

Programmation d'applications mobiles - Android

Practical

8h (16h FI)

Goal

This practical will dive you into the world of making real mobile application.

You will make a revolutionary movie theater app, which allows to :

- Display a list of movies from Ciné Dome, with picture and showtime
- Display a detail of a movie on click
- Display the picture or video in fullscreen.

The data is available at the URL : <https://etudiants.openium.fr/pam/cine.json>

Technical base

The main docs : <https://developer.android.com/guide/index.html>

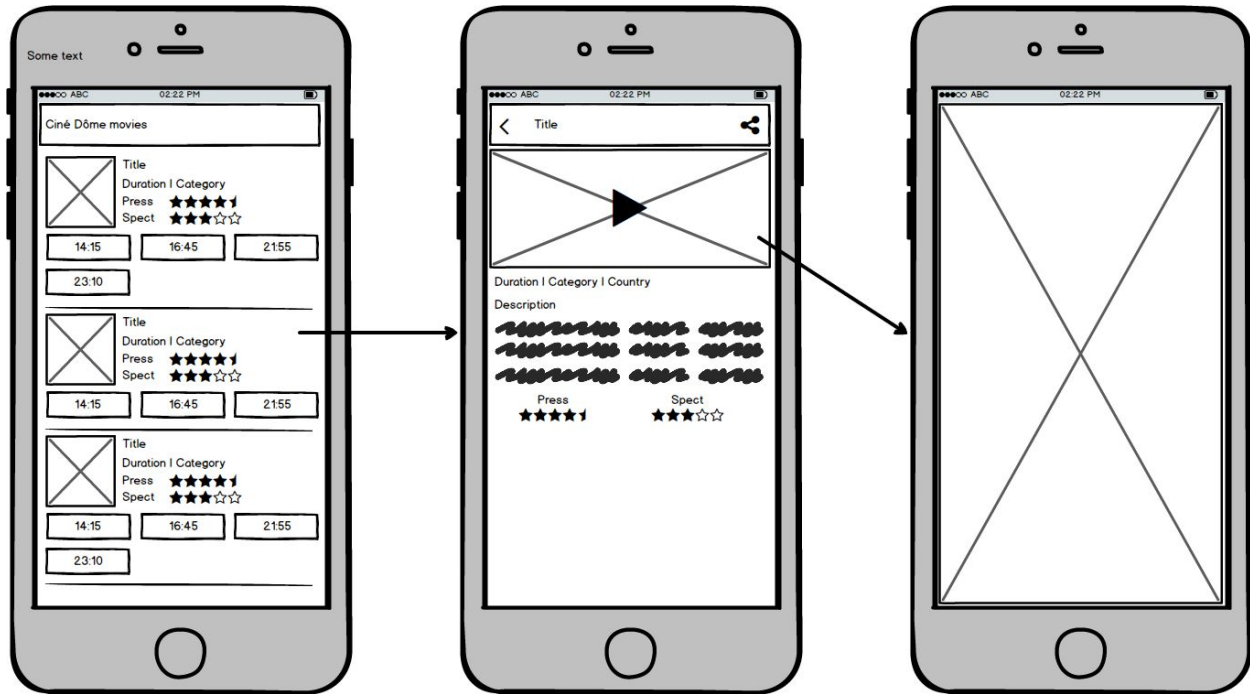
This project uses several libraries :

- AndroidX : <https://developer.android.com/jetpack/androidx/>
Lots of components provided by Google to make your app uses the last classes available on older devices.
- Retrofit - <http://square.github.io/retrofit/> to make Http requests.
- Gson - <https://github.com/google/gson> serialize/deserialize Json
- Picasso - <https://github.com/square/picasso> To download and display pictures

Design

There is no given design, feel free to blow our mind.

The aim is to develop the following functionalities (this wireframe only define the functionalities, you can create your own layout and design).



Development

This practical should be made in 8 hours, using the following libraries. Please read all the steps before doing anything.

1. Need some help ?

- You can use the example project from <https://github.com/openium/examplepam>

2. Workspace

a. Init

- Start Android Studio

- If it asks you to Import Settings, choose No
- If it asks for an SDK, enter the current location : /Applications/sdk
- Open the project (not Import)
- Start it in the default Android 6 or 7 or 8, Nexus 5 emulator.

b. Android emulator creation

- If you want to create different sizes of devices to test your application on multiple resolutions
- Go into Tools -> Android -> AVD Manager
- Choose an existing emulator or create one
- Press OK

3 - Use this library for...

- Use **Retrofit** to download information on <http://etudiants.openium.fr/pam/cine.json>
- Create the Java model for **Gson** binding. Your attributes need to be named the same way as the Json ones.
- **Read the RecyclerView documentation and this article** (<https://developer.android.com/guide/topics/ui/layout/recyclerview> and to understand the ViewHolder pattern : <https://developer.android.com/training/improving-layouts/smooth-scrolling.html>)
- **Picasso** will allow you to download and display picture into ImageView

4 - Making the app

1. You will start by getting the data from [this address](#) and display it using [Log class](#).
2. Then use a **RecyclerView** to display the list of movies, and the image from the movie in each cell...
3. Handle the click on a movie, display a new **Activity or Fragment** with more details.
You need to find a way to pass data to the new **Activity/Fragment**.

Go further

- Store the users list in a database with **Room** (<https://developer.android.com/training/data-storage/room/index.html>), and allows the app to work in offline..
- Check your app works when rotating the device
- Do the FI work.
- Adapt your app to tablet.

Send the practical to your teachers

You need to send a zip file containing the project before the 6 march 2019 for F1/F2/F5 students and the 20 march 2019 for the FI students.

The zip file MUST contains a directory with your name in it (which will contains the project).

For that, send an email to o.goutet@openium.fr and t.coulangue@openium.fr with the zip file, or a download link to your zip file. We accept Github repository if it is clearly named.

FI

- 1) You will add an option using Menu to display the theater (Ciné Dome) location Google Map into the details screen. Use this guide :
<https://developers.google.com/maps/documentation/android-api/>
 - Use the following API Key for Gmap :
AlzaSyBCYdCH-qigfRhm-7v7OmBpdEFgbUNb3So
 - Display the current user location using the new permission system
(<https://developer.android.com/training/permissions/requesting.html>)
 - The location in coordinate is : "lat": 45.7567654, "long": 3.1441095
- 2) Change the header of the app by a [Toolbar](#) and display a picture of the Ciné Dome using the json in it.
- 3) Personalize the colour of your detail using the picture of the movie and a [Palette](#).
- 4) Use the [TabLayout](#) to display above the first screen a list of day, and sort each movie per day based on the tab selected.