Android Assignment 3

The goal of the assignment is to create a **Weather Info Application**. During the development you can practice the following techniques in Android:

- *Network communication*
- *Http*
- *JSON* parsing
- External libraries:
  - Retrofit (http://square.github.io/retrofit/)
  - Glide (https://github.com/bumptech/glide)

1 Assignment Details

The task is to implement a Weather Info application that downloads weather info from *OpenWeatherMap*:
http://openweathermap.org/

In order to use OpenWeatherMap, **you must register to the website and get your API key**.
http://home.openweathermap.org/users/sign_up

After that with the key the API can be tested, for example:
http://api.openweathermap.org/data/2.5/weather?q=Budapest,hu&units=metric&appid=f3d694bc3e1d44c1ed5a97bd1120e8fe
http://api.openweathermap.org/data/2.5/weather?q=Budapest,hu&units=imperial&appid=f3d694bc3e1d44c1ed5a97bd1120e8fe

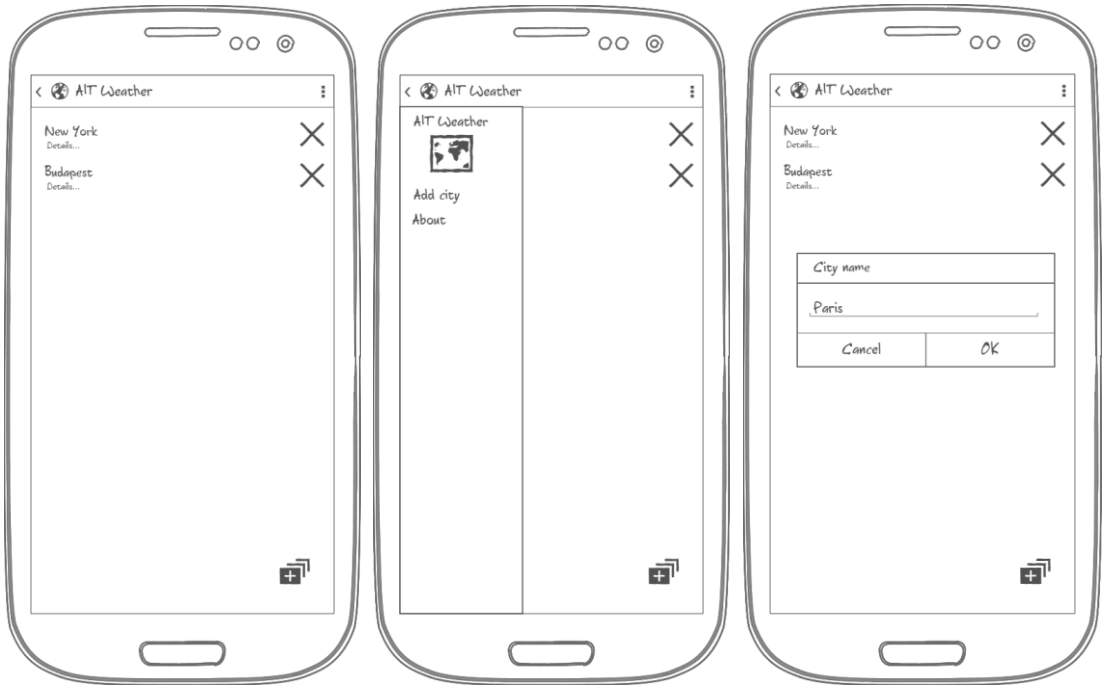
Complete description about the API:
http://openweathermap.org/api

2 Requirements

- The application has two activities, the first Activity holds the list of cities that the user stores in the application and when a city is selected it's weather details is displayed on another Activity.
- The city list Activity should have a *RecyclerView* and should support adding and removing cities. Cities can be added by clicking on a *FloatingActionButton* that shows a *Dialog* where the user can enter the city name.
- City names must be saved in database, so the app remembers the cities.
- The city list Activity should have a NavigationDrawer with the following menus:
  - *Add city,*
  - *About (displays the author of the application on a Toast message).*
- This details Activity appears when a city name is clicked. It displays the weather information with an icon/image that refers to the weather.
- Icon can be downloaded based on the icon field of the retrieved JSON result (use the Glide library, more info in the next Section): http://openweathermap.org/img/w/**10d.png**

3 Screens

3.1 Cities list



Cities list; navigation drawer; add city dialog

3.2 Weather details for the selected city

The weather details screen is an *Activity* that shows the weather info (current temperature, description, weather icon, min and max temperature, humidity, sunrise and sunset, etc.) and **optionally** a small map that shows the current city. If you would like to display a map, you can use the Maps Activity template that has a Fragment that extends from *MapFragment* (https://developers.google.com/maps/documentation/android-api/).

4 Tips and Advises

- It is recommended to use ***RetroFit*** for network communication.
- Tutorials for map (optional):
  - http://developer.android.com/training/maps/index.html
  - http://www.vogella.com/tutorials/AndroidGoogleMaps/article.html
- For image loading from URL you can use the Glide library: https://github.com/bumptech/glide

Gradle:

```
implementation 'com.github.bumptech.glide:glide:4.8.0'
annotationProcessor 'com.github.bumptech.glide:compiler:4.8.0'
```

Usage:

```
Glide.with(this@MainActivity)
        .load(
                ("https://openweathermap.org/img/w/" +
                        response.body()?.weather?.get(0)?.icon
                        + ".png"))
        .into(ivWeather)
```

5 Grading

The maximum is 10 points for a version which meets the requirements listed in the Assignment Details section. If your app crashes during testing or misses out some features, you will get reduced points. Late submissions will get a point reduction: 1 point after each full day past due date (meaning that late submissions within 24 hours past due date gets no reduction).

Apps with **added features**, **nice UI** or **elegant implementation details** may be awarded with **extra points**.

Some extra feature ideas:

- Show an overview map with markers to all cities and by clicking on the city name, the weather details are shown. Marker icons can be weather icons as well coming from *OpenWeatherMap*.
- The application shows a chart about the previous days/forecast. You can use MPAndroidChart library for this:
    - https://github.com/PhilJay/MPAndroidChart

6 Submitting the Assignment

Compress the whole Android Studio project folder in a single zip. Upload it to the Moodle page of the course until the due date.