Data Engineering
Take Home

Cryptocurrencies Data Pipeline

For this exercise, you will need to build a data pipeline to retrieve cryptocurrencies market data and then use the retrieved data for analysis.

1. Using Apache Airflow, create a DAG that runs daily. This DAG should hit the Alpha Advantage API to retrieve the previous day's data from the *DIGITAL_CURRENCY_DAILY* endpoint and stores it in a local file.

   A call to the endpoint would look like this: https://www.alphavantage.co/query?function=DIGITAL_CURRENCY_DAILY&symbol=BTC&market=CNY&apikey=demo

   Data should be retrieved for a predefined list of currencies and markets(Check how to use Airflow variables).

   Once retrieved, the DAG must save the raw data partitioned by currency, market and day, as follows: **raw/currency=BTC/market=CNY/day=2018-11-16.**

2. Create Airflow DAG with a **sensor** that waits for the daily raw data, for a predefined list of currencies and markets, to be available and generate and stores a plot of the open and close prices for the last 30 days.

3. Create Airflow DAG with a **sensor** that waits for the daily raw data, for a predefined list of currencies and markets, to be available and then extracts and flattens the last day information and generates a **Parquet** file which is stored partitioned by day as follows: **daily_markets/day=2018-11-16.**

Submission:

- The submission will be done by email with the subject: DSD-2018-<firstname>-<lastname>.
- You must attach a tar.gz file with the source code and a README with the instructions to setup your project.
- Project Structure:

```
dds-2018-test/
  dags/
      <your-code-here>
  README.md
  requirements.txt  (if needed)
```

Recommendations:

1. The API's documentation is available here.
2. Use **requests** and **pandas** Python libraries for the different stages.
3. Check the Airflow's PythonOperator documentation, you might need it.
4. To generate the Parquet file, use Apache Arrow.
5. Use conda/virtualenv to improve my quality of life :P.
6. Dockerized projects are more than welcome!