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 the list.

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

Another feature is that 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), and should obtain in a separate page at least min and max temperatures, max wind, sunset and sunrise and average humidity. In a section of that page a line graph should be drawn linking the temperature at 3h intervals along the day (0h00, 3h00, 6h00, 9h00, 12h00, 15h00, 18h00, 21h00). Also, a small image, characterizing the conditions for each of those hours, can optionally be shown near each of the 8 mains points of the graph.

You can add any features to this minimum specification.

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://www.apixu.com/

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

After a free subscription, you are entitled to 5000 requests per month with a supplied api key.

To obtain the current conditions in JSON format you can use the REST call:

http://api.apixu.com/v1/current.json?key=<api_key>&q=Porto

with a response similar to:


```
{"location":{"name":"Porto","region":"Porto","country":"Portugal","lat":41.15,"lon":
-8.62,"tz_id":"Europe/Lisbon","localtime_epoch":1510828365,"localtime":
"2017-11-16 10:32"},"current":{"last_updated_epoch":1510827306,"last_updated":"2017-11-16
10:15","temp_c":14.0,"temp_f":57.2,"is_day":1,"condition":{"text":"Sunny","icon":
"//cdn.apixu.com/weather/64x64/day/113.png","code":1000},"wind_mph":5.6,"wind_kph":9.0,
"wind_degree":110,"wind_dir":"ESE","pressure_mb":1021.0,"pressure_in":30.6,"precip_mm":0.0
,"precip_in":0.0,"humidity":55,"cloud":0,"feelslike_c":13.6,"feelslike_f":56.4,"vis_km":
10.0,"vis_miles":6.0}}
```


It is also possible to obtain weather conditions in a past day, for every hour, with a call like:

http://api.apixu.com/v1/history.json?key=<api_key>&q=Viseu&dt=2017-10-31

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

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 Xamarin and the interface should be designed in Xamarin.Forms and tested in at least **two** different platforms of your choice. For the graph you should use SkiaSharp in Xamarin.Forms.

3. Report

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