Uniwersytet Wrocławski

Rafał Lewandków

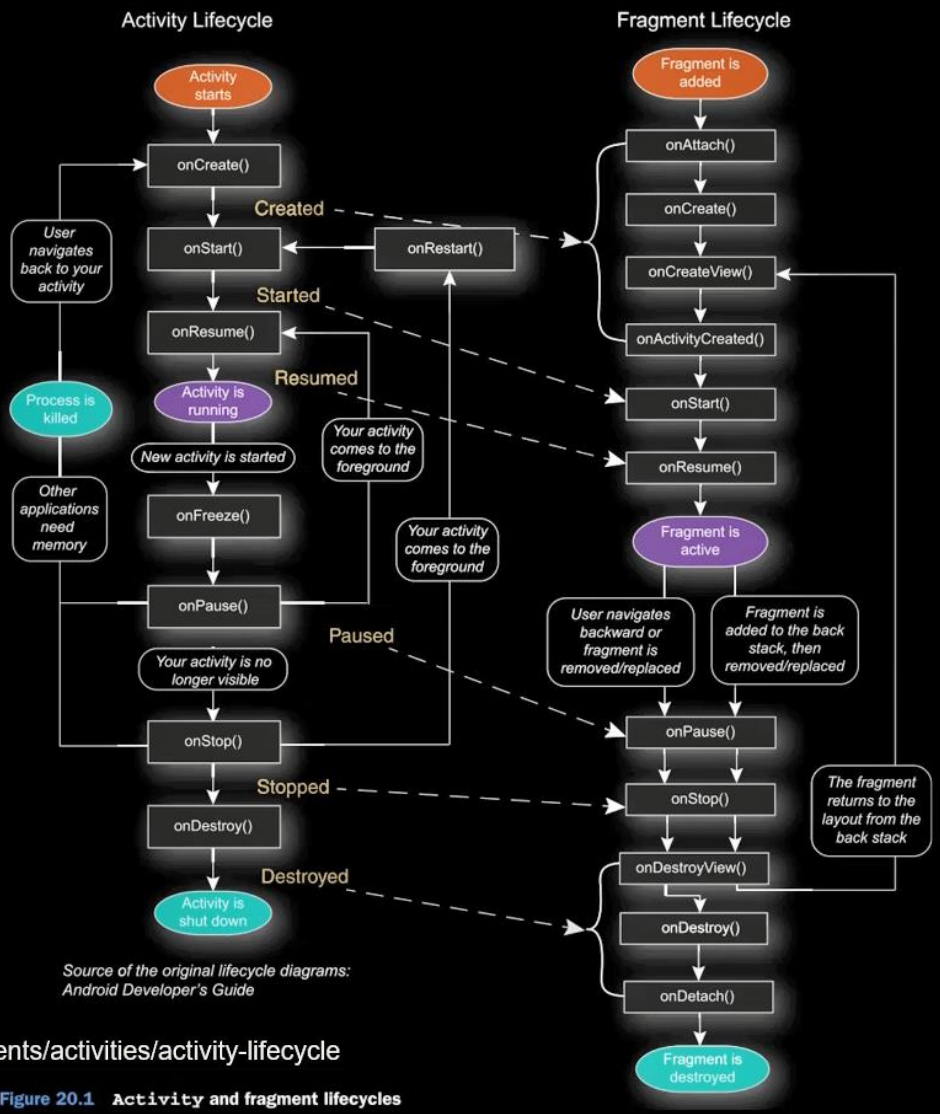
# PROGRAMOWANIE URZĄDZEŃ MOBILNYCH

## WYKŁAD 4

- Fragmenty
- Jetpack Navigation

# Fragmenty

## A reusable UI component with its own lifecycle



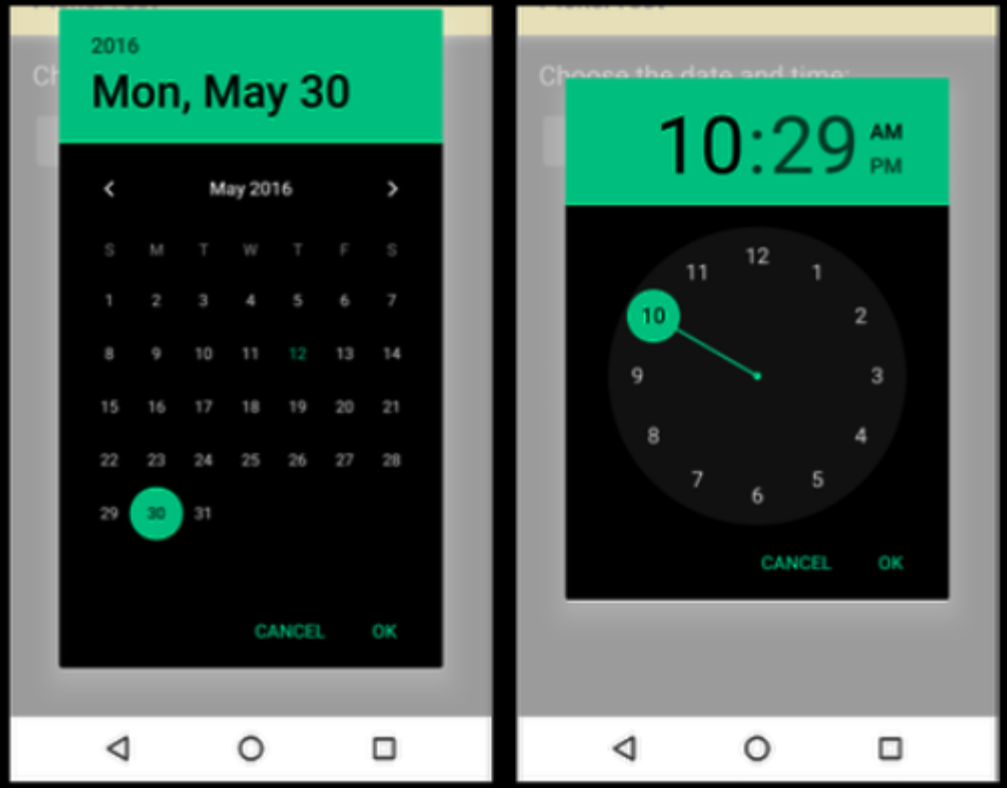

https://developer.android.com/guide/components/activities/activity-lifecycle

Figure 20.1 Activity and fragment lifecycles

# Fragmenty

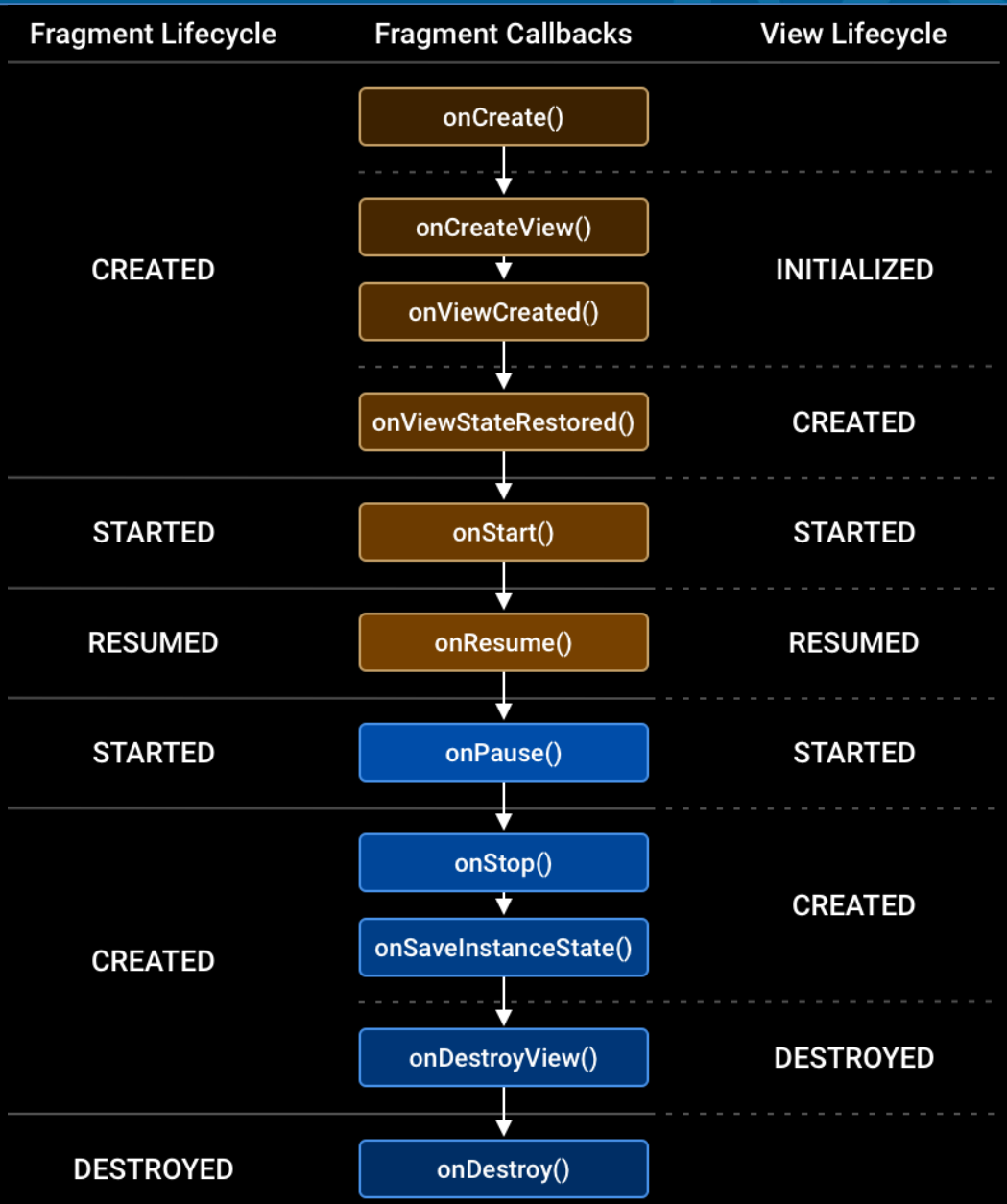
**A reusable UI component with its own lifecycle**

Date and time pickers:
Extend `DialogFragment`
(`Fragment` subclass)



Uniwersytet Wrocławski

# Fragment



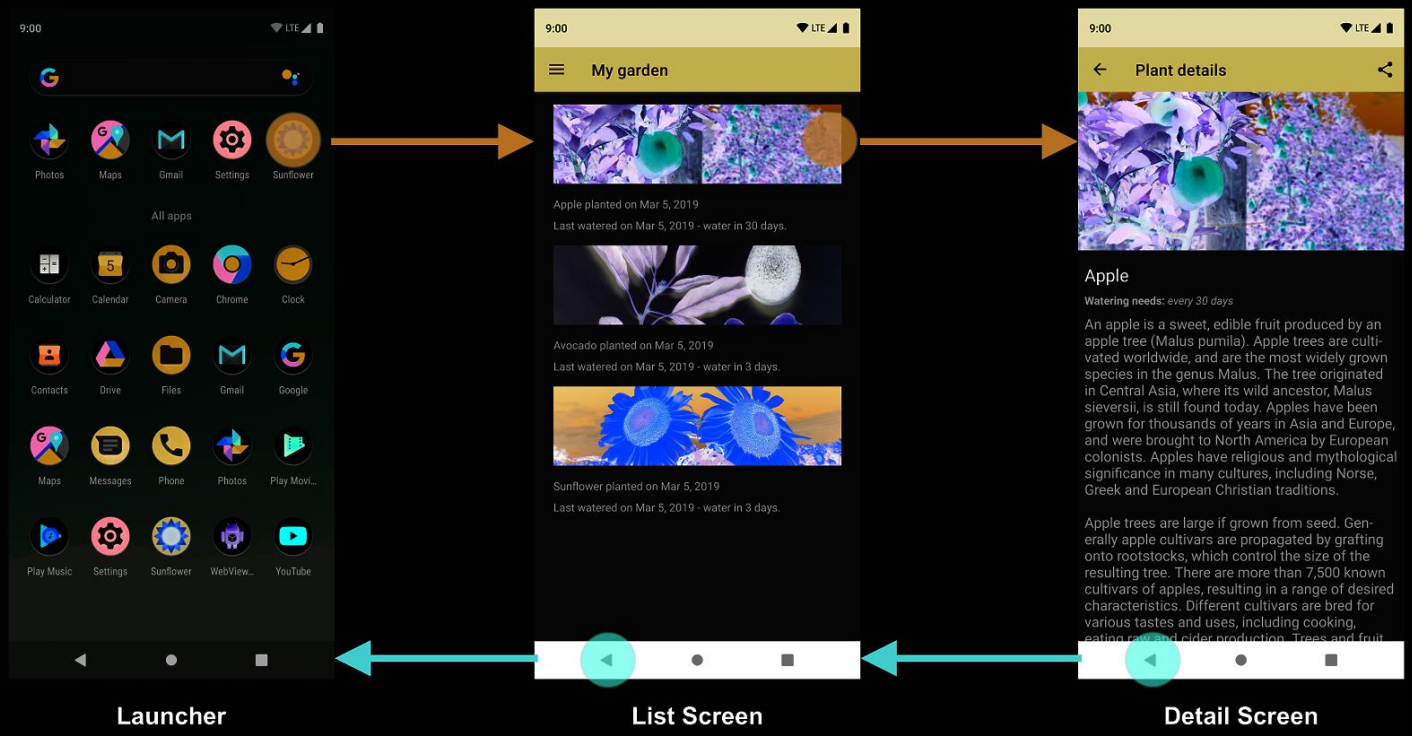
Uniwersytet Wrocławski

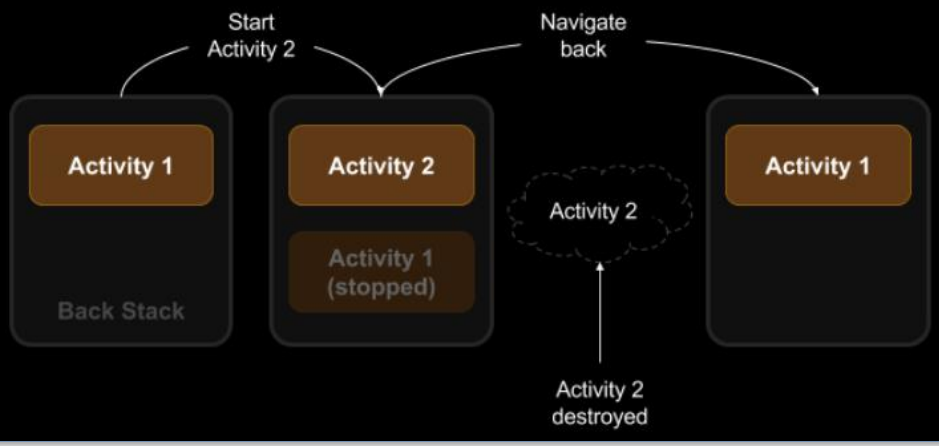
# Fragment

- Fragment statyczny – na ekranie przez cały cykl życia aktywności
- Fragment dynamiczny – dodany i/lub usunięty podczas cyklu życia aktywności

- Można wykorzystać fragment na kilku aktywnościach
- Dodać/usunąć fragment dynamicznie

# Nawigacja

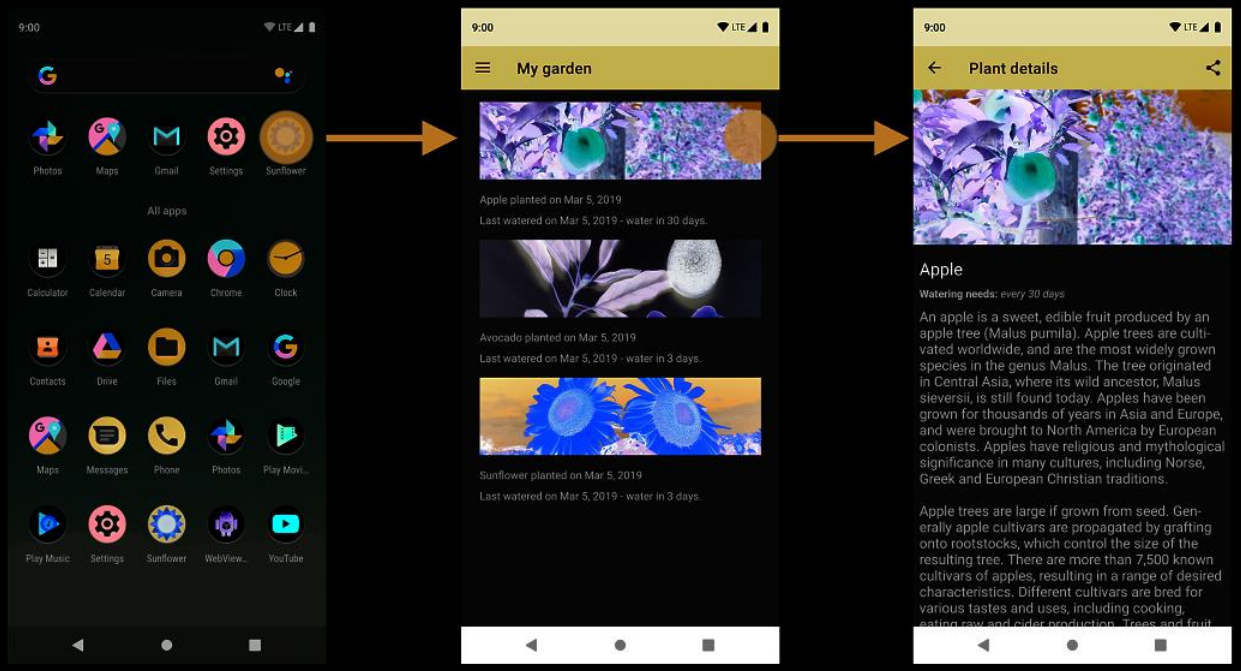

9:00
Photos
Maps
Gmail
Settings
Sunflower
All apps
Calculator
Calendar
Camera
Chrome
Clock
Contacts
Drive
Files
Gmail
Google
Maps
Messages
Phone
Photos
Play Movi...
Play Music
Settings
Sunflower
WebView...
YouTube
Launcher
My garden
Apple planted on Mar 5, 2019
Last watered on Mar 5, 2019 - water in 30 days.
Avocado planted on Mar 5, 2019
Last watered on Mar 5, 2019 - water in 3 days.
Sunflower planted on Mar 5, 2019
Last watered on Mar 5, 2019 - water in 3 days.
List Screen
Plant details
Apple
Watering needs: every 30 days
An apple is a sweet, edible fruit produced by an apple tree (Malus pumila). Apple trees are cultivated worldwide, and are the most widely grown species in the genus Malus. The tree originated in Central Asia, where its wild ancestor, Malus sieversii, is still found today. Apples have been grown for thousands of years in Asia and Europe, and were brought to North America by European colonists. Apples have religious and mythological significance in many cultures, including Norse, Greek and European Christian traditions.
Apple trees are large if grown from seed. Generally apple cultivars are propagated by grafting onto rootstocks, which control the size of the resulting tree. There are more than 7,500 known cultivars of apples, resulting in a range of desired characteristics. Different cultivars are bred for various tastes and uses, including cooking,
Detail Screen


Start Activity 2
Navigate back
Activity 1
Back Stack
Activity 2
Activity 1 (stopped)
Activity 2
Activity 1
Activity 2 destroyed

Uniwersytet Wrocławski

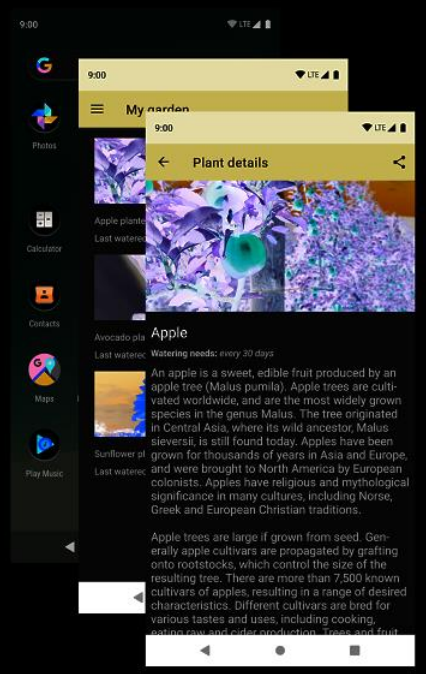
# Nawigacja

Organic Navigation through Sunflower (Browsing to apple details)

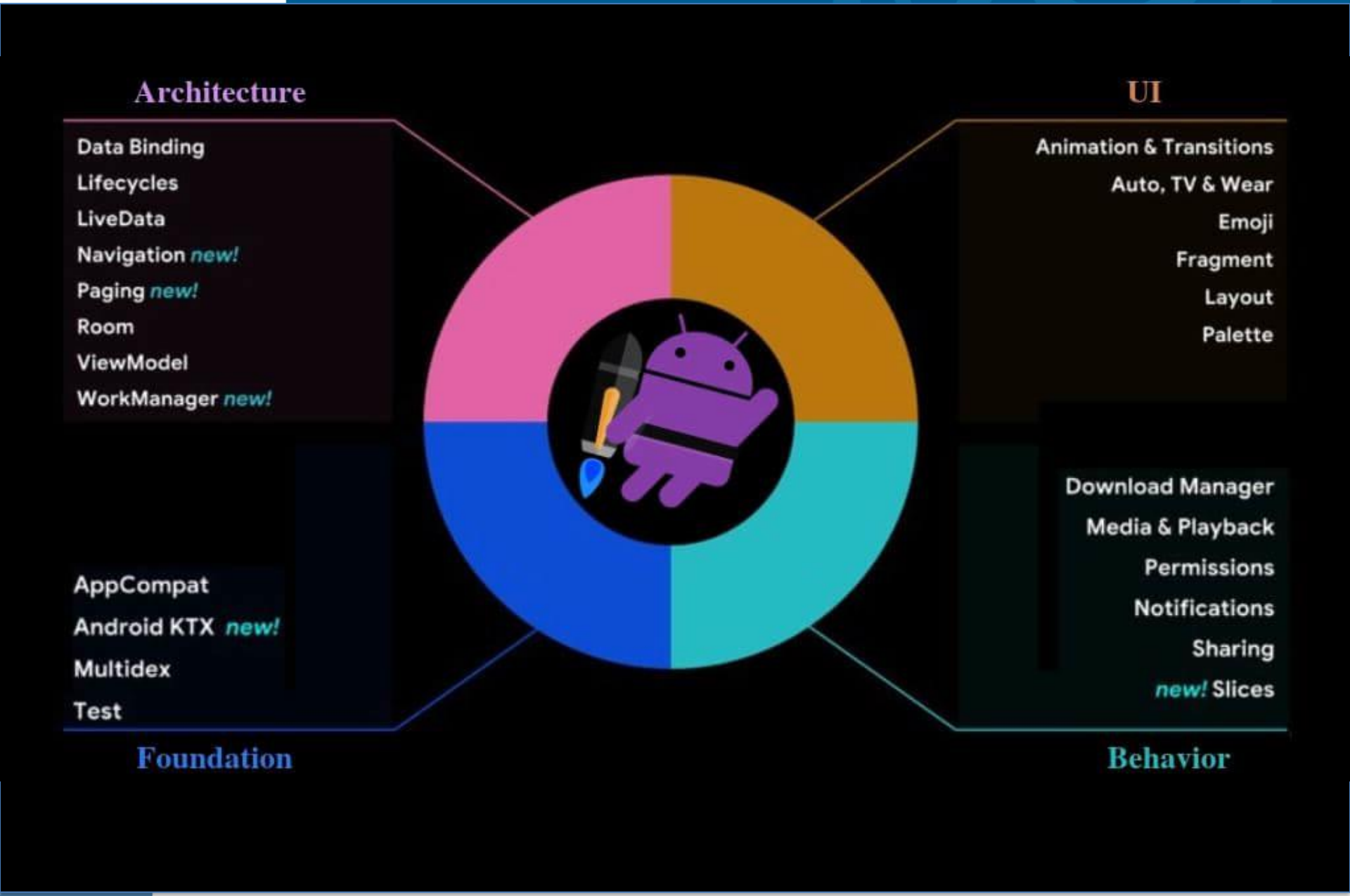



Launch Screen | List Screen | Detail Screen

Resulting Sunflower Task Back Stack

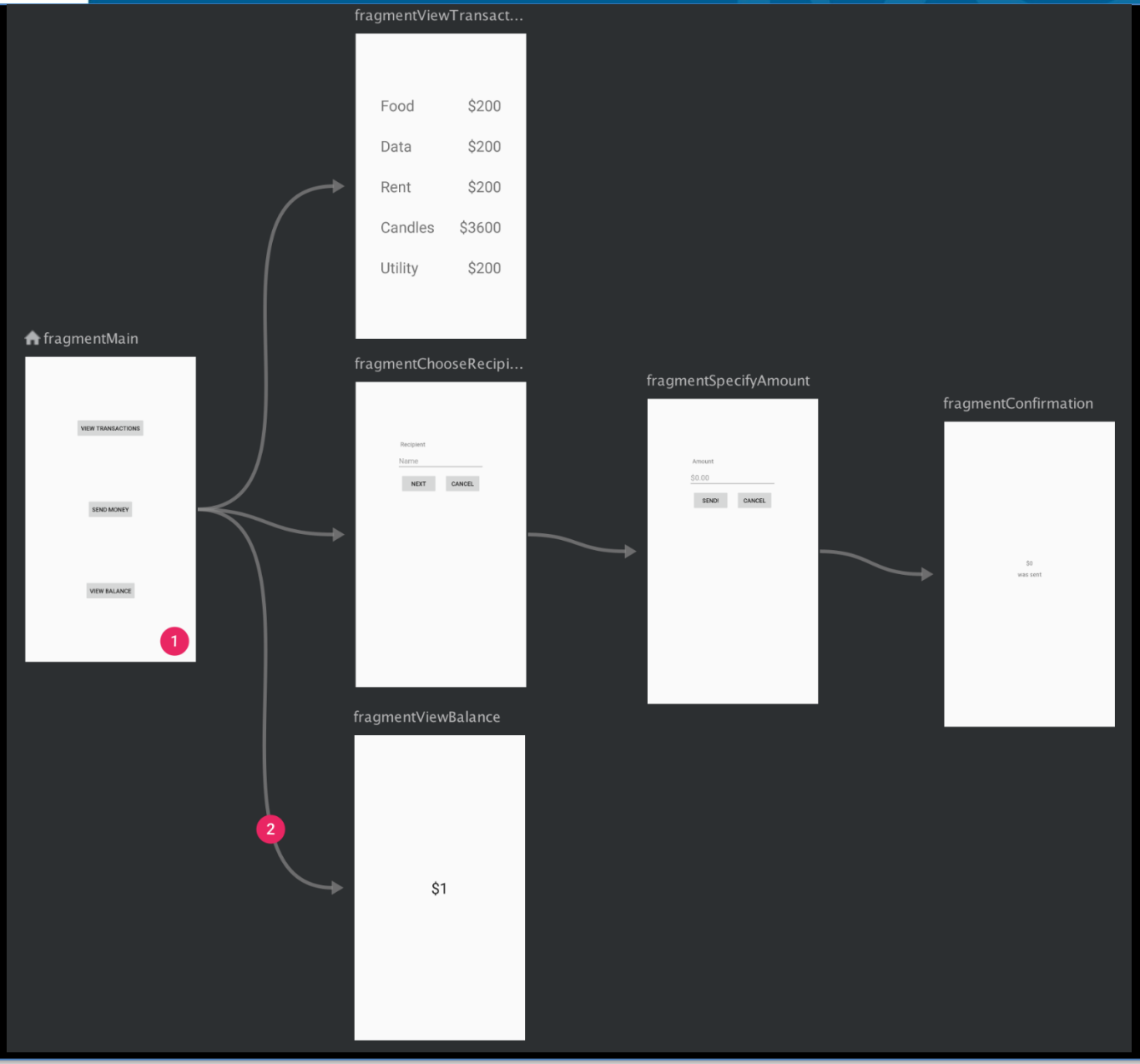


# Jetpack


Architecture
Data Binding
Lifecycles
LiveData
Navigation new!
Paging new!
Room
ViewModel
WorkManager new!
UI
Animation & Transitions
Auto, TV & Wear
Emoji
Fragment
Layout
Palette
AppCompat
Android KTX new!
Multidex
Test
Foundation
Download Manager
Media & Playback
Permissions
Notifications
Sharing
new! Slices
Behavior

Uniwersytet Wrocławski

# Jetpack Navigation



Uniwersytet Wrocławski

# Jetpack Navigation

| Type | app:argType syntax | Support for default values | Handled by routes | Nullable |
|---|---|---|---|---|
| Integer | app:argType="integer" | Yes | Yes | No |
| Float | app:argType="float" | Yes | Yes | No |
| Long | app:argType="long" | Yes - Default values must always end with an 'L' suffix (e.g. "123L"). | Yes | No |
| Boolean | app:argType="boolean" | Yes - "true" or "false" | Yes | No |
| String | app:argType="string" | Yes | Yes | Yes |
| Resource Reference | app:argType="reference" | Yes - Default values must be in the form of "@resourceType/resourceName" (e.g. "@style/myCustomStyle") or "0" | Yes | No |
| Custom Parcelable | app:argType="<type>", where <type> is the fully-qualified class name of the `Parcelable` | Supports a default value of "@null". Does not support other default values. | No | Yes |
| Custom Serializable | app:argType="<type>", where <type> is the fully-qualified class name of the `Serializable` | Supports a default value of "@null". Does not support other default values. | No | Yes |
| Custom Enum | app:argType="<type>", where <type> is the fully-qualified name of the enum | Yes - Default values must match the unqualified name (e.g. "SUCCESS" to match MyEnum.SUCCESS). | No | No |

# Jetpack Compose


```
@Composable
fun Greeting(name: String) {
    Text("Hello $name")
}
```

# Jetpack Compose

```kotlin
@Composable
fun MoviesScreen(movies: List<Movie>) {
    Column {
        for (movie in movies) {
            key(movie.id) { // Unique ID for this movie
                MovieOverview(movie)
            }
        }
    }
}
```

# Jetpack Compose

```
NavHost(startDestination = "profile/{userId}") {
    ...
    composable("profile/{userId}") {...}
}
```

By default, all arguments are parsed as strings. The `arguments` parameter of `composable()` accepts a list of `NamedNavArgument` s. You can quickly create a `NamedNavArgument` using the `navArgument` method and then specify its exact `type` :

```
NavHost(startDestination = "profile/{userId}") {
    ...
    composable(
        "profile/{userId}",
        arguments = listOf(navArgument("userId") { type = NavType.StringType })
    ) {...}
}
```

You should extract the arguments from the `NavBackStackEntry` that is available in the lambda of the `composable()` function.

```
composable("profile/{userId}") { backStackEntry ->
    Profile(navController, backStackEntry.arguments?.getString("userId"))
}
```