ASSIGNMENT-2 REPORT

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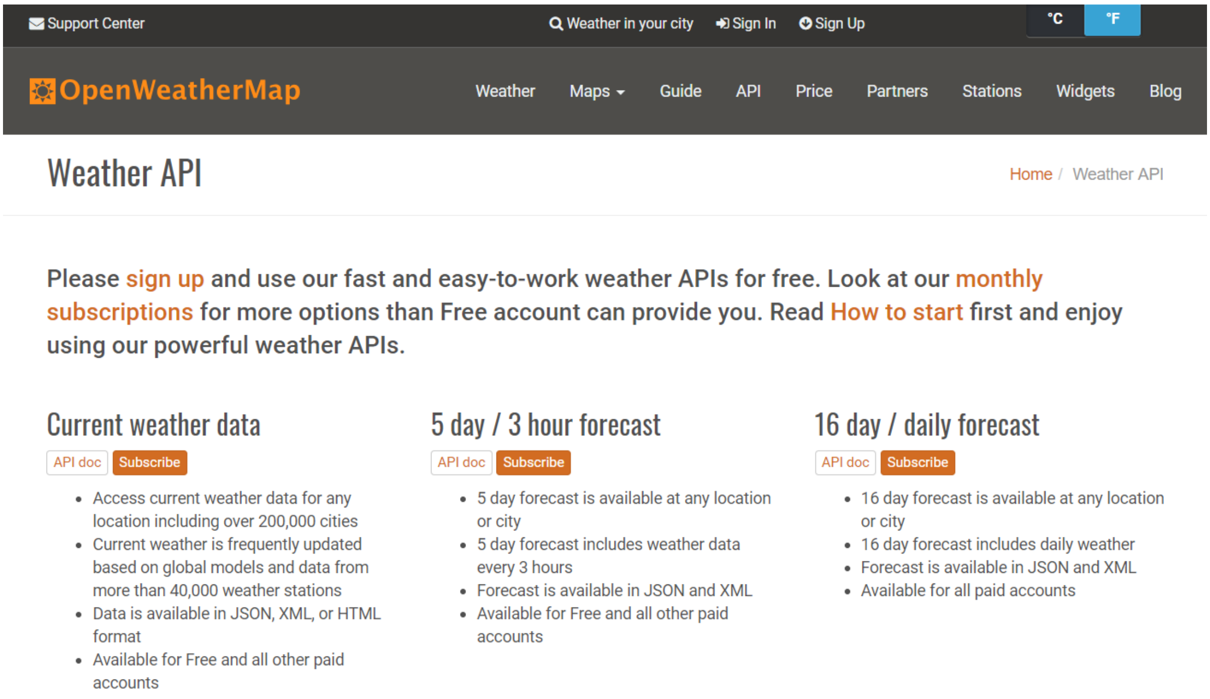
Course: CSCI-5708

Overview

The main objective of this assignment is to create a weather application to display weather information of a city. The application uses “openweathermap” API to collect real time weather data. A HTTP GET request is send to an URL by appending a unique API key and city name in it. Here, I have used Volley sending the request to the API. Then, JSON response is obtained based on the name of the city and it is parsed to show the list of results.



Weather API

Please sign up and use our fast and easy-to-work weather APIs for free. Look at our monthly subscriptions for more options than Free account can provide you. Read How to start first and enjoy using our powerful weather APIs.

Current weather data

- Access current weather data for any location including over 200,000 cities
- Current weather is frequently updated based on global models and data from more than 40,000 weather stations
- Data is available in JSON, XML, or HTML format
- Available for Free and all other paid accounts

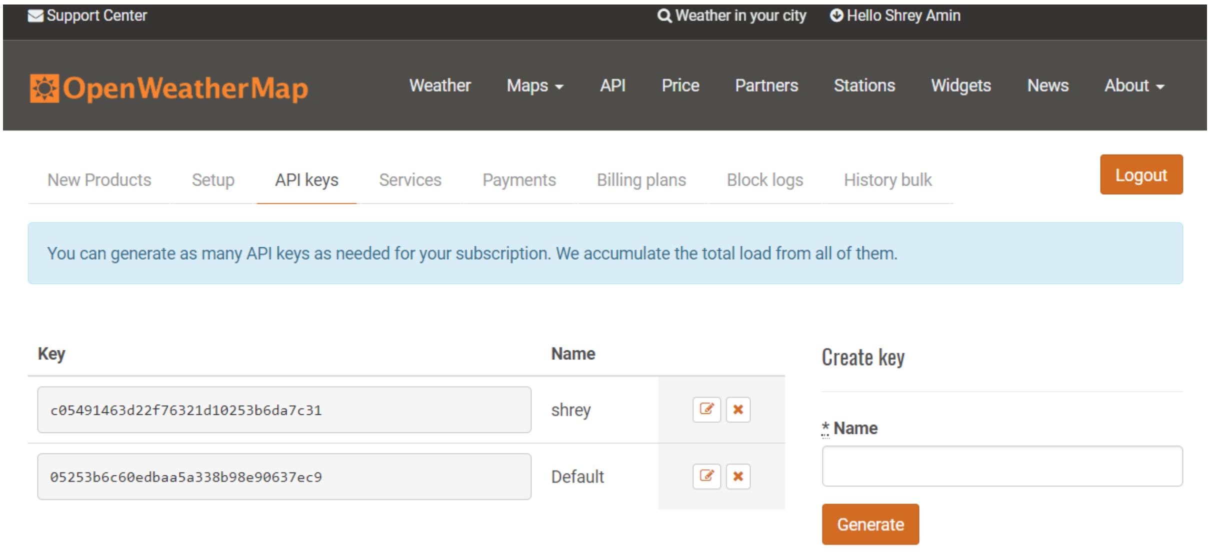
5 day / 3 hour forecast

- 5 day forecast is available at any location or city
- 5 day forecast includes weather data every 3 hours
- Forecast is available in JSON and XML
- Available for Free and all other paid accounts

16 day / daily forecast

- 16 day forecast is available at any location or city
- 16 day forecast includes daily weather
- Forecast is available in JSON and XML
- Available for all paid accounts

Figure 1 openweathermap API



You can generate as many API keys as needed for your subscription. We accumulate the total load from all of them.

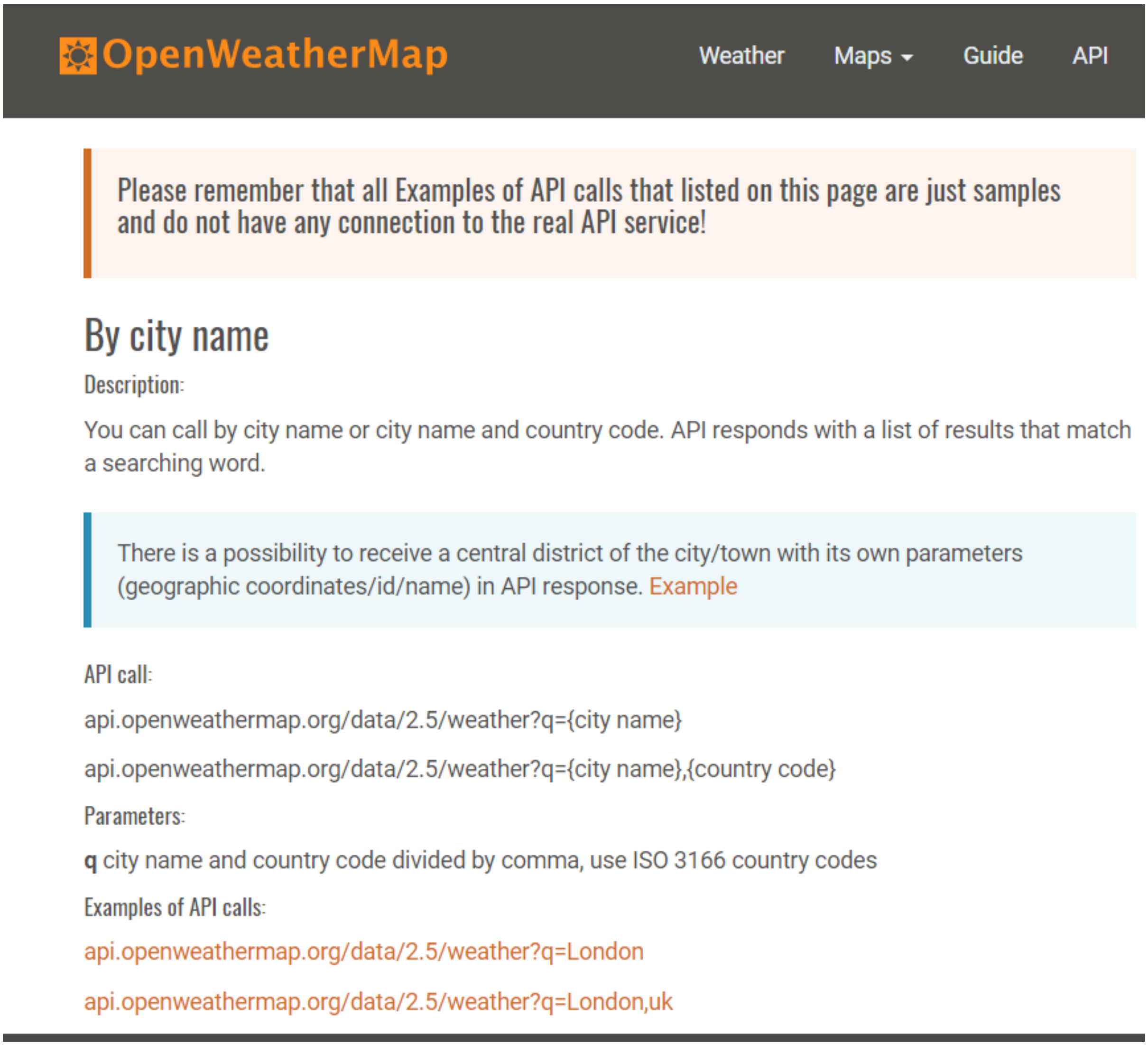
Key	Name
c05491463d22f76321d10253b6da7c31	shrey
05253b6c60edbaa5a338b98e90637ec9	Default

Create key

* Name

Figure 2 API Key

The call to API is made by passing city name (e.g. Halifax) and API key as the parameters. Following figure shows how call the API. Here I have made use of current weather data API which gives response in JSON format.



Please remember that all Examples of API calls that listed on this page are just samples and do not have any connection to the real API service!

By city name

Description:

You can call by city name or city name and country code. API responds with a list of results that match a searching word.

There is a possibility to receive a central district of the city/town with its own parameters (geographic coordinates/id/name) in API response. Example

API call:

api.openweathermap.org/data/2.5/weather?q={city name}

api.openweathermap.org/data/2.5/weather?q={city name},{country code}

Parameters:

q city name and country code divided by comma, use ISO 3166 country codes

Examples of API calls:

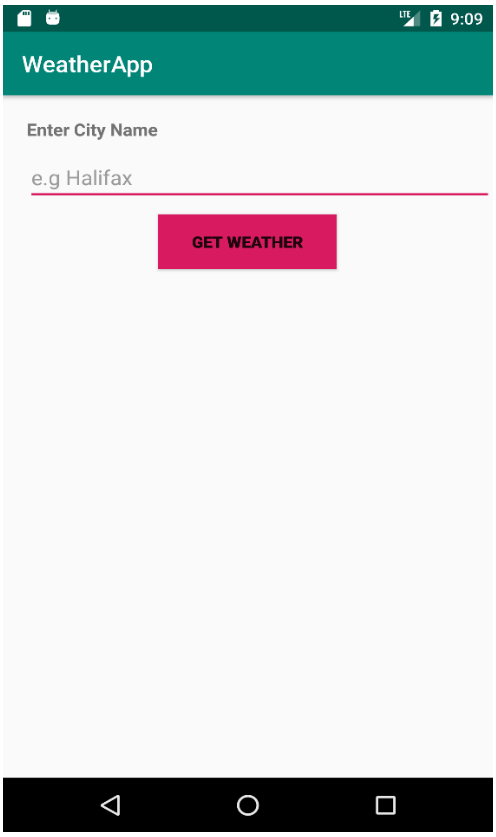
api.openweathermap.org/data/2.5/weather?q=London

api.openweathermap.org/data/2.5/weather?q=London,uk

Figure 3 How make API call

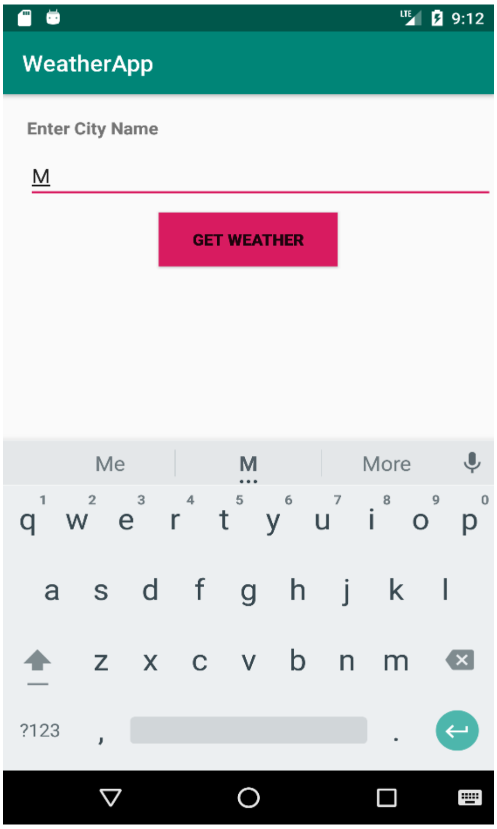
Implementation

User interface is designed based on the wireframe provided in the assignment description. A Function **getWeather()** is called when “GET WEATHER” button is clicked. This function will call the API and return the response in form of JSON object. This object is parsed by creating objects and arrays of “JSONObject” class. Details of different attributes like city name, humidity, clouds etc are collected by parsing the response obtained from API. Further, temperature values obtained in Kelvin are converted into Celsius.



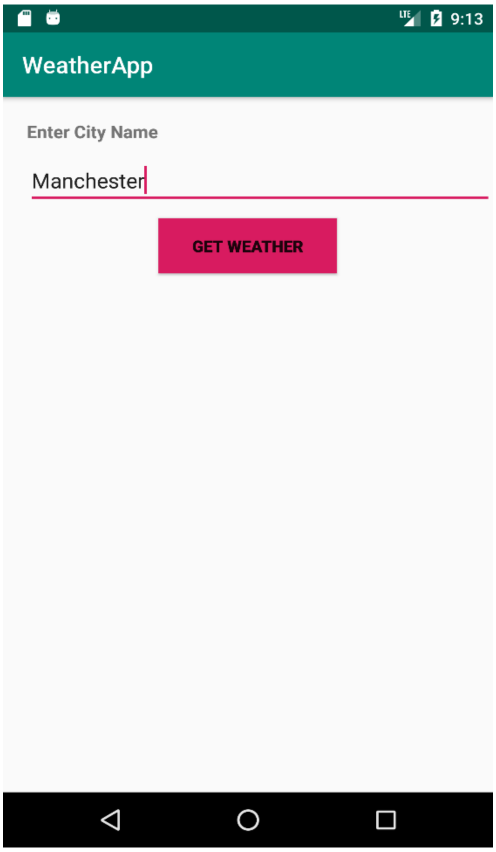
Enter City Name

e.g Halifax



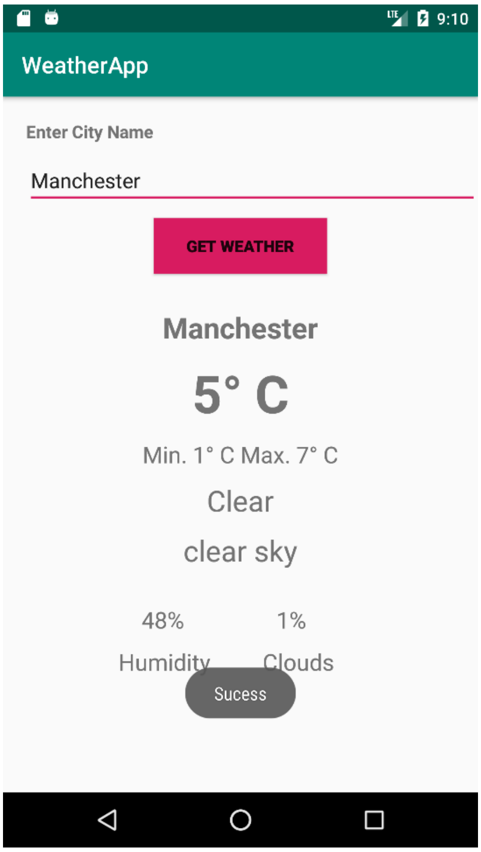
Enter City Name

M



Enter City Name

Manchester



Enter City Name

Manchester

Manchester

5° C

Min. 1° C Max. 7° C

Clear

clear sky

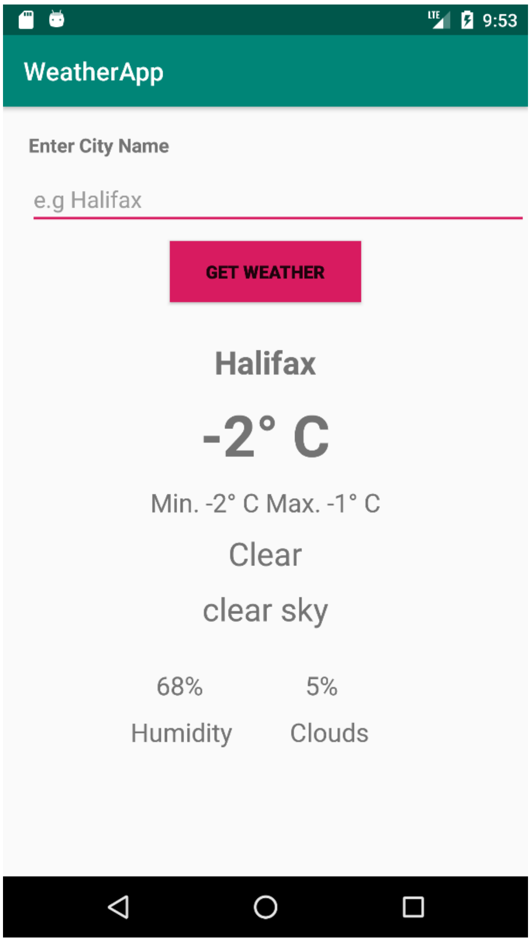
48% Humidity

1% Clouds

Sucess

Application Testing

Test cases helps in determining the problems and check whether the application is running in the correct manner or not. In my application, if the user clicks the “GET WEATHER” button without entering the city name then by default weather data of Halifax will be displayed. Additionally, if user enters any invalid city name then error message will popup. Moreover, the application is tested on various cities across the world and it generated the correct output.



Halifax

-2° C

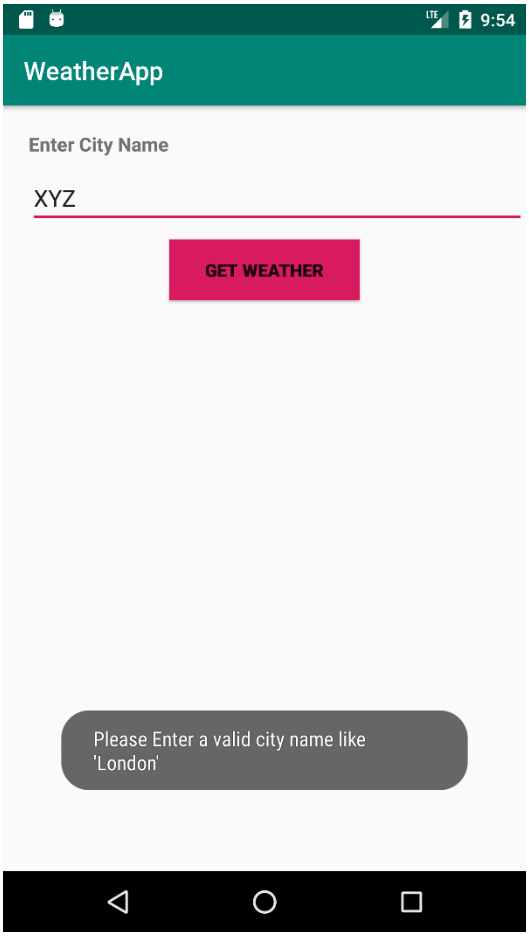
Min. -2° C Max. -1° C

Clear

clear sky

68%

5%



XYZ

Please Enter a valid city name like 'London'

Heuristic Evaluation

Visibility of system status

As per this principle user should know what is happening in the system by providing an appropriate feedback. In this application, hint of the city name (e.g. Halifax) will notify user about entering a valid city name. Additionally, when user clicks the button then weather data will be displayed on the screen. Moreover, toast message of "Success" will let user know that correct response is received.

Aesthetic and Minimalist Design

User interface and User experience is a vital aspect for every application. The layout of this application is simple that shows all the necessary weather information of any city. The content displayed is easily readable which allows the user to smoothly use the application.

Help users recognize, diagnose, and recover from errors

System should detect errors and display an error message which is easy to understand. Here, if user enters an invalid city name then error message "Please enter a valid city name like London" will be shown. Thus, this application will help users recovering from errors and prevent them from making similar mistakes in future.

References

[1] "Get Weather data from Weather API using JSON Parsing in Android Studio", *YouTube*, 2017. [Online]. Available: https://www.youtube.com/watch?v=8-7Ip6xum6E.

[2] S. Duggirala, "10 Usability Heuristics with Examples", *Prototypr*, 2016. [Online]. Available: https://blog.prototypr.io/10-usability-heuristics-with-examples-4a81ada920c.