Lab Python n°3

Ce lab a pour but de capitaliser sur tout ce que nous avons vu ces derniers jours et nous profiterons de l'occasion pour visiter une des dernières tendances du monde de l'informatique et des donées : Les API (Application Programming Interface).

Beginner Level :

1. Openweathermap.org

Openweathermap.org is an internet site that allows to its subscribers to access real time weather data. In this lab, we are going to use it to build a python program that, given a city name, will show us the weather there.

First things first, go to https://openweathermap.org and sign up for an account.

Once it's done, sign in and go to your account. In the tab "API keys", you'll find a key: copy it, you'll need later to receive the weather data.

2. Investigate the API docs

According to good practices, all API's have a documentation that informs their user of the syntax of the network calls they accept.

So visit the openweathermap.org documentation to discover the correct syntax of the internet address to use to uncover the weather situation in a certain location.

Per example: What is the correct syntax to fetch the weather in Paris?

3. Requests Get calls

Openweathermap.org API key needs 10 minute to be activated. So, while waiting for that, go for the requests python library documentation and understand how you can make internet call through it.

Try to make a call to a site of your choice and show the response that you got.

4. API calls and JSON Objects

Once the previous steps completed, make your API call using your API key to a city of your choice.

What kind of data did you get?
How can you optimally exploit these data?
What's the content of these data that you can show about the given city?

Advanced Level :

5. The weather class:

Now that you discovered the environment that you'll be using to build your python app, it's time to start coding.

Write a class weather that takes an API key as argument and contains the following methods:

- Get_City_Weather: a method that takes a city name as argument, makes a request to the openweathermap.org then return the json object received as response to the request you made.
- Show_Data: a method that takes a JSON object and prints clearly the data contained in it. As the API of openweathermap.org returns a lot of data from different kinds, choose as you want the ones you'll show to the user (temperature, wind, humidity, …)

6. Run the app:

It's time to test the app.

Complete your python script to show the actual weather in Tunis using the implemented weather class.

Bonus Level :

1. Getting user input from the command line

Let's make the application easier to use.
Rather than having to change the app code if we want to change the city that we want to know more about its weather, let's make the script take the target city name from the command line.

```
python your_script.py city_name
```

In order to do this, you'll have to use the 'sys' library which documentation is at https://docs.python.org/2/library/sys.html.

2. From a script to a job

Complete your python code so the app will runs indefinitely once launched, showing the weather data of a city each 10 seconds. The app will stop only if the user sends a SIGINT (interrupt signal) with CTRL+C with keyboard.

Now your python app has become a Job that can run forever and ever …. If you catch all the exceptions that it may raise.