CodeLab Semana 8

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November 19, 2023

1 Description

The goal of this CodeLab is learn **how to store data** locally on the device and make your apps work despite network interruptions to deliver a smooth and consistent user experience.
Is divided into 3 parts:

- An introductory part to Kotlin fundamentals.
- A development part with use of Buttons.
- An interactive part with UI and state.

The link used for theoretical learning is Unidad 2: Compila la IU de una app.

2 Kotlin fundamentals

For the first section of this CodeLab, the most important features of Kotlin:

- If and Else statements
- When statement
- Nullable variables
- Classes
- Class methods
- Class properties
- Constructor
- Class relationships
- Visibility modifiers
- Objects
- Function types
- Lambda expressions

This section is purely theoretical and the only practical part involves modifying codes to familiarise oneself with the components shown in the explanation sections.

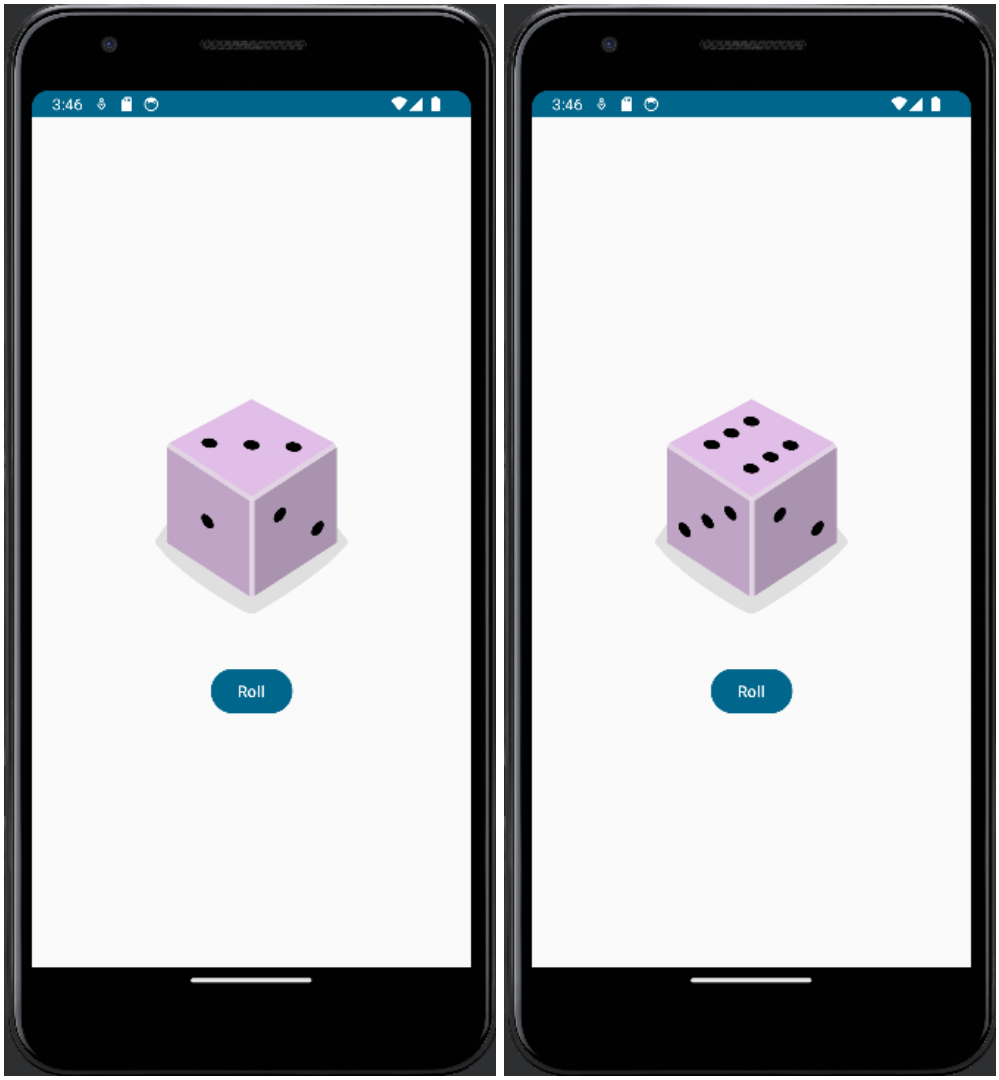
3 Use of Buttons

This section is divided into 3 parts:

1. Dice Roller App
2. Debugger
3. Lemonade App

3.1 Dice Roller App

In this section, it is explained how to use **buttons and images** by concretizing the theory into a practical application that allows one to **'roll a dice'** using a button and show the result that changes each time. Below are two screens of the app in operation:



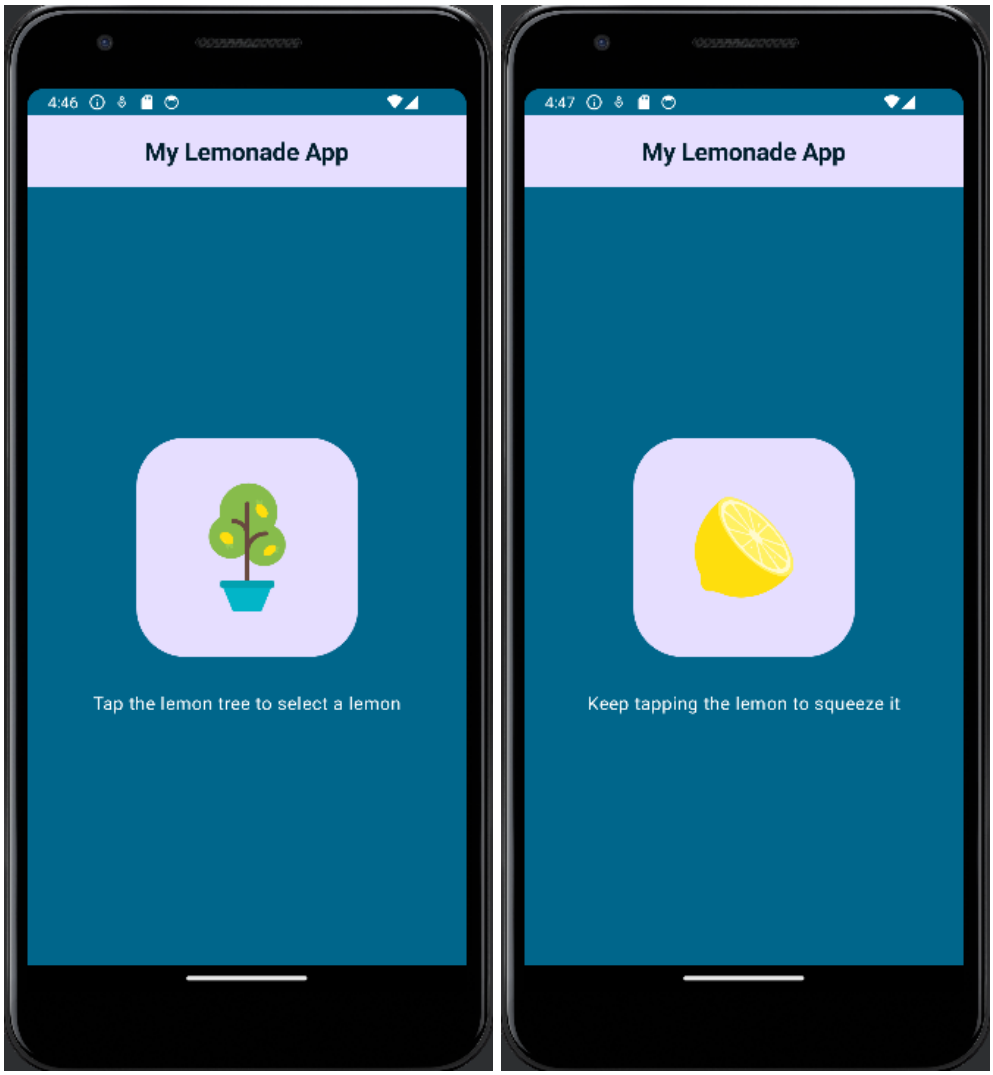
You can view the code created by clicking here.

3.2 Debugger

This section also explains how to use the debugger in Android Studio to inspect and debug the state of your app at runtime. It is shown how to run the **debugger** and use the debugger with the **three step buttons** (Into, Over, Out).

3.3 Lemonade App

The final part of this section involves creating an app that **simulates the actions to be interpreted to obtain lemonade**. After downloading the images to be used for the app, some guidelines are shown for creating this project very similar to the data project previously described.
Below are two screens of the project in operation:



You can view the code created by clicking here.

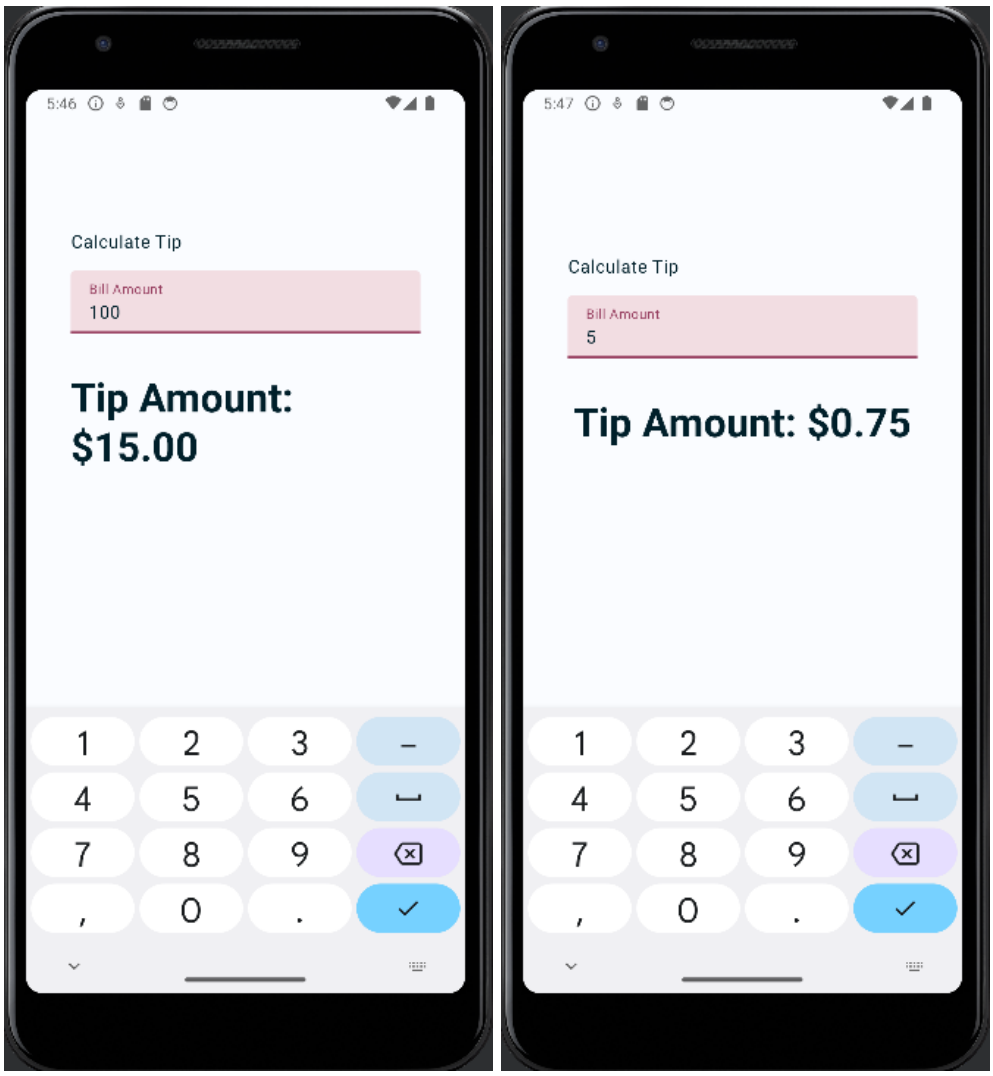
4 Interacting with UI and state

The last section is divided into 4 parts:

1. State management
2. Action Button with Switch
3. Use of Automatic Tests
4. ArtSpace App

4.1 State management

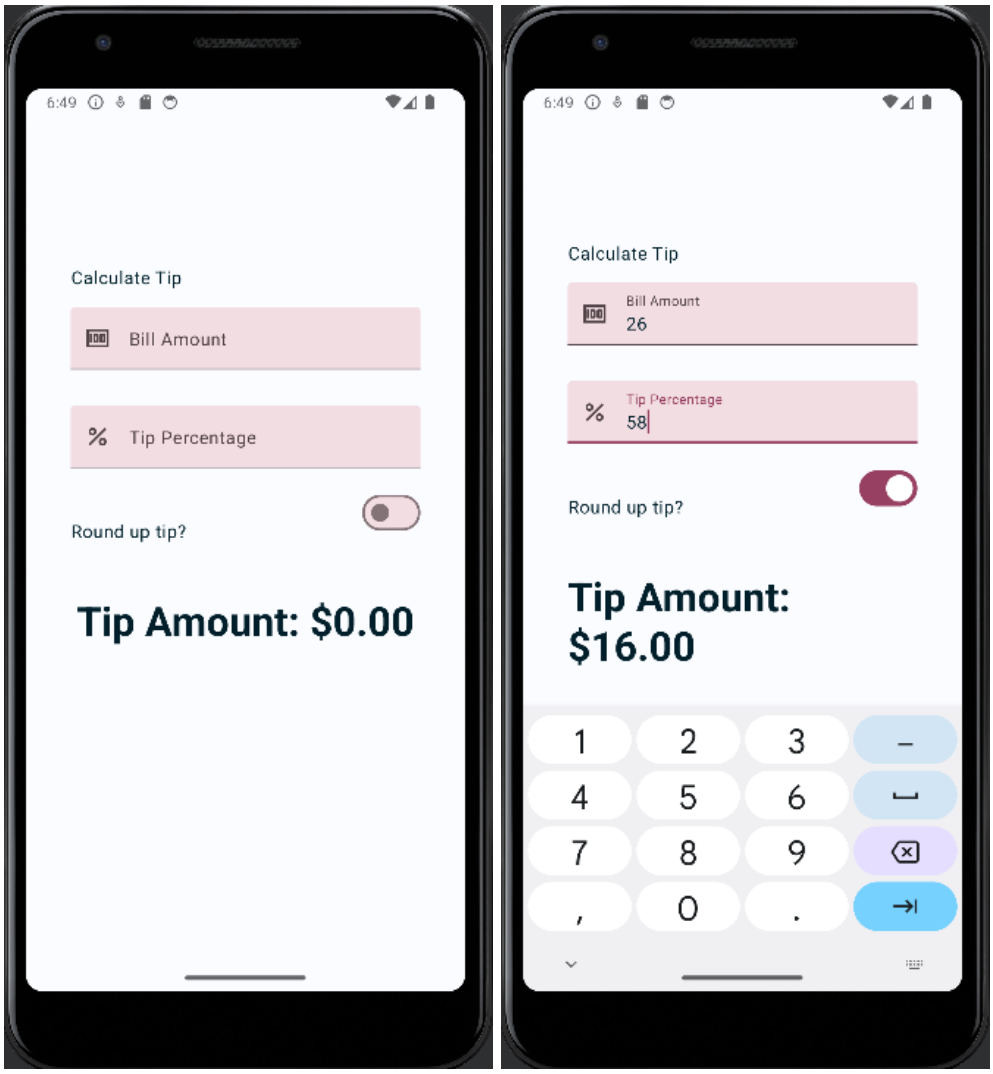
This part shows how to use and manipulate **state** that is a value that can change over time. To put the concepts into practice, it is required to create a **"training tip calculator"** app.
Below are two screens of the project in operation:



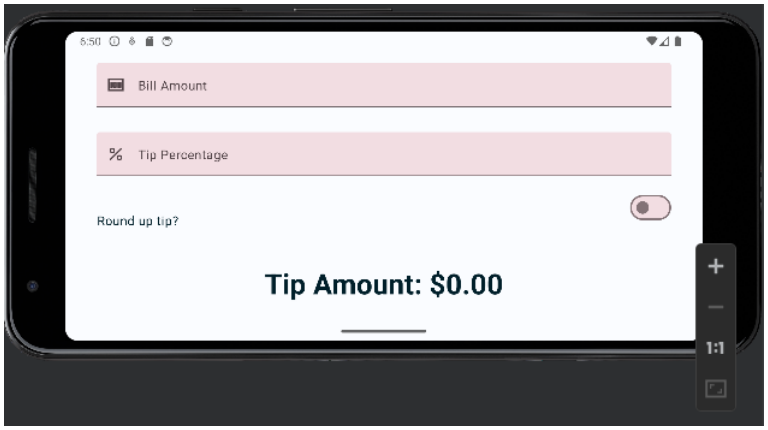
You can view the code created by clicking here.

4.2 Action Button with Switch

In the second part is shown how to **add an action button**, set up keyboard actions, and use a **Switch** composable. The previous file is modified by adding the new functionality.
Below are two screens of the project in operation:

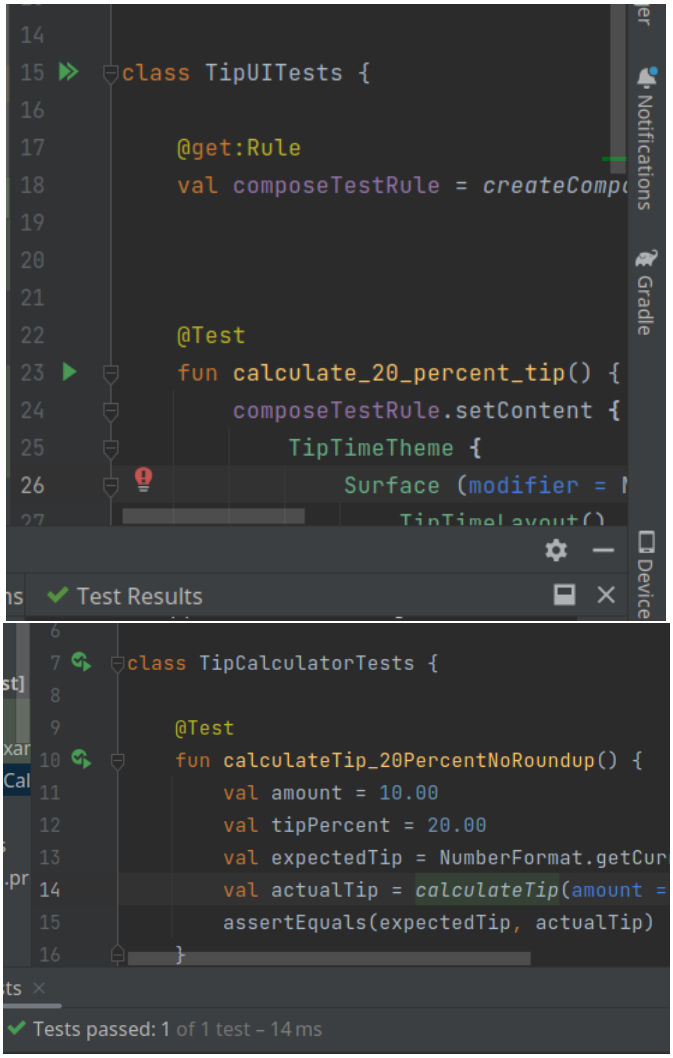


You can view the code created by clicking here.
It is also shown how to make **the screen can rotate**, as is depicted in the next image:



4.3 Use of Automatic Tests

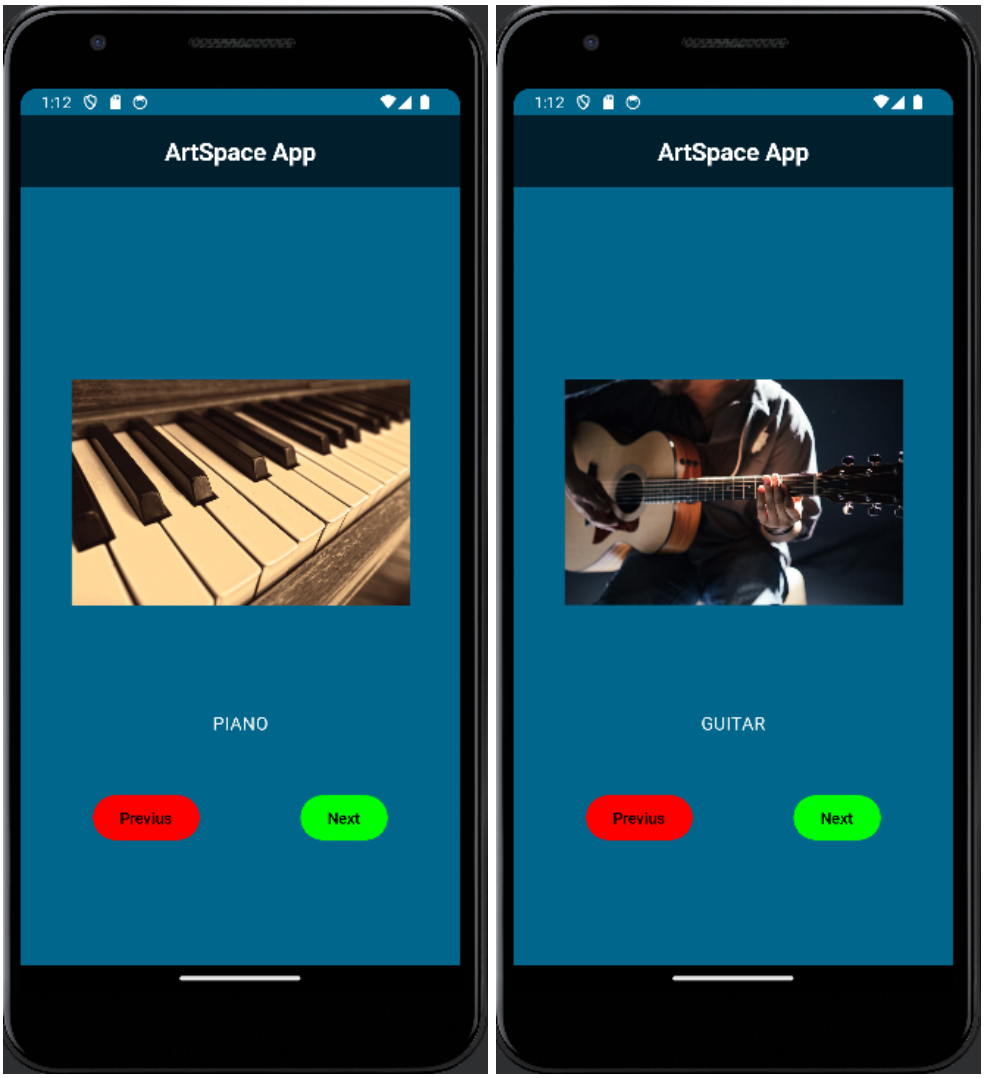
Tests are a critical component of software quality control.
This part shows how to use them, and two examples of **tests** used are depicted below:



You can view the code created by clicking here.

4.4 ArtSpace App

The last section assigns the creation of an App that displays a series of images that the user can decide to change by **going forward or backward** in the order of display.
The images used were downloaded from this website: https://pixabay.com
Below are two screens of the project in operation:



You can view the code created by clicking here.

5 Problems

No problems were found during the implementation of this codelab. The guide was **very clear** and the requirements quite simple.