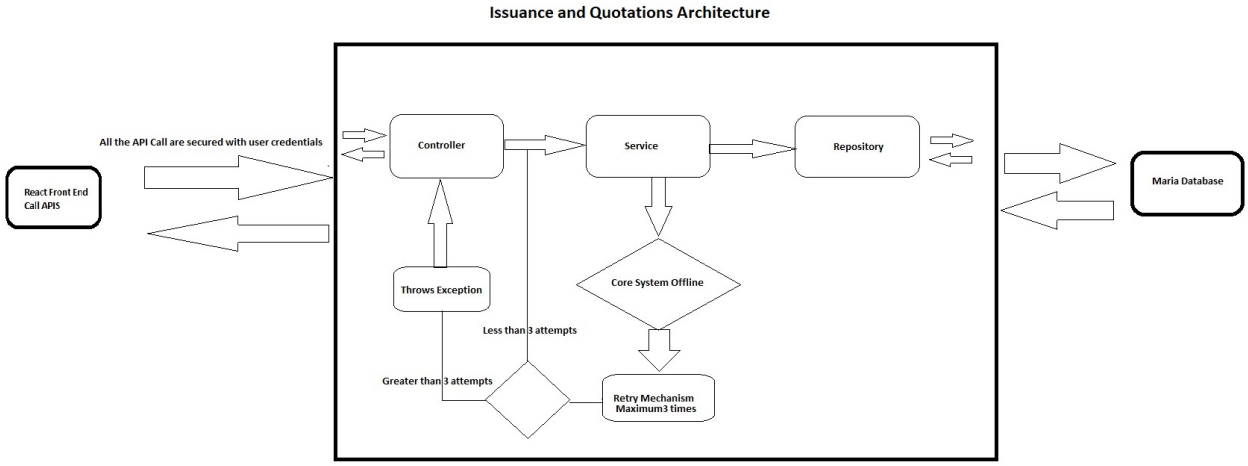
Zurich Assignment

Architecture of the Quotation & Issuance

1. Architecture:

Described the architecture of the Issuance and Quotation APIs in a visual format.

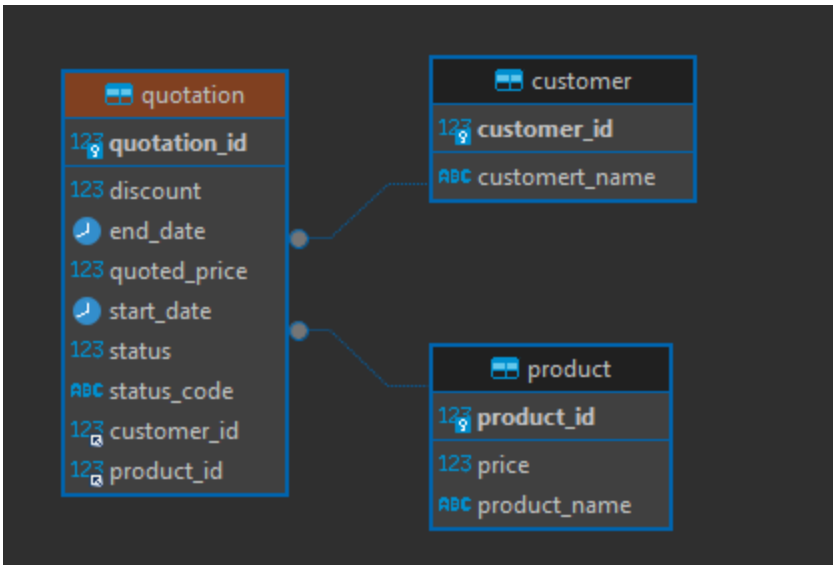


2. Description

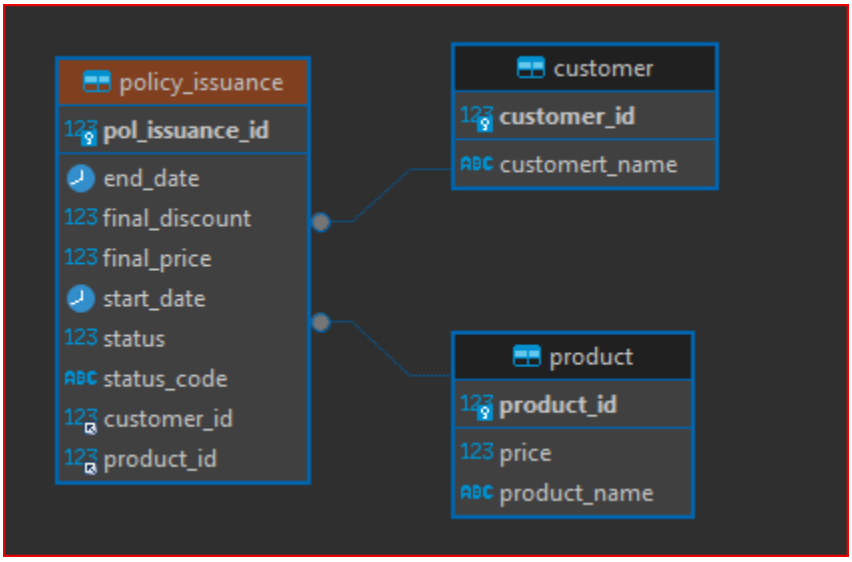
- Implemented these API's using "**Controller-Service-Repository**" Pattern:
  - **Controller**: It will Handle all HTTP requests and responses.
  - **Service**: Contain business logic.
  - **Repository**: Handle data persistence and retrieval.
- Each API is secured with Authentication
- In the Service Layer, a retry mechanism has been introduced, allowing each API to retry up to 3 times. If the API still fails after the 3rd attempt, an exception will be thrown.
- Additionally, a delay mechanism has been implemented in the Service Layer to accommodate core system execution delays.

3. Database ER Diagrams

- Quotation ER Diagram:



- Issuance ER Diagram:



4. Source code Management

- Committed the code to the Git repository, which can be accessed at: https://github.com/phani238/Issuance-Quotation
- I will attach the build file to the email for your reference.

Concerned from Zurich for the Quotation & Issuance API

1. Type of actions of the API

- **Quotation API**: Since the purpose of this API is to retrieve pricing information for an insurance product, the appropriate HTTP method used is GET.
- **Issuance API**: Since this API is used to issue a policy to the core system, the appropriate HTTP method used is POST.

2. How to name the API

- **Quotation API**: /api/v1/quotations
- **Issuance API**: /api/v1/issuance

3. How to version API when there is a breaking change?

- I have implemented URL versioning to manage API versions, as indicated in the JSON requests and responses:
  - http://localhost:8888/api/v1/issuance
  - http://localhost:8888/api/v1/quotations
- In the event of a breaking change, we can increment the version number and update the path accordingly (Ex: http://localhost:8888/api/v2/issuance , etc.)

4. Design pattern of API

- Implemented using "**Controller-Service-Repository**" Pattern
  - **Controller**: It will Handle all HTTP requests and responses.
  - **Service**: Contain business logic.
  - **Repository**: Handle data persistence and retrieval.

5. How should the JSON request and response look like? (Can please describe it in Open API Spec)

- Please find the attached JSON file, which contains all the requests and responses generated using Open API.

PolicyIssuance And Quotation.json

6. How the API should react when there is a validation error or system error?

- Utilized appropriate HTTP status codes for error handling:
  - 400 Bad Request: For validation errors.
  - 500 Internal Server Error: For system errors.

7. What happens when the core system is offline?

- Implemented a retry mechanism with exponential backoff for all Issuance and Quotation APIs.

- Each API will be retried up to 3 times. If the API still fails after the 3rd attempt, an exception will be thrown.
- For the Issuance API, a 2-minute delay has been implemented before execution, as the core system requires 2 minutes to process.