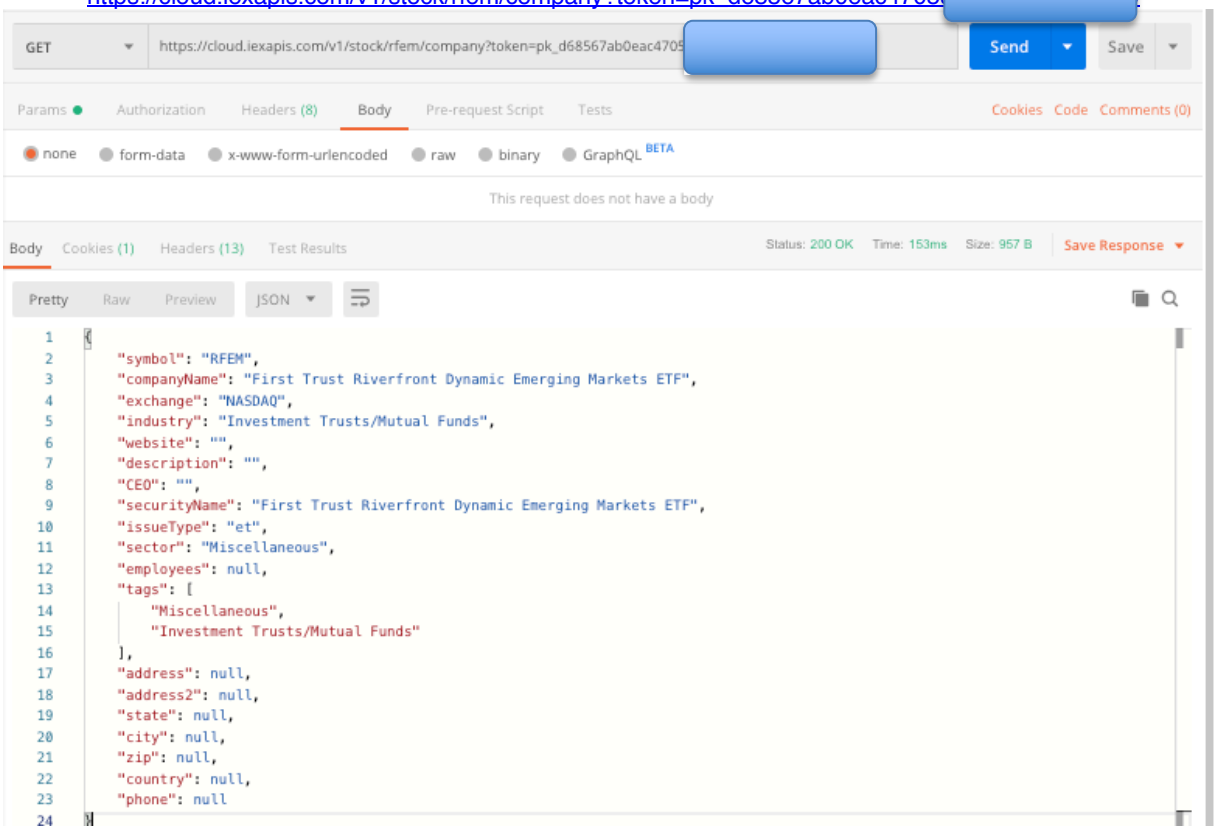
CPS 5301-02/4301-01 Software Engineering Final Project Fall 2019
Dr. Wai Tak Wong

Assigned: Oct 1, 2019
Due: before Dec. 9, 2019 11:59PM
Points: 100pts + 10pts extra

project should be **typed clearly**. Be prepared to present your answer.
Attention: Submitted with a zipped folder including source codes, design document, testing cases, project management historical records and presentation ppt.
Please use **Time New Roman font in size 12** for documents.

Project Sketch:

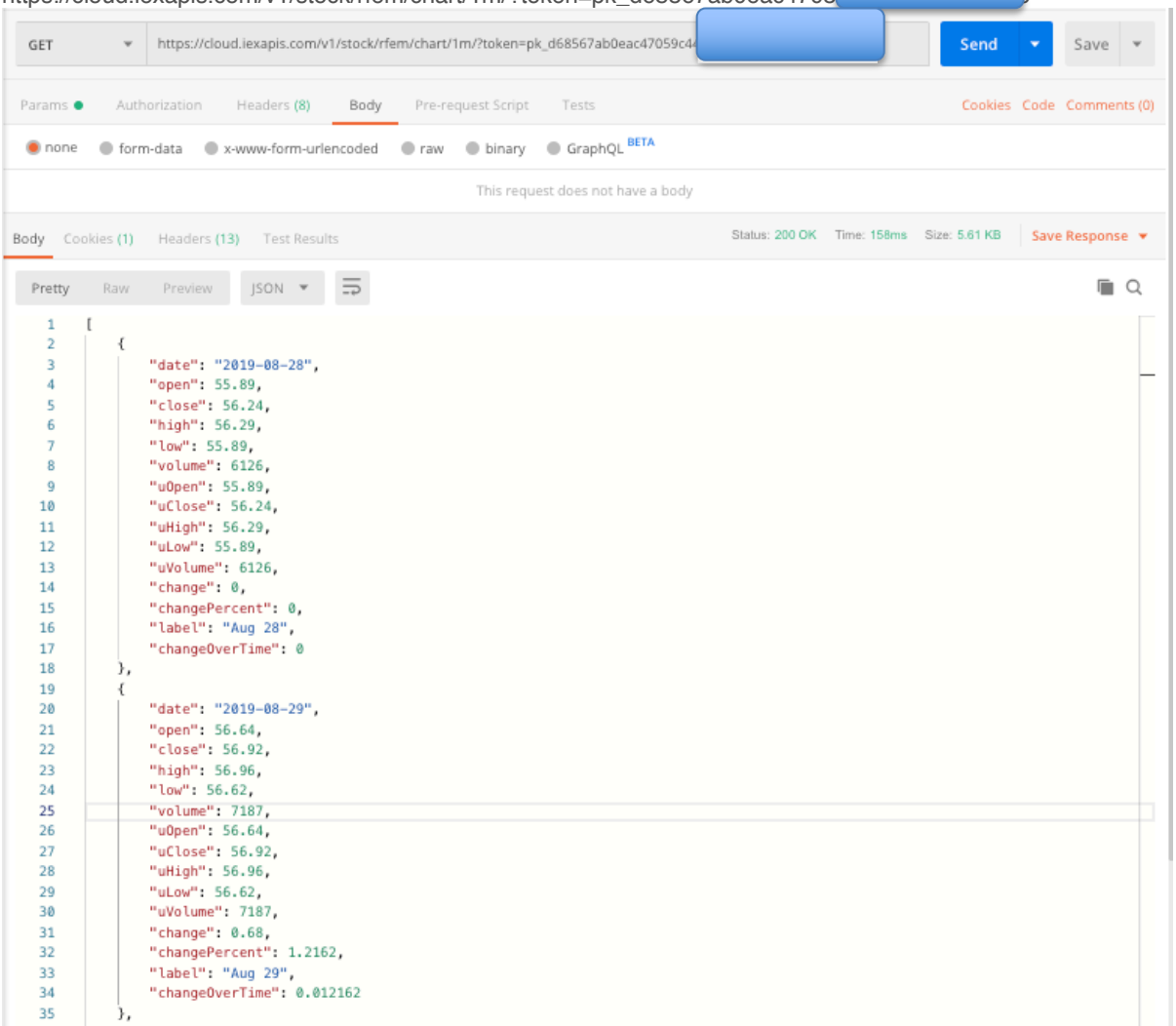
1) Understand IEX Cloud API (https://iexcloud.io/docs/api/) and register an account with your kean.edu email account.
2) Understand RESTful API, Http, Postman (https://www.getpostman.com/) or curl (https://curl.haxx.se/)
3) After registering your account from IEX Cloud API, you will be assigned a security token for your HTTP requests.
4) IEX provides company information for the given stock symbol. For example, **rfem** (if my token is pk_d68567ab0eac47059c4415f485f45106),
   HTTP REQUEST
   GET /stock/{symbol}/company
   https://cloud.iexapis.com/v1/stock/rfem/company?token=pk_d68567ab0eac4705



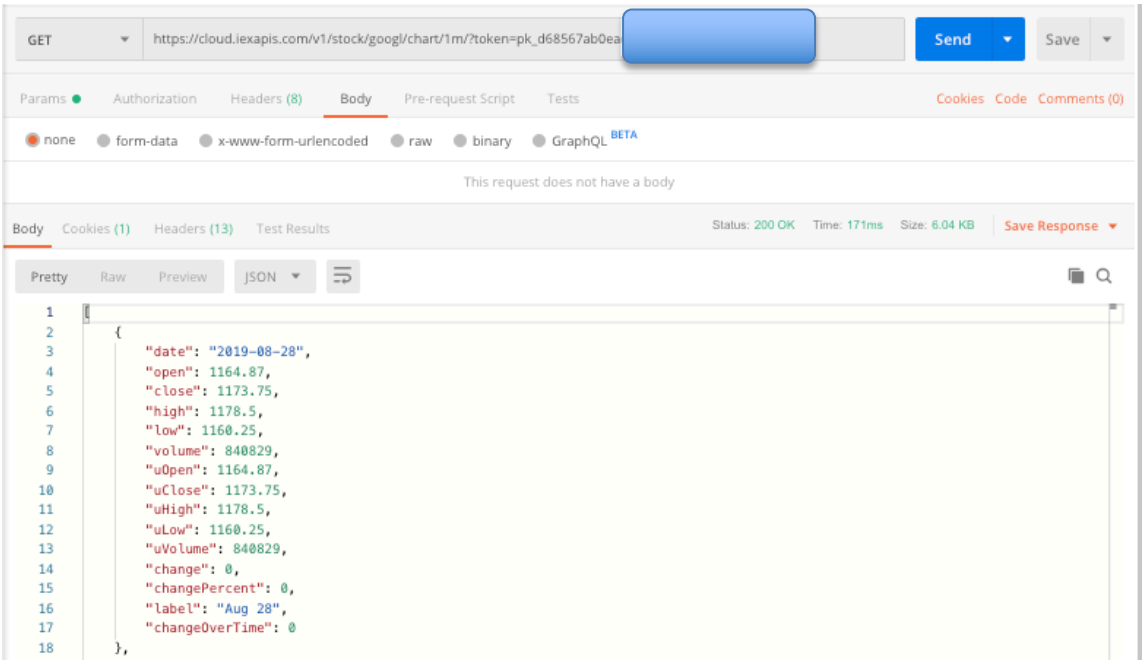
5) IEX also provides historical stock price information. We only deal with daily record. Historical Prices: Returns adjusted and unadjusted historical data. Use the Adjusted data only. HTTP Request GET

- `/stock/aapl/chart/5y`
- `/stock/aapl/chart/2y`
- `/stock/aapl/chart/1y`
- `/stock/aapl/chart/ytd`
- `/stock/aapl/chart/6m`
- `/stock/aapl/chart/3m`
- `/stock/aapl/chart/1m`
- `/stock/aapl/chart/date/20190220`

https://cloud.iexapis.com/v1/stock/rfem/chart/1m/?token=pk_d68567ab0eac4705



6) Get 5 years historical data for 3 stock symbols incuding “rfem” and two of your choices. For example, “googl” and “appl”. Store data into your favorite database engine only for the fields “date”, “open”, “close”, “high”, “low” and “volume”.



7) Provide a set of RESTful APIs to support (20pts)
    a. Report a 30 trading days price list (descending order from the running day) of the records with the fields “date”, “open”, close”, “high”, “low”, “volume”, “change”, “changePercent”, “changeOverTime”, “volumeChange”, “volumeChangePercent” and “volumeChangeOverTime”. Note that you need to compute all change related fields by yourself. (refer to IEX). (10pts)
    b. Report max price, min price, average price, mean price based on the user given date range (5pts)
    c. The company information for the selected stock (5pts)
8) Design your user interface to access the RESTful APIs (10pts). If your team can provide graphical user interface, do it (10pts). Otherwise, provide text based. (5pts)
9) Support the daily update process of data. Remind you that stock data may not get updated for every trading day or at the time when your retrieving process kicked off. (5pts)
10) Team selected two features for development (5%)
11) The documentation involved in your requirements engineering. (5pts)
12) The documentation involved in your system modeling. (5pts)
13) The documentation involved in your architectural design. (5pts)
14) The documentation involved in your software design and development. (5pts)
15) The documentation involved in your database design. (5pts)
16) Historical records involved in your team project management. (10pts)
17) The documentation involved in software testing you want to show (5pts)
18) Grading related to your personal responsibility, behavior, contribution to the team, performance… (15pts)
19) Provide advanced statistical feature or machine learning feature Extra credit (5 pts)
20) Provide additional charts for the selected data from 7a. Extra credit (5pts)

Reminder: IEX Cloud just provides limited size of data retrieval for free account. Each month will reset the usage. At least 4 students in a team. 4 accounts should be enough to use in order if you start earlier. Don’t waste the data quota. If a team has 5 members, a higher standard will be expected.