ManulifeMOVE Backend Coding Assignment

Version 1.1.0

Background

We are an online fashion store start-up, we have lot of user (anonymous) body data from our day to day sale. We are now going to dig into the value of those data, but sadly, we found that the original data is stored in CSV format. And yes, all the data. So now you are going to implement a service to save those data!

Requirements

Please implement one or more RESTful services, which allow CSV data to flow in and have a way to query the data out as JSON format.

Expected CSV data format

```
USER_NAME,AGE,HEIGHT,GENDER,SALE_AMOUNT,LAST_PURCHASE_DATE
John Doe,29,177,M,21312,2020-11-05T13:15:30Z
Jane Doe,32,187,f,5342,2019-12-05T13:15:30+08:00
…
```

APIs to implement

- `/sales/record`
  To receive the data in CSV format.
  Data validation is mandatory.
- `/sales/report`
  To query data with JSON format response.
  User should be able to query with date inputs (single date or date range).

Bonus points for extra efforts

1. Use of any popular server framework
2. Include unit tests and end-to-end tests to cover different use cases
3. You can assume the CSV data file is a very big file. e.g. 1GB or bigger
4. Implement data storage with in-memory or actual database
5. Additional service to trigger data feed in. Assuming there is an external endpoint that this service will call every hour, the external server will then call the /sales/record API with CSV data within 15s.
6. Deployment ready with tools. e.g. Docker setup

We are expecting

- Testable and readable code
- Proper use of version control systems
- Emphasize code re-usability and maintainability
- Easy to deploy, have a clear instruction on how to run it.
- Ensure the code adheres to a specific coding style to ensure uniformity
- You can choose any framework for the server and the way to store data

Code demonstration after submission

- There could be a code review after the assignment is submission
- Code demo by the candidate
- Code review and design decisions
- How to improve the program further if there was more time
- Deploying for production