An-Najah National University

Faculty of Engineering

Computer Engineering Department

Distributed Operation Systems

Project part1

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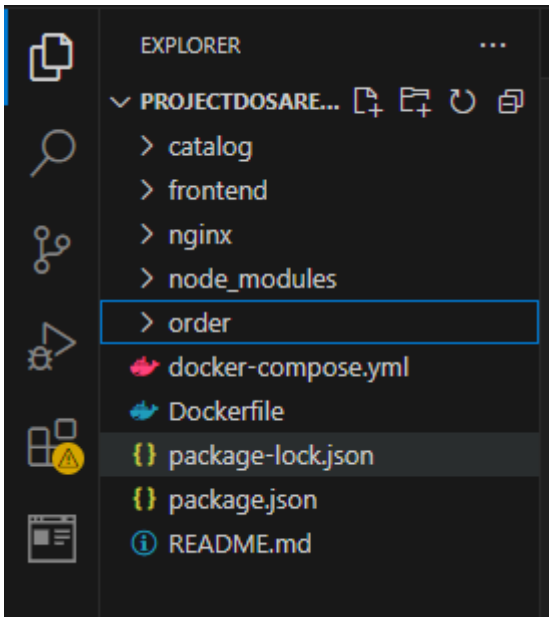
Introduction:

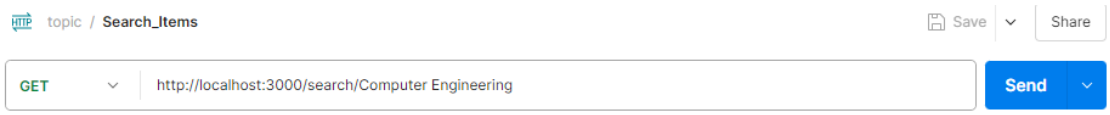
The files are divided in this way:



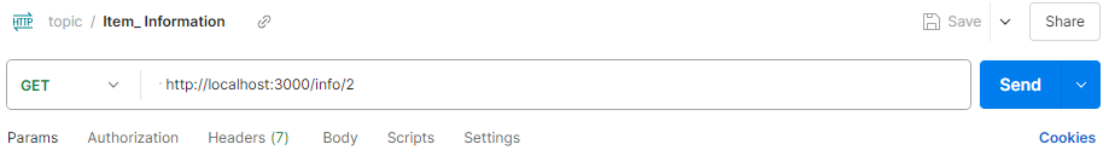
1) Fronted service:

This server has three operations:

1. Search: the catalog server receives the request and returns the item.

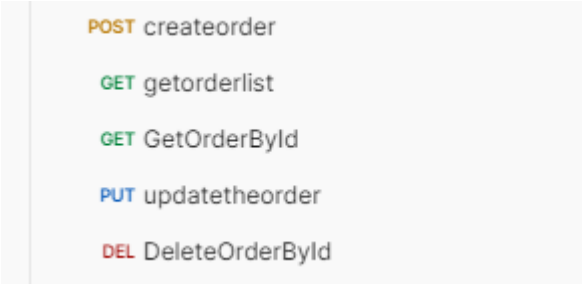


2. Information: the catalog server receives the request and returns the information.

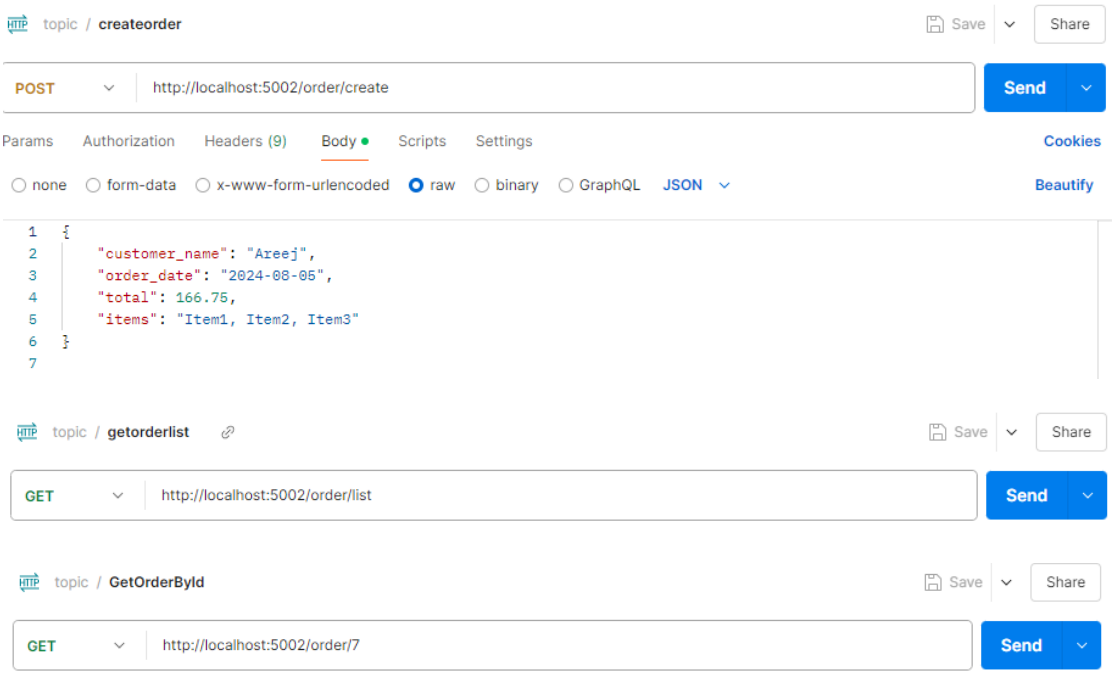


3. Purchase:

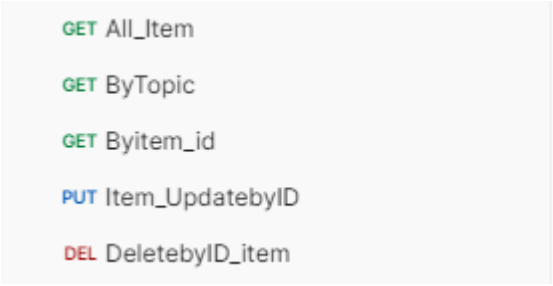
2) Order service:



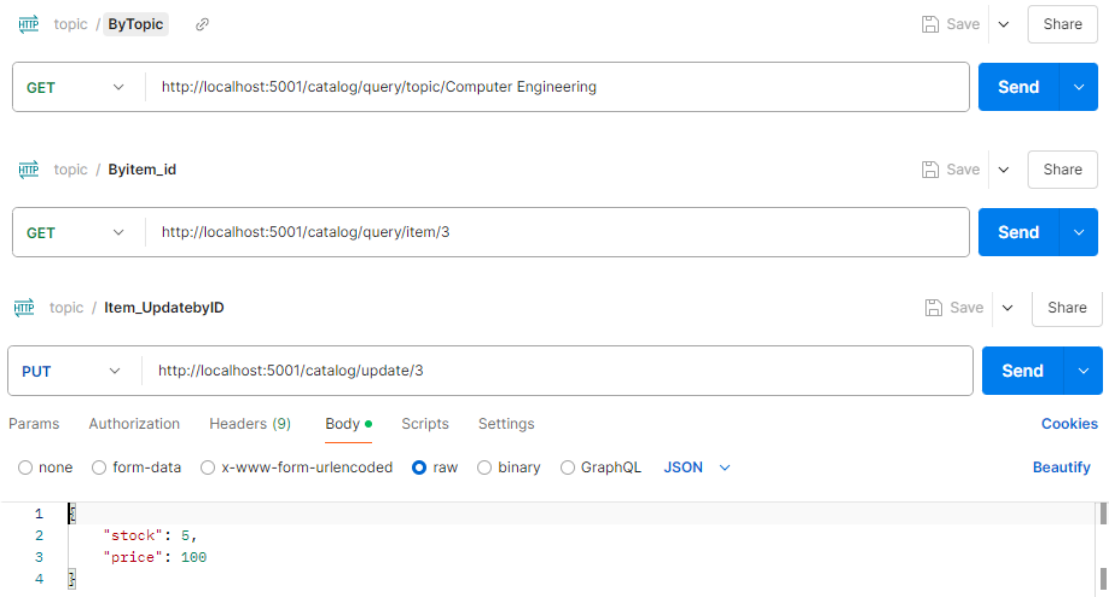
For example api order:



3)Catalog service:



For example api catalog:



Running the project in Docker:

Building docker:

```
docker build -t my-app.
```

Creating common network to allow services to communicate:

```
docker network create projectPart1-nett
```

Running docker container for frontend server at port 3000:

```
docker run --name=frontend -p 3000:3000 --network=projectPart1-nett -it -v .:/home my-app

npm install express

npm install axios

npm i sqlite3

node app.js
```

Running docker container for Catalog server at port 5001:

docker run --name=frontend –p 5001:5001 --network=projectPart1-nett -it -v .:/home my-app

npm install express

npm install axios

npm i sqlite3

node app.js

Running docker container for Order server at port 5002:

docker run --name=frontend –p 5002:5002 --network=projectPart1-nett -it -v .:/home my-app

npm install express

npm install axios

npm i sqlite3

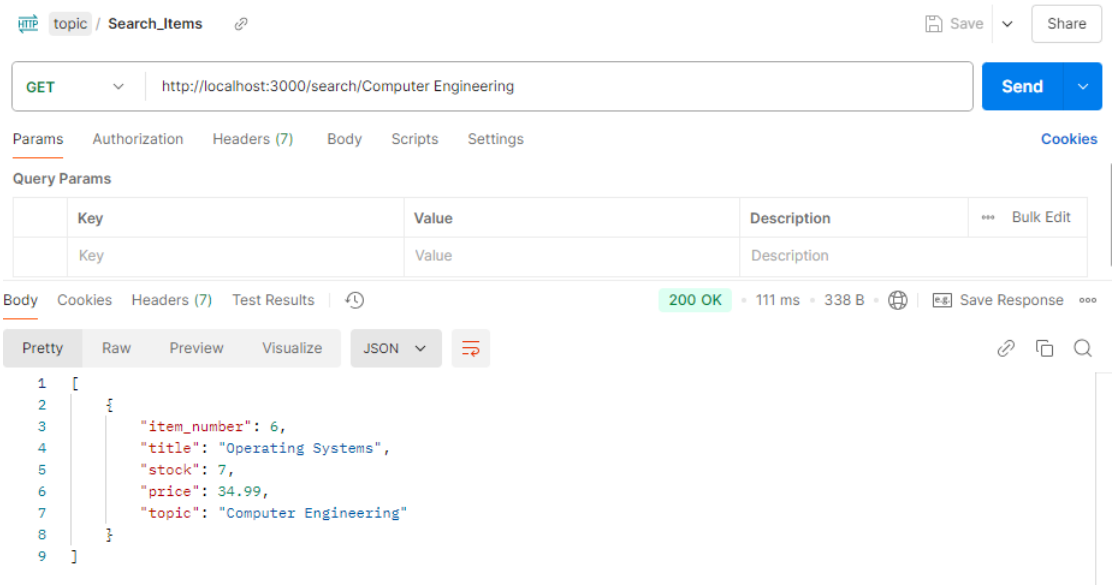
node app.js

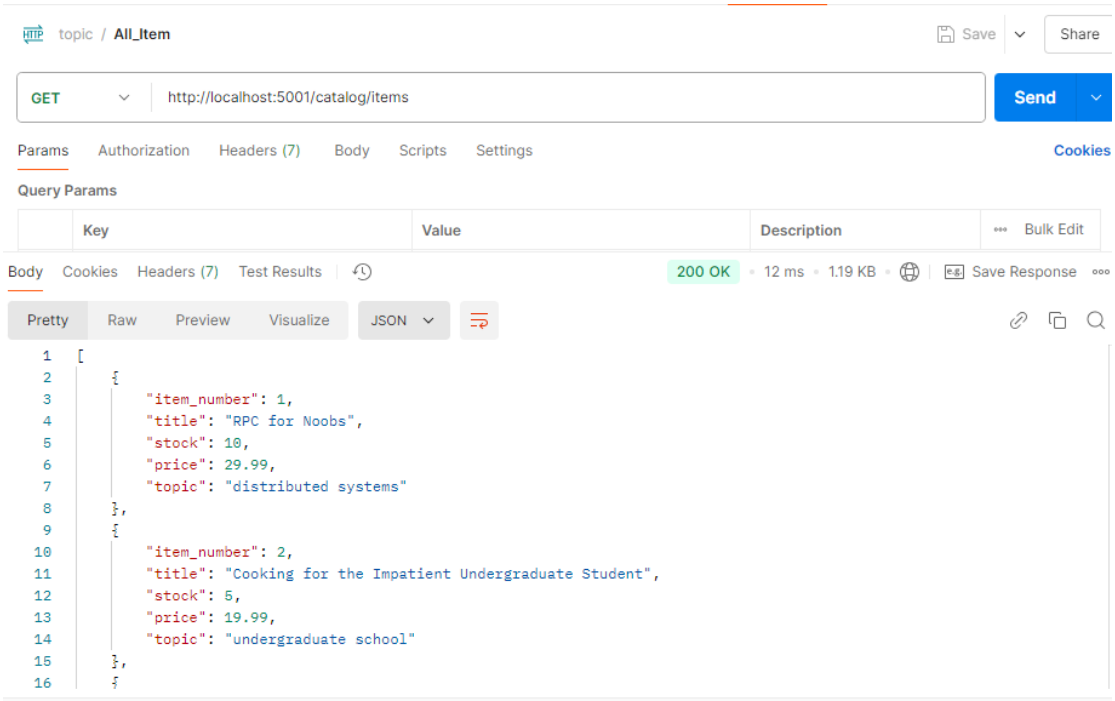
result:

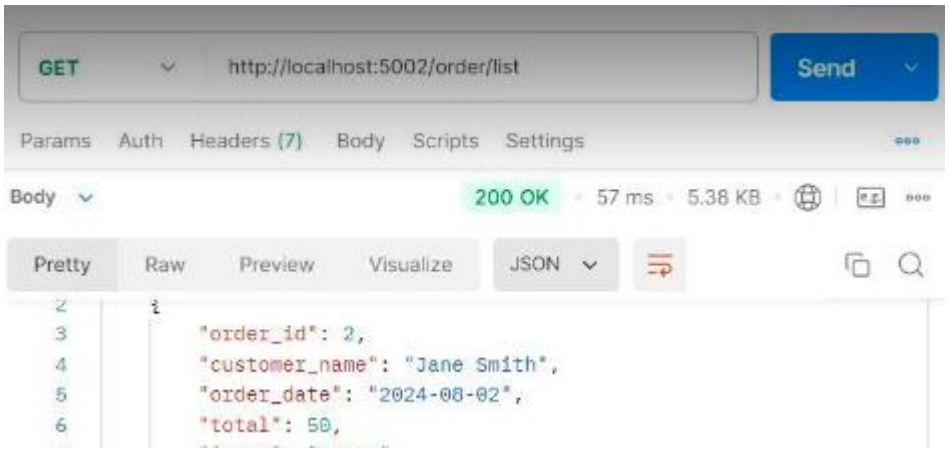
```
root@de79bde6547d:/home# node app.js
Order service is running on http://localhost:5002
Connected to the SQLite database.
Orders table created or already exists.
Inserted order for: John Doe
Inserted order for: Jane Smith
Inserted order for: Mark Johnson
```

```
root@b1abb1fb575d:/home# node app.js
Server is running on http://localhost:5001
Connected to the SQLite database.
Catalog table created or already exists.
Inserted: Distributed Systems
Inserted: Database Management
Inserted: Artificial Intelligence
Inserted: Web Development
Inserted: Machine Learning
Inserted: Operating Systems
Inserted: Networking Basics
Inserted: Data Structures
Inserted: Cybersecurity
Inserted: Cloud Computing
Inserted: Deep Learning
```

```
root@0a337839cfc0:/home# node app.js
Frontend service running on port 3000
```







Conclusion:

We choose Node.js because it offers robust, lightweight, asynchronous micro services that are scalable, supported by a sizable community, and need specialized knowledge and use.