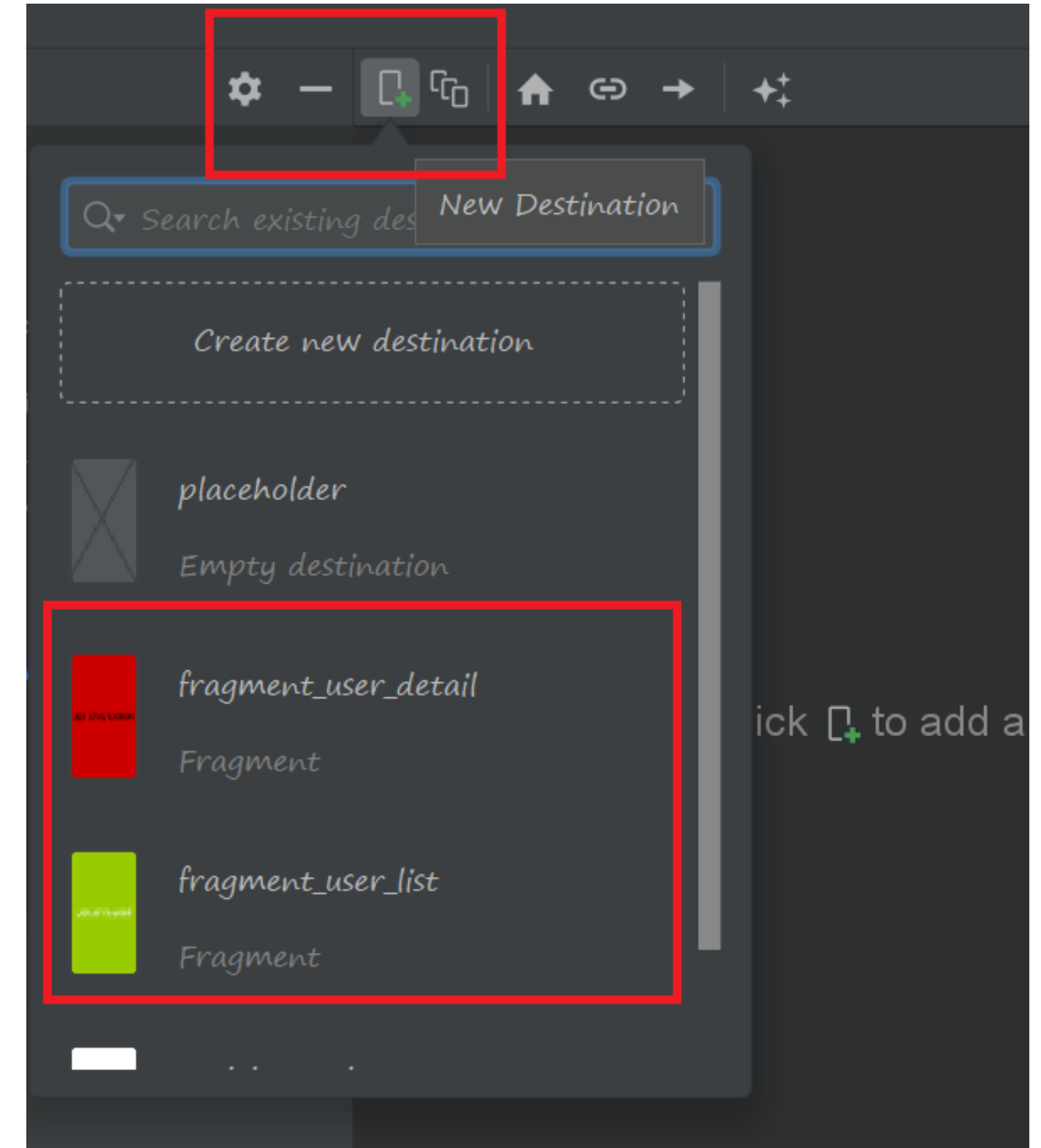
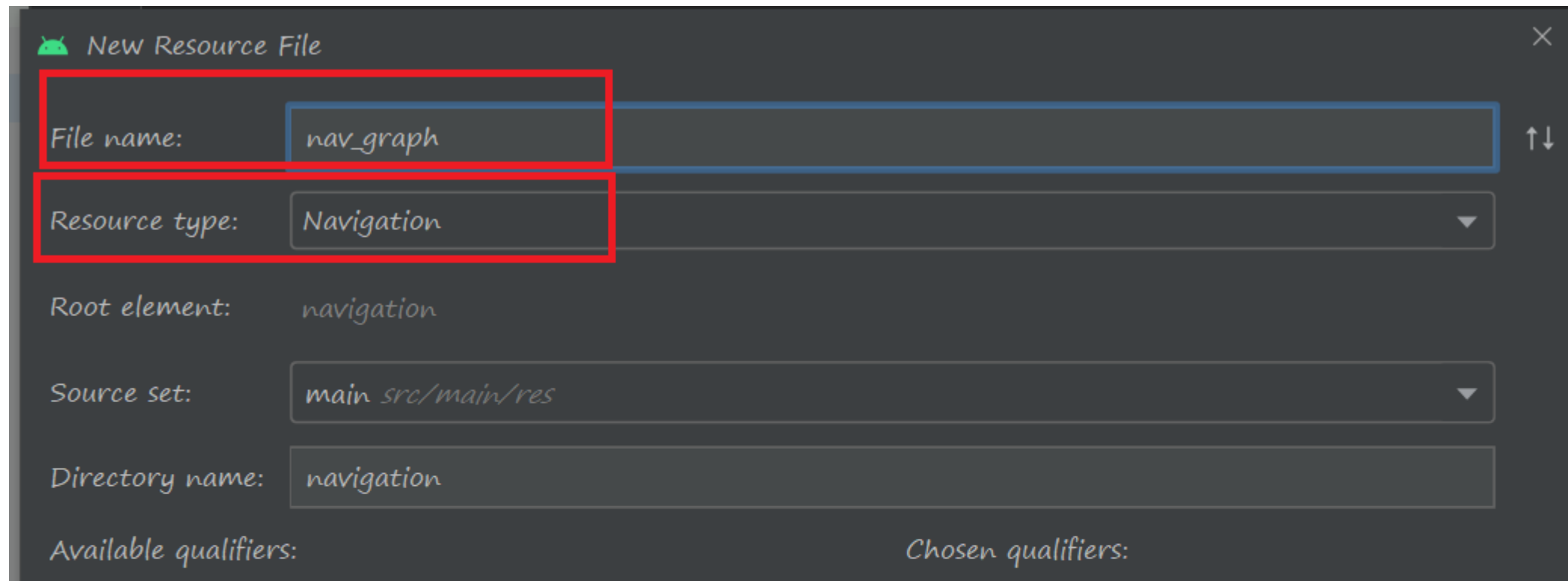
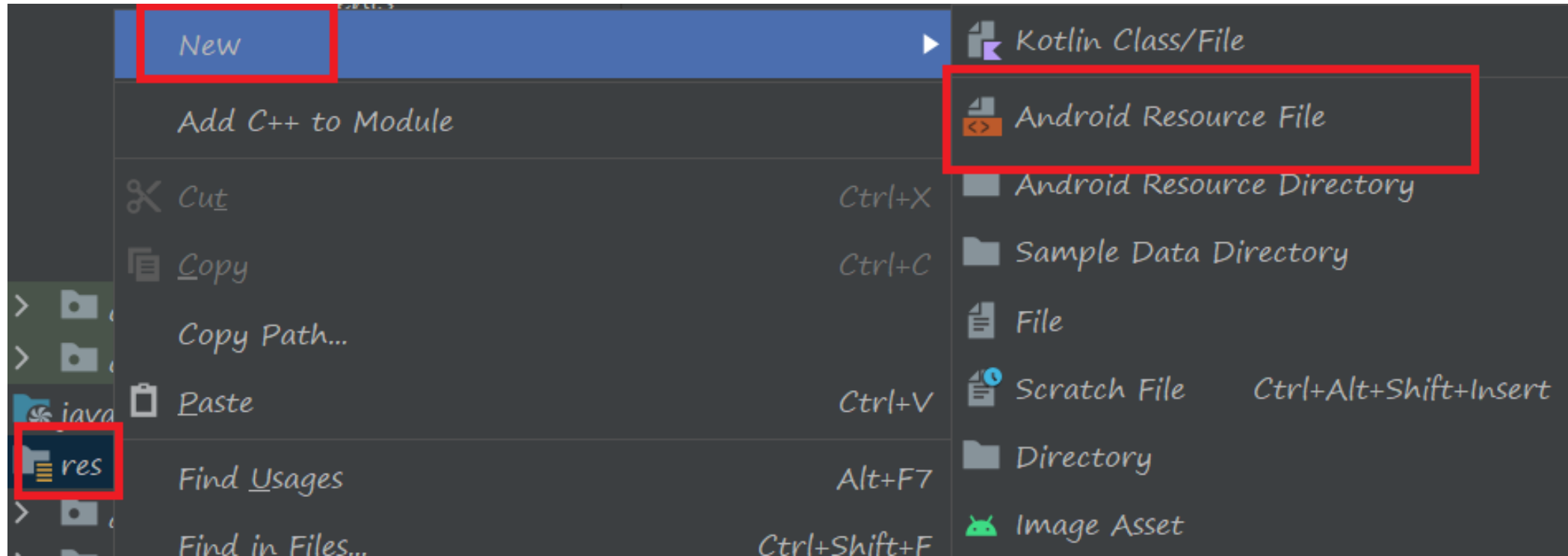
The Navigation component provides a number of other benefits, including the following:

- Handling fragment transactions.
- Handling Up and Back actions correctly by default.
- Providing standardized resources for animations and transitions.
- Implementing and handling deep linking.
- Including Navigation UI patterns, such as navigation drawers and bottom navigation, with minimal additional work.
- [Safe Args](#) - a Gradle plugin that provides type safety when navigating and passing data between destinations.
- `ViewModel` support - you can scope a `ViewModel` to a navigation graph to share UI-related data between the graph's destinations.

In addition, you can use Android Studio's [Navigation Editor](#) to view and edit your navigation graphs.

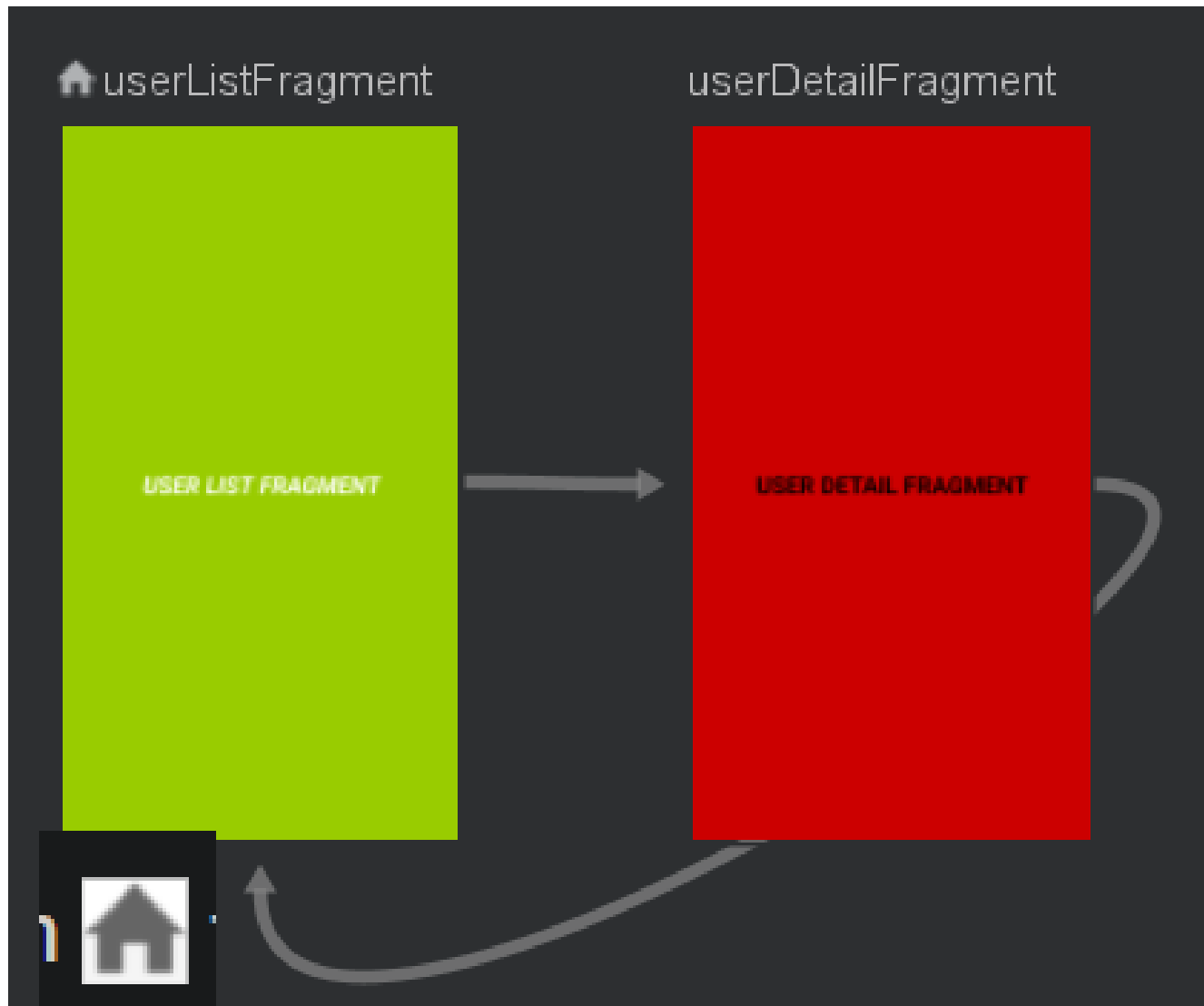


# Navigation Component Example





# Navigation Component Example



```
<androidx.fragment.app.FragmentContainerView
    android:id="@+id/nav_host_fragment"
    android:name="androidx.navigation.fragment.NavHostFragment"
    android:layout_width="0dp"
    android:layout_height="0dp"
    app:defaultNavHost="true"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:navGraph="@navigation/nav_graph" />
```

```
mBinding.tvUserList.setOnClickListener { it: View!
    findNavController().navigate(R.id.action_userListFragment_to_userDetailFragment)
}
```

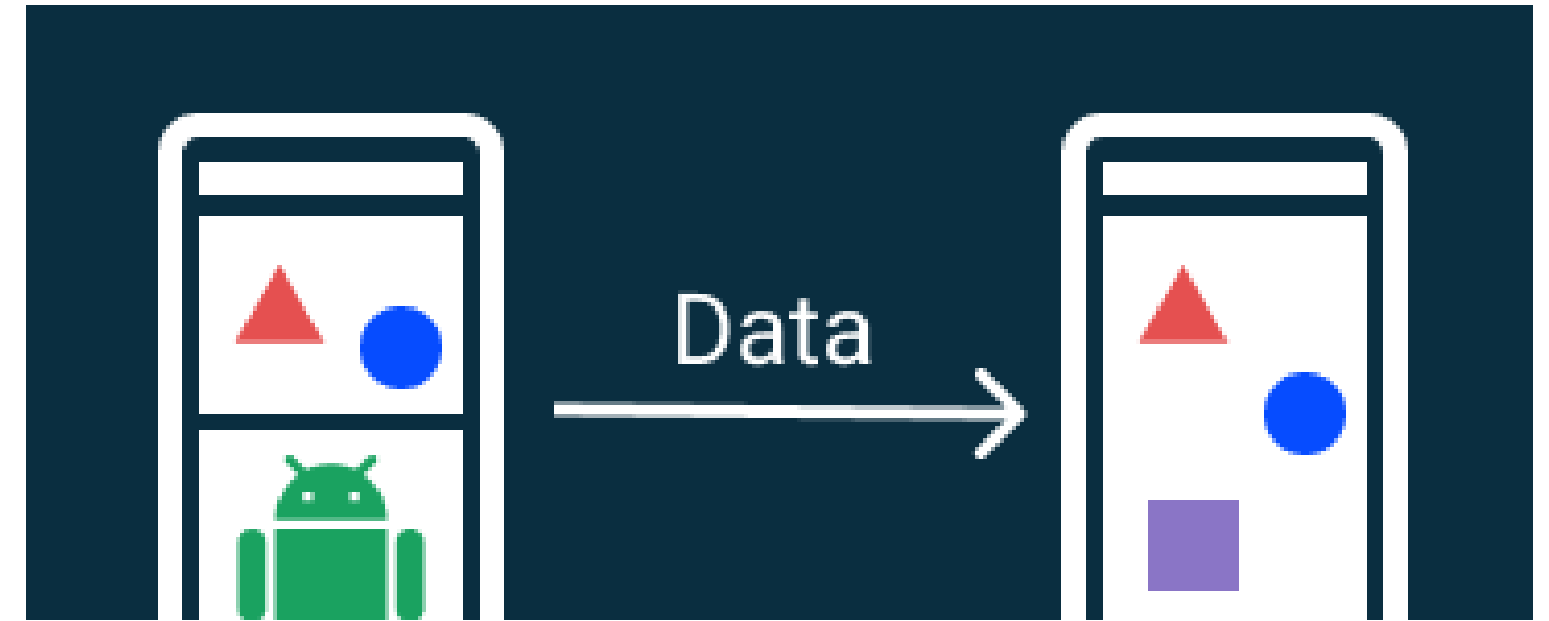


# Safe Arguments

<https://cengiztoru.medium.com/navigation-architecture-component-2-veri-ta%C5%9F%C4%B1ma-i%C5%9Flemleri-269775be977>

# Data Passing between Fragments

- ✓ newInstance, bundle, argument
- ✓ interface
- ✓ Shared ViewModel
- ✓ Objects
- ✓ Storing data into local  
Shared Preferences, Data Store, SQLite, Room
- ✓ Storing data into remote, backend
- ✓ **Safe Arguments by Navigation Component (Type Safety)**



<https://cengiztoru.medium.com/type-safety-tip-t%C3%BCr-g%C3%BCvenli%C4%9Fi-12cbbb554dc4>



# LET'S TALK

## CONTACT INFORMATION

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Telegram Channel

will be created

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