PYTHON PROJECT

FIRST TASK DESCRIPTION

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We decided to extract the data from #project1 "Free Weather API" and to do so we proceeded in the following way, summarized in 2 distinct phases:

1. Data extraction of the third part service (API), starting from the import of the "requests" library.
2. Data processing by importing the "Json" and "Pandas" libraries.

Step 1

Immagine che contiene testo

Descrizione generata automaticamente

After importing the "requests" library, we set 3 different lists, one containing the names of the cities as strings, the second containing the latitude of the pre-inserted cities, and the last containing the longitude. Then we set a for loop that scanned a range from 0 to the length of one of the 3 lists (since the length of the 3 lists is always the same, that is 6 elements). Inside the url, at each loop, a unique value of city + latitude + longitude is associated. Inside the same for loop, once extracted the data from the site, a unique json file for each city was created, where these data were written.

Step 2

Immagine che contiene testo

Descrizione generata automaticamente

In order to create the data frame and the excel file we had to import the "Json" and "Pandas" libraries. As a first step we associated 6 variables with the names of the cities to 6 different empty lists, and then inserted all these variables inside a new list (called “lists”), creating basically a list of empty lists.

We then set up another “for” loop that would scan the values between 0 and the length of "lists" (6 loops). At each loop we decided to open the file corresponding to the city, retrieving the data related to temperature, humidity, apparent temperature, pressure, precipitation and time, associating them to six different variables (respectively “a”, “b”, “d”, “e”, “f”, “c”).

Inside this “for” loop we have then inserted another “for” loop, in order to scan all the elements of the json file, for a total of 168 cycles each file. In this last “for” loop, we have created a list composed of 7 elements: "city name" + "time" + "temperature" + "relative humidity" + “apparent temperature” + “pressure” + “precipitation”, inserted inside the lists corresponding to the city, which, in turn, is contained in the "lists" list.

Outside the previous loops, we then inserted a new for loop that would take each element inside "lists" and concatenate it with the next list.

Finally, we created the related data frame, inserted the column names and then converted everything into the corresponding .csv file. In total we obtained 1008 weather forecasts for both temperature, humidity, apparent temperature, pressure, precipitation for 6 different cities (Rome, Berlin, Madrid, Athens, Paris, London).