

Documentation of Project: Client for OpenWeatherMap API IPK 2018/2019

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1. The task:

1.1 Was to create a program - an Open Weather Map interface client that will be able to retrieve selected information from a data source via HTTP queries.

2. Solution/implementation:

2.2 In the first place I needed to get information about how HTTP communication works in python and how to implement it. I found out about library called 'socket'. I used it to establish a connection between the Client (Me) and the Host (OpenWeatherMap API). The socket function uses the IP address of Host and the Port number (80 for HTTP) to establish a connection. After establishing the connection, we can send requests and also receive them.

2.3 As a request I created a 'string' that requests data from API server, using variable 'CITY' as a city that we are trying to find and a 'key' which is our API-key. The answer from request comes as a server response, containing JSON code. I separated the JSON code and made it to be a 'dictionary' so I can work with its values.

2.4 In the JSON dictionary I just found the correct values which were needed using `variable = str(JSON_data['main']['temp'])`. Where temp(temperature) is the part of dictionary contained in main which is also a part of dictionary. I also casted it to string because it was easier to print out that way.

2.5 At the end I handled errors using 'try' and 'except' and also some of the HTTP error codes (400, 401...) using if statements.

3. How to run:

3.1 To make the program run you need a correct make file. Then use command:

```
make run api_key=<insert API key> city="<insert CITY>"
```

3.2 To get your own API key you need to register on https://home.openweathermap.org/users/sign_up. After sign up you will receive an email that will contain your own personal API key, that you can use for this program.

3.3 Example:

```
make run api_key=99dec1d1e5eabd823f18564879a45448 city="nove zamky"
Nove Zamky
clear sky
temp: 12.42°C
humidity: 51%
pressure: 1005 hPa
wind-speed: 9.3 km/h
wind-deg: 200
```