Next Gate Tech | Test

October 2019

Case Study

The Next Gate Tech dashboard is the result of an entire development chain. The dashboard is a single access point for users displaying key metrics in an orderly fashion.

Next Gate Tech work with investment funds companies, and our main goal is to automate tasks in this industry.

Attached you'll find an anonymized data set (*ngt_software_engineer_test_example_data.csv*) which consists of pricing data for 1 Investment funds, consisting of 3 sub funds and 11 share classes.

Sub Fund	**Share Classes**				
1	A	B	C	D	
2	A	B	C	D	E
3	A	B			

This means that you have 11 instruments. 1A, 1B, 1C…

Task A: Back-end

Develop this part in Python

- Import the example dataset in a format that you are familiar with.
- Write a maximum of 3 data quality checks. Feel free to come up with your own suggestions of what you would find important in checking. Keep in mind, that we are exploring financial data.
- Calculate the correlations between the 11 instruments on the column NAV_Per_Share. Pay attention to missing data.
- Create a new project on Firebase.
- Set up the required python code and download the required packages to connect to Firebase in your python project. Hint: use the package firebase-admin.
- Export the key results (what you calculated above) of your data checks to Firebase.
- Configure the Firebase security rules such that the node to where you stored the data can only be Read but not Written.

Task B: Front-End

Develop this part using a front-end framework (Angular, AngularJS, React…) that you are familiar with

- Create a standard boiler template in HTML and connect your front-end framework.
- Connect the front-end to your Firebase project.
- Read in the results that you stored and display it on this page.

Task C: Cloud Functions

- Write and deploy a Google Cloud function that aggregates the data checks over a period.
    - Authenticate the project using a service-account. Read the docs for more details. We recommend as well that you use the package firebase-admin.
    - Use the following trigger condition: Firebase Realtime Database trigger.
- *If you have time left*: Integrate the aggregated results into your front-end dashboard.

When you are done

Deploy the code of your entire project (private) and add @SAIbisevic as a contributor on Github.

Please feel free to ask questions that you might encounter. This is important to us as we want to encourage an open environment where our colleagues share what they work on, communicate well, and are not afraid of asking questions.

Good luck!