Mobile Computing Practical Assignment #2

My preferred cities weather

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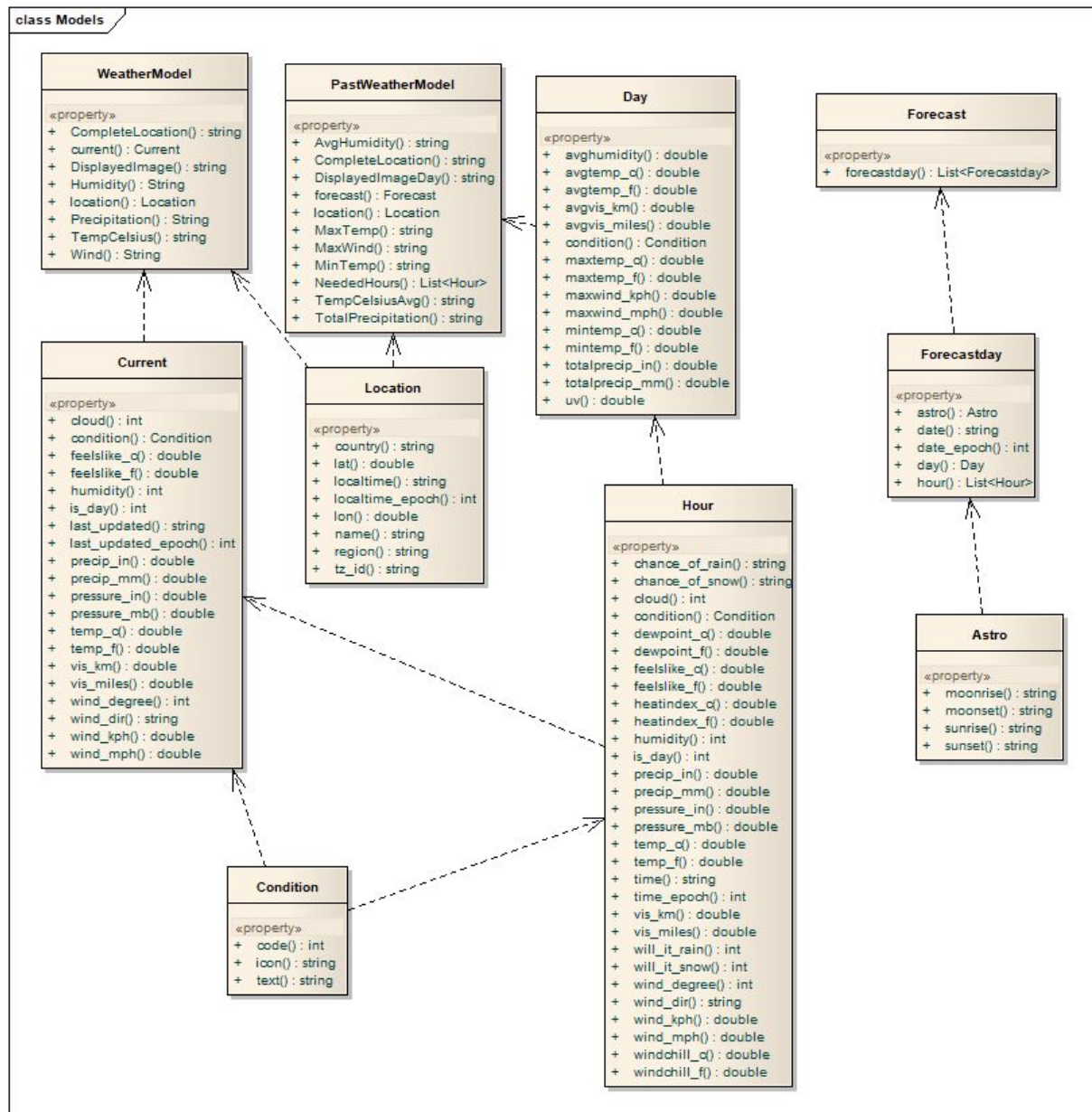
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Features

- Can add cities to favourites to be tracked

- Can remove cities from tracking;

- Can select a city to get current weather conditions of a city, obtaining information at about temperature, precipitation, wind and humidity with an image characterizing those condition;

- The user can ask for a characterization of a past day, in the last 30 days, of a city (between the ones in the preferred list), obtaining a page that has minimum and maximum temperatures, max wind, sunset and sunrise and average humidity.;

- In a section of the past days weather a line graph is drawn linking the temperature at 3h intervals along the day (0h00, 3h00, 6h00, 9h00, 12h00, 15h00, 18h00, 21h00);.

- The user can ask for a forecast for the next 10 days where he can see the same as in the past weather but for the next 10 days;

- Detects if internet is offline when asking for weather;[1]

- Icons (Android, iOS, UWP) and Splash Screen (iOS, UWP).

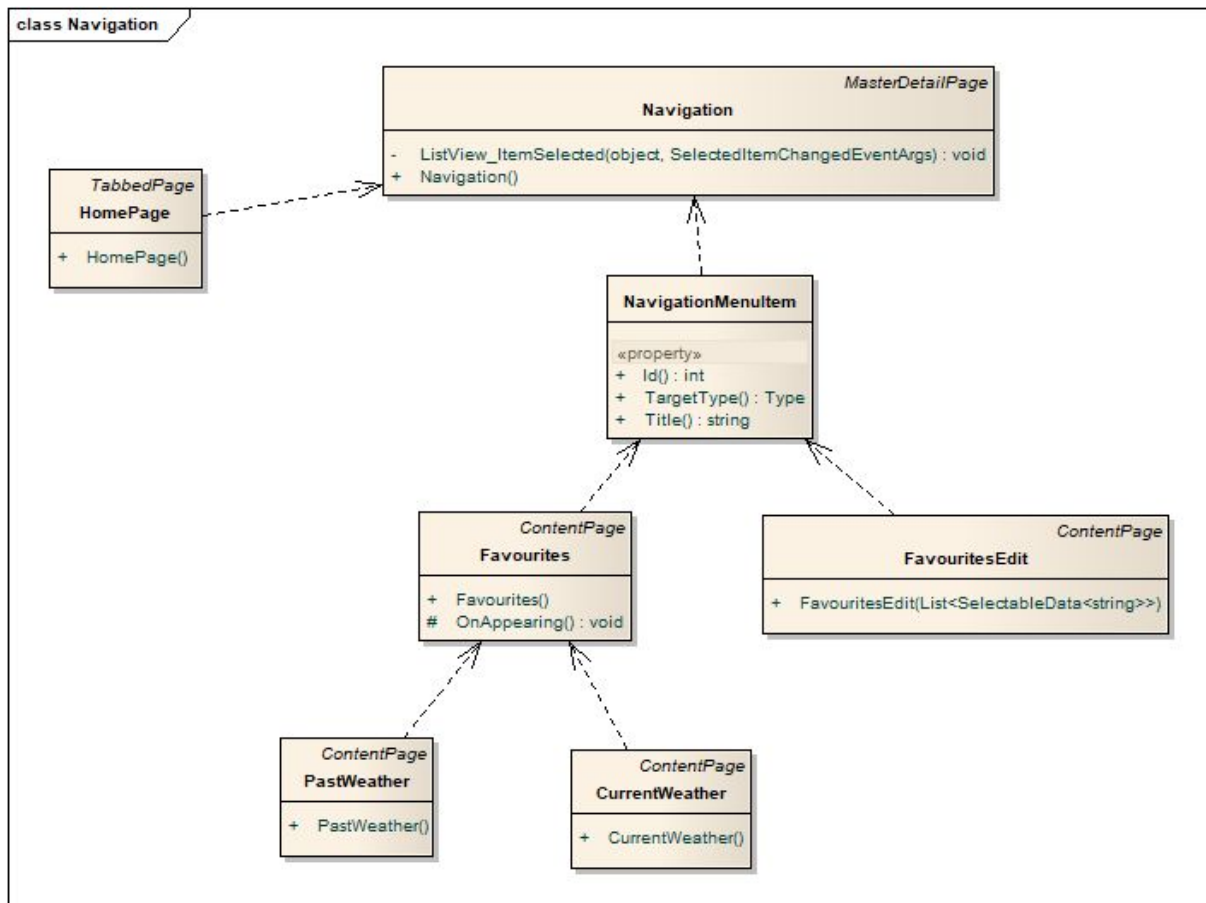[1] Implemented after presentation.

Architecture

The information is stored in models in which 3 main models exist: *WeatherModel* responsible for the current time; *PastWeatherModel* responsible for the past time; and *FutureWeatherModel* that is linked to the future forecast. All three models share other additional classes, like *Hour* or *Location*.

There are also additional classes like *Settings*, responsible for storing all and favourite cities on the device's native settings, and two classes for handling the requests (*ApixuRest*, *ServicesHandler*).

Our project respects Xamarin's MVVM pattern, in which everything is divided in Models, Views and ViewModels.

Finally, the following plugins were used: Microcharts, responsible for drawing the charts; Plugin.Settings for storage on device's native settings; Newtonsoft.Json for converting JSON data to Models; finally, Plugin.Connectivity for checking the status of internet connection.
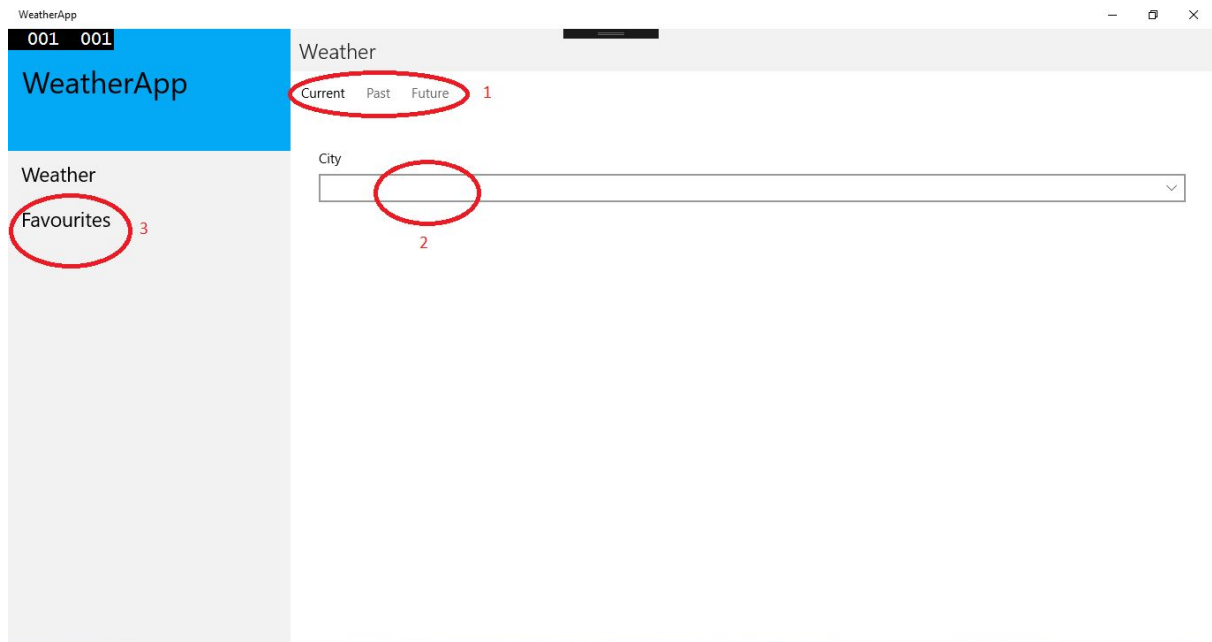
Interface

This diagram demonstrates how the interface classes, responsible for navigating using xamarin forms, call each other. The main navigation page is a *MasterDetail*, whereas the *Master* includes two options (Weather and Favourites) and the *Detail* includes three tabs (Current, Past and Future).
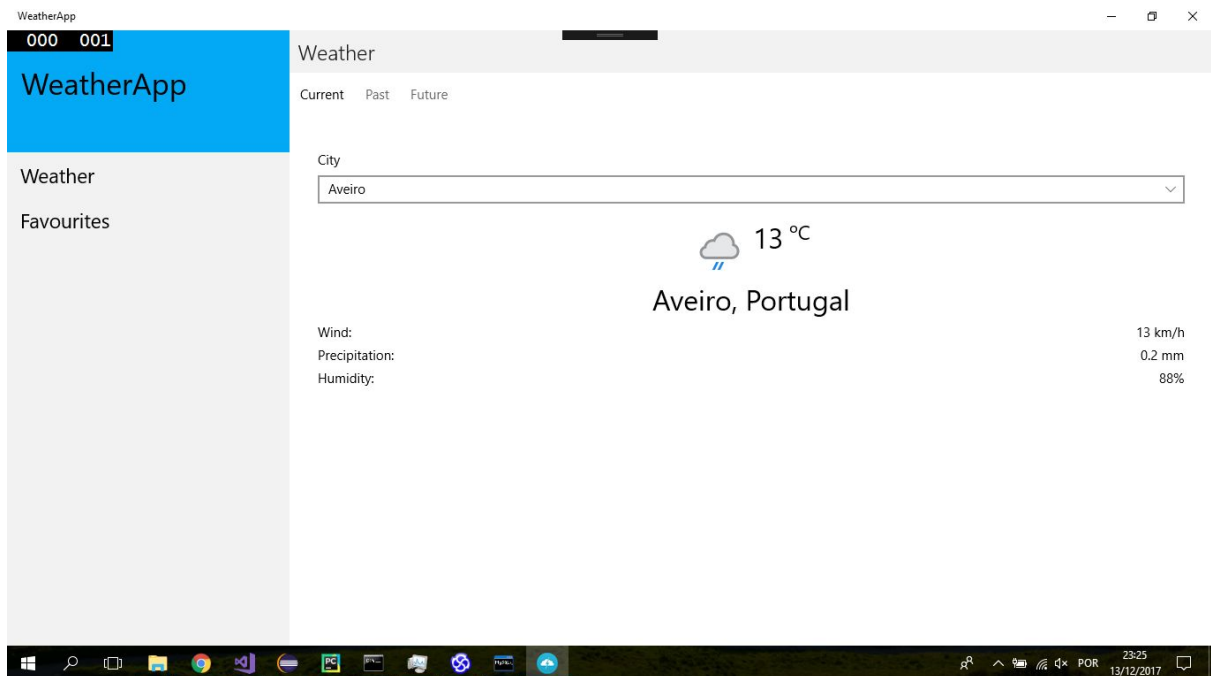
Testing

The only tests performed were usability tests. Specifically, we compared the weather's data between Apixu (via browser) and the received data in both tested platforms (Android, UWP). Also, we tested the flow of the pages, mainly between tabbed navigation and using of *MasterDetail*, aswell as the modal page used for editing favourite cities; the design uniformization between platforms was also assured.
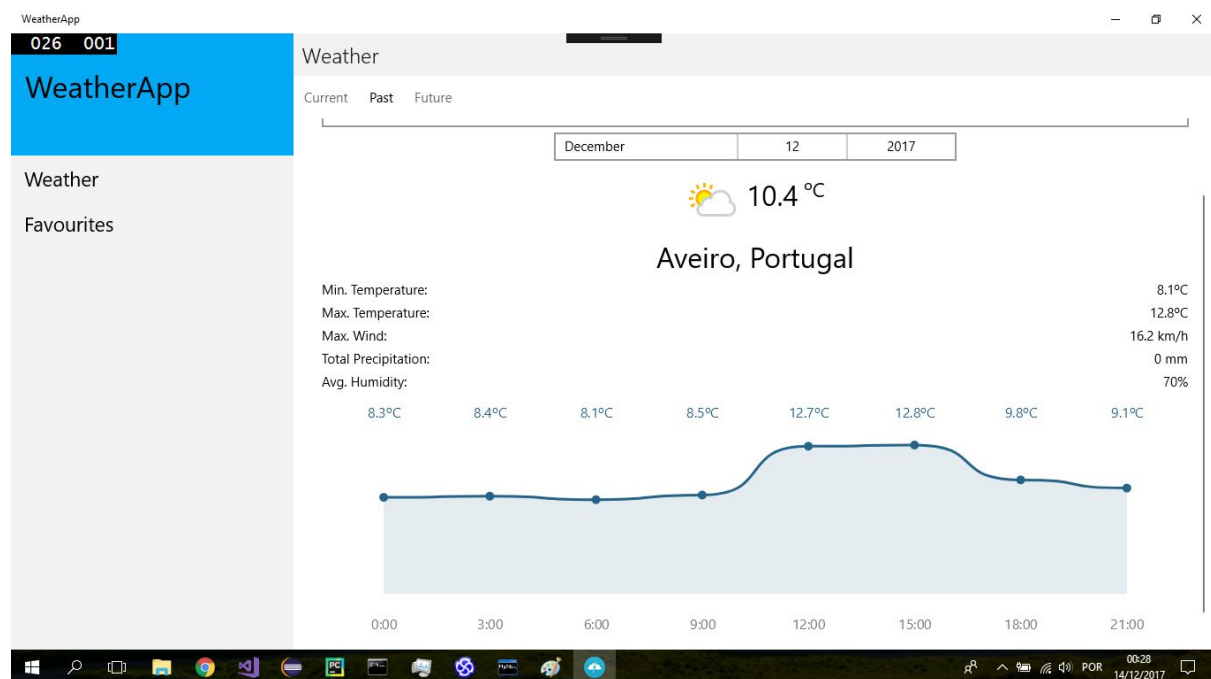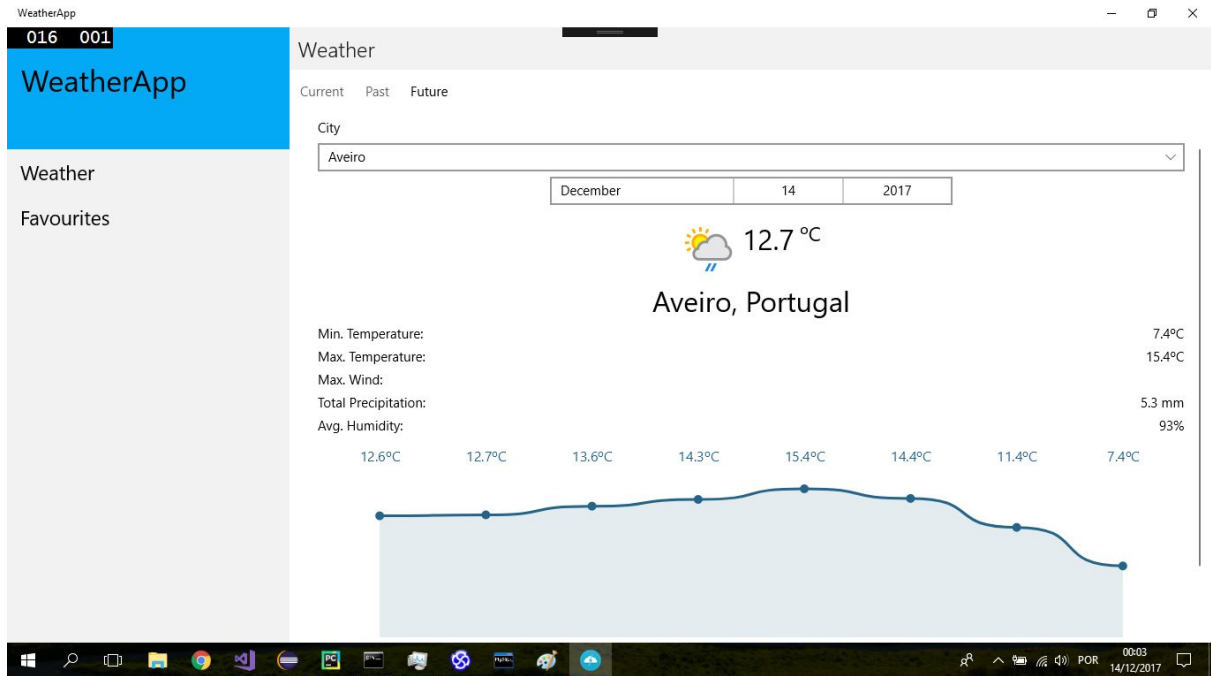
Using Guide

UWP

1 - Tabs where the user can choose if he wants to see current, past or future weather

2 - Dropdown to choose which city to check its weather

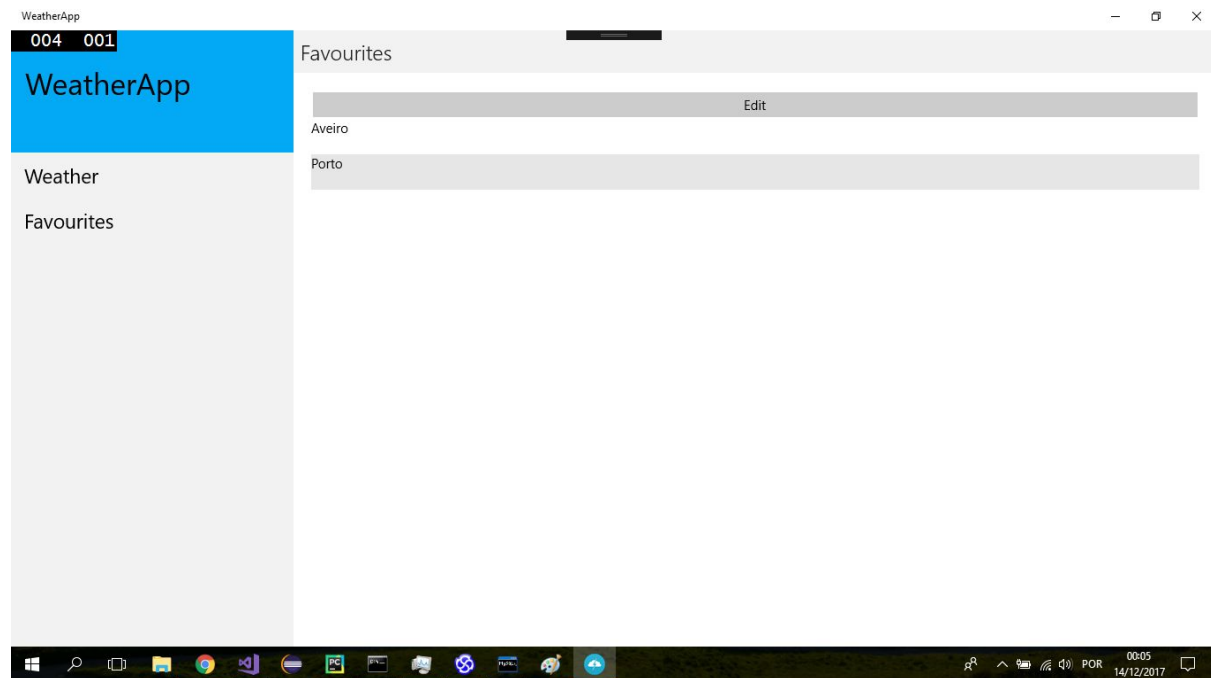3 - Button to the page where the user can manage its favorite cities

In the Current Weather tab after selecting a City from the favorites dropdown, the user gets the information about the current weather.
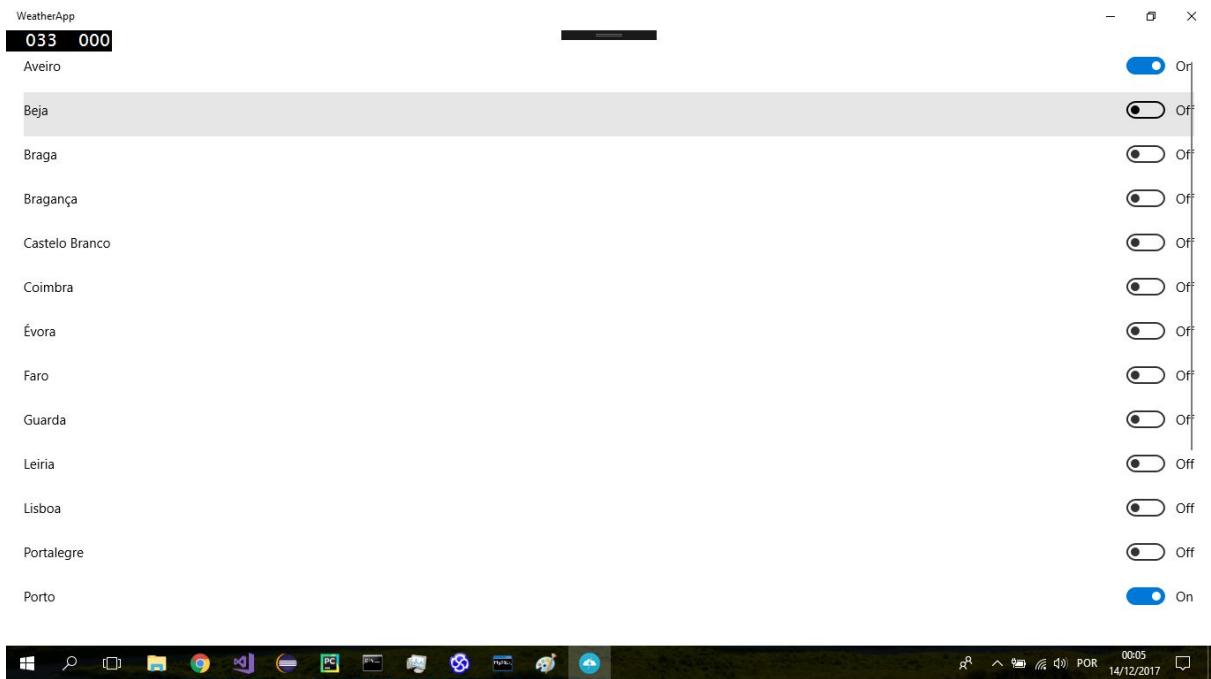

In the past weather tab after choosing a city and the date(date is limited to the 30 previous days) the user gets to see the weather for that day and a graph with the variation of the temperatures.

In the Future weather tab, after choosing a city and the date (limited to the 10 next days), the user gets to see the weather for that day and a graph with the variation of the temperatures.
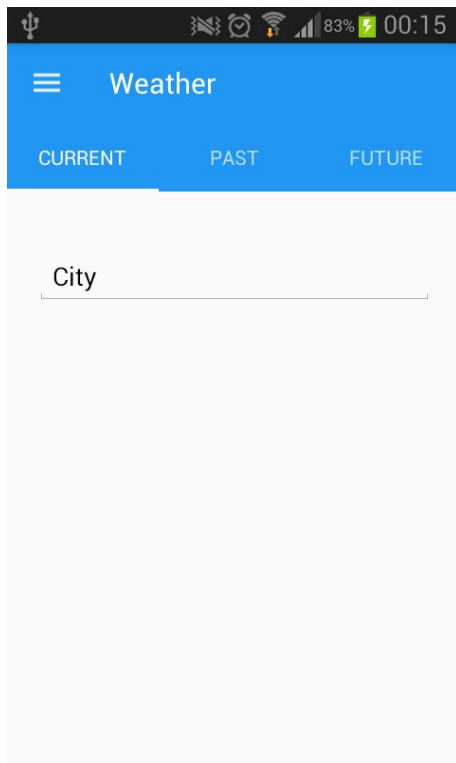

By clicking the favorites, the user can choose which cities to track.

The cities which are on are the favorites tracked the ones with off are the ones not favorites
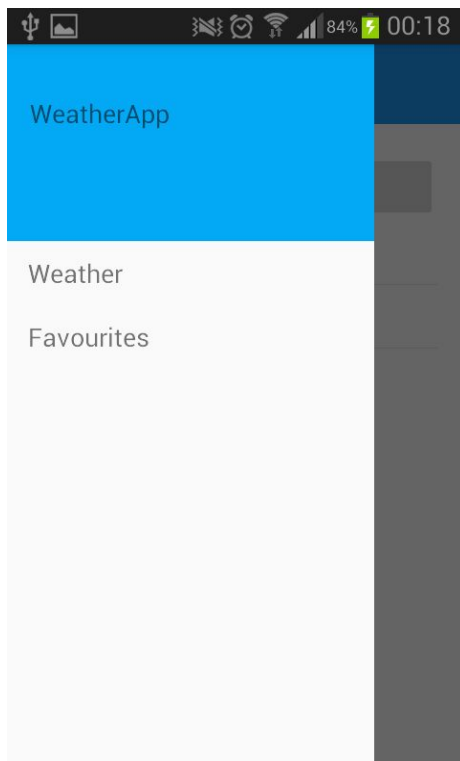
Android:

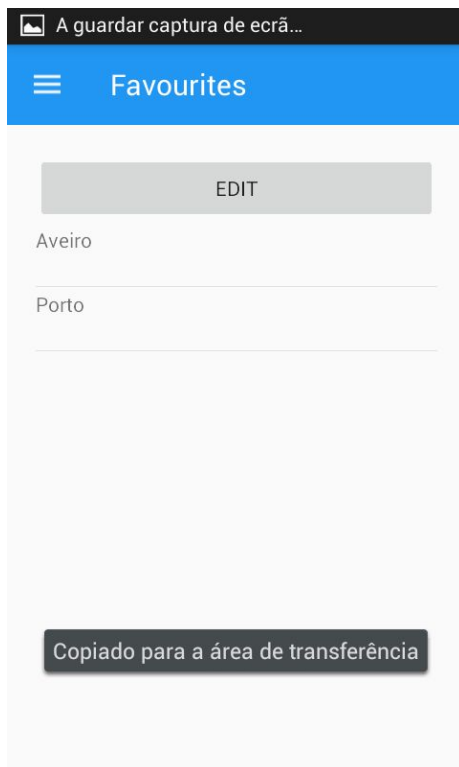Initial page of current Weather waiting to select a city to check the weather

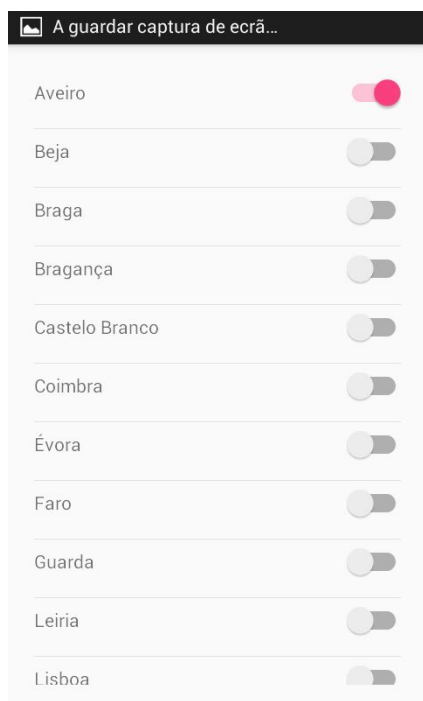After the user selects a city the related information appears

In the past weather tab, after choosing a city and the date (limited to the 30 previous days), the user gets to see the weather for that day and a graph with the variation of the temperatures.

By pressing the navigation menu button the user can access the favorites selection.

The favorites selection can be changed by pressing the edit button.

List of all the cities change to on to add to favorites and press finished at the bottom to save