

Mobile Computing

Practical Assignment #2 / Design and Development

My preferred cities weather

1. Minimum scenario

A team of mobile apps' developers had the idea to provide an application for weather data consultation.

In this app the user maintains a record of the cities he is interested in, among the **district capitals of Portugal**. In any time, he can add or remove cities from this list.

Also, from the list of those particularly interesting cities the user can ask for the current weather conditions of a city, obtaining information perhaps about temperature, pressure, precipitation, wind, and humidity (can also have an image characterizing those conditions – using an icon).

Another desirable feature is allowing the user ask for a characterization of a forecast, in the next day, for a city (between the ones in the preferred list) and obtaining it in a separate page, perhaps with graphical representations. Also, small images, characterizing the conditions along the day, can optionally be shown near the time of day.

You can add any features to this minimum specification, like a week forecast.

2. Design and development

Information about the weather conditions in most of the world cities can be obtaining calling an external web service. A free one supplying the required information can be subscribed at:

<https://openweathermap.org/>

which has more information about the available APIs and free and paid subscriptions.

After a free subscription, you are entitled to several requests with a supplied api key.

The several APIs and responses are described in <https://openweathermap.org/api>

For instance, to obtain the current conditions in JSON format, in a city, you can use the REST call:

<https://api.openweathermap.org/data/2.5/weather?q=Porto,Portugal&appid={your key}>

with a JSON response similar to:

```
{
  "coord": {"lon": -8.611, "lat": 41.1496},
  "weather": [{"id": 801, "main": "Clouds", "description": "few clouds", "icon": "02n"}],
  "base": "stations",
  "main": {"temp": 17.32, "feels_like": 17.25, "temp_min": 17.24,
    "temp_max": 17.47, "pressure": 1019, "humidity": 82},
  "visibility": 10000,
  "wind": {"speed": 6.71, "deg": 190, "gust": 6.71},
  "clouds": {"all": 20},
  "dt": 1652733438,
  "sys": {"type": 2, "id": 2020703, "country": "PT", "sunrise": 1652678134,
    "sunset": 1652730375},
  "timezone": 3600, "id": 2735943, "name": "Porto", "cod": 200
}
```

or other similar API calls (among the free ones).

It is also possible to obtain forecast weather conditions, and many others.

See also <https://openweathermap.org/weather-conditions> on how to obtain weather icon images.

If you can find one, you can also use any other free weather information web service, instead.

You can use this service directly or through your own REST service (with perhaps a more convenient API and response) as an intermediary.

The app should be developed using Flutter.

3. Report

You should write a report describing all the features, architecture, interface, and the testing performed in your app. You should include also an **illustrated** (with screen captures) guide of the use cases supported by your app.