Programming Assignment
(CS559: Computer Systems Design)

Instructions: This assignment can be done in pairs (group of 4 students). Each student in the group must understand the code and techniques used and be able to answer each question (don't divide the problems amongst yourselves). It is fine to use web-resources and help, provided you reference them and understand the code. Please don't copy blindly.

We will have viva or create Tierce exam questions which require knowledge of your implementation, so every member should understand the design thoroughly

Due Date:

[Stage 1] Jan 16, 2024 (End of day)

[Stage 2] Jan 31, 2024 (End of day)

[Stage 3] Feb 15, 2024 (End of day)

Submission: Submit your solution for each question as a Git-hub repo and provide us the URL for your service so we can test it using curl or an appropriate load generator. More detailed instructions will be posted on Canvas link by end of the week.

Introduction

Campus Delivery Services are an essential part of simplifying living in a residential campus. From groceries to pharmacy to your favorite dishes, we aim to make it easy for you.

Functional Requirements:

1. **User Registration:** Verification, Privileges, Profiles (CRUD)
2. **Catalogue:** Tags, CRUD
3. **Search**
4. **Orders**
5. **Deliveries**
6. **Payments**

Non-Functional Requirements:

1. The system should be highly available. This is required because, if our service is down, the whole campus will starve 😵
2. Order placements should happen with minimal latency.
3. Security and User privacy is essential

Extended Requirements:

1. Analytics
2. Our service should also be accessible through REST APIs by other services.

Implementation Details

Suggested Reading:

https://github.com/donnemartin/system-design-primer

This is provided as a reference. Feel free to modify it according to the needs of your specific service.

Grading Scheme

Jan 15 (first demo + design doc): 20%

Jan 31 (midterm demo + updated design): 30%

Feb 15 (final demo + final report): 50%