Below you will find the recruitment task that we have prepared for you. We leave a lot of things to your decision in it. Should you use pandas or numpy? Create classes or functions? Keep everything in one module or break into multiple files? We want to see how you approach the task. Show us what you can do but mind the requirements!

Have we not provided the information you require? Missing a key requirement? Let's do this: make your own decision and then let us know what was missing, what requirements were unclear, but also describe how you decided to solve it, what assumptions you made and why you think that your decision is a good fit for the problem.

Do you have some free time? Great! At the end of the task there is an extra functionality to implement. Don't have time? It’s ok, show us the basic solution, no one will judge You - we know how scarce a commodity is free time. If you want, you can shortly describe what else you would implement to make the solution feel complete to you.

Note:

We take copyright very seriously. No part of your code will ever be used by us without your consent.

Technical requirements:

- The entire solution must be written in Python3.8.
- Describe (preferably within a README file) at least how to execute your code so that we can verify its correctness. You can also add here any information that according to You should be included in a good README.
- Use git repository for the entire development process. At the end, simply send us Your repo packed into a zip (together with .git folder).

Business case:

An international client conducts marketing activities in multiple markets around the globe. Each market reports the costs of their activities in local currency to a central data warehouse based on Google BigQuery. The client would like to create a new management report for internal purposes, in which all costs will be in one currency - EUR. To do this, he needs data on exchange rates in data warehouse and he commissioned us to prepare the ETL process.

Stage 1 – Extract

For each of the markets, the client may wish to use exchange rates from a specific source. At the moment, several markets use the FreeCurrencyAPI rates, and the rest use the rates of the European Central Bank. More data sources may emerge in the future so we must be able to recognize in data warehouse which data comes from a specific source.

Stage 2 – Transform

In the absence of exchange rate data for a specific day (e.g. weekend), supplement such day with the exchange rate from the previous available day. We must be able to retrieve ratio from data warehouse for every single day. Also, base reporting currency may change from EUR to any other currency.

Stage 3 – Load

Downloaded and processed data should be uploaded to BigQuery (if you cannot connect to BigQuery, please select any other database). At any time, the data in the warehouse must be complete (no missing days), consistent (the warehouse and source data must be identical) and there must not be any duplicate rows.

Your task:

Please create a code that will download data on exchange rates from specified sources, transform it in the described way and then upload it to data warehouse solution while maintaining compliance with the provided requirements. Assume that the prepared solution will run every day at 6 am and should ensure that the data for today and the previous 7 days, stored in data warehouse, meet the above requirements.

Stage 4* – API (additional task)

After the introduction of new reporting, the client's foreign branches want to use the collected data on exchange rates in their internal processes. To maintain consistency in settlements with the head office, they must use the data collected in the central warehouse.

Implement a simple endpoint that those markets can use. Request should contain value (e.g. 250), currency (e.g. PLN), target currency (e.g. EUR), day of the exchange rate (e.g. 2022-06-23) and the name of the data source to be converted (e.g. ecb, freecurrency, etc.).
The response should contain the value from the request, converted to the appropriate currency. So, if 1 EUR costed 5 PLN on 2022-06-23, the answer should contain the number 50.

Code prepared in this stage, should be prepared to run as Google Cloud Function. Please structure it appropriately and submit an example *gcloud functions deploy* command with Your code, so that we can verify Your solution.