DOS Project P1

Team Members:

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Introduction

This project simulates an e-commerce platform using a **microservices** architecture, demonstrating how distributed systems collaborate through network communication.

Technologies We Used

To bring our project to life, we relied on a modern tech stack:

- **Node.js** – for building all our backend services
- **SQLite** – for database.
- **Axios** – to enable HTTP requests between microservices
- **Docker & Docker Compose** – for containerizing and orchestrating our services
- **Visual Studio Code** – for efficient and organized development

Our System Architecture

Our system is composed of **three** microservices

Catalog Service

Handles the book catalog, storing and managing titles, topics, prices, and quantities

the endpoints like:

`GET` /search/:topic – lists all books under a topic

`GET` /info/:itemNumber – returns book details by ID

`POST` /order – validates and processes

Order Service

Endpoint: `POST` /purch

Client Service (Command-Line Interface & simple web design)

Allows users to:

Search for books by topic

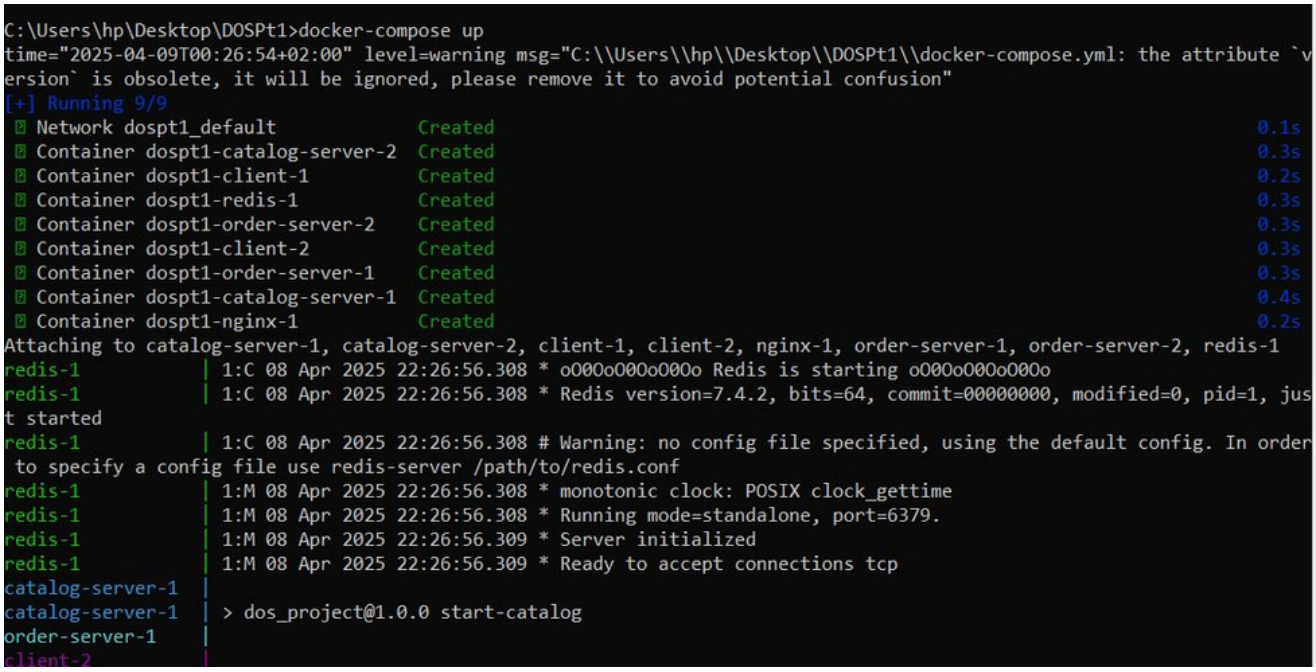
Get details of a book by item number

Purchase a book by providing its ID and payment amount

How we run our System

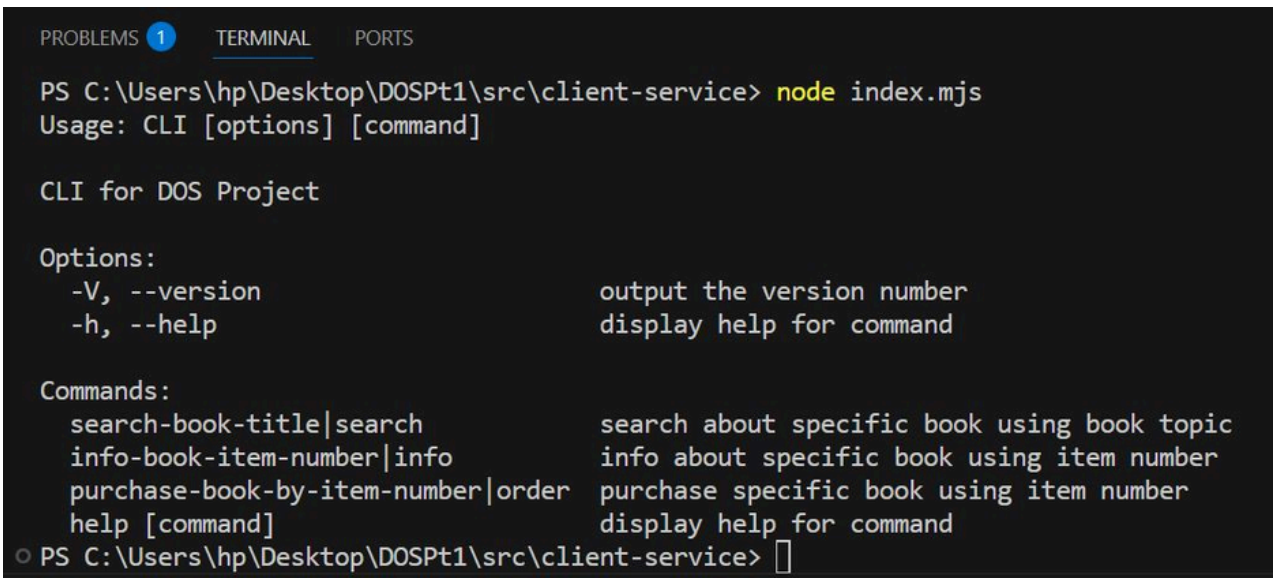
-Execute the command:

docker-compose up --build

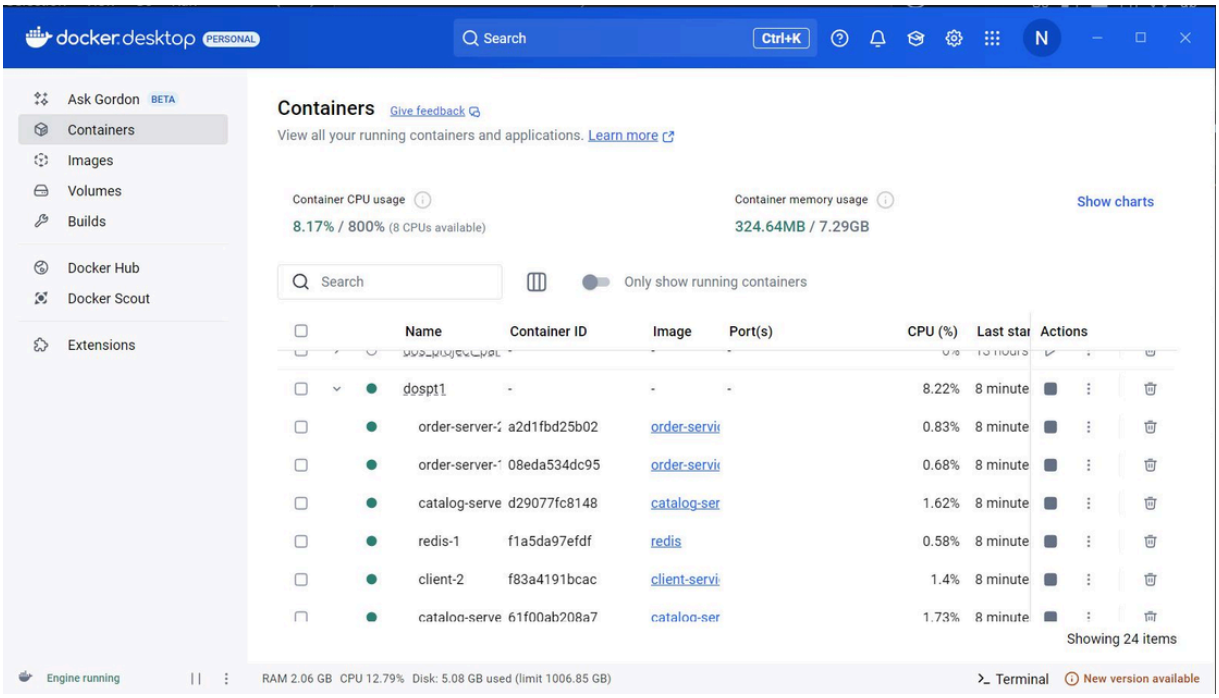


-Once all services are up, access the CLI with:

docker exec -it <client-container-name> node index.mjs

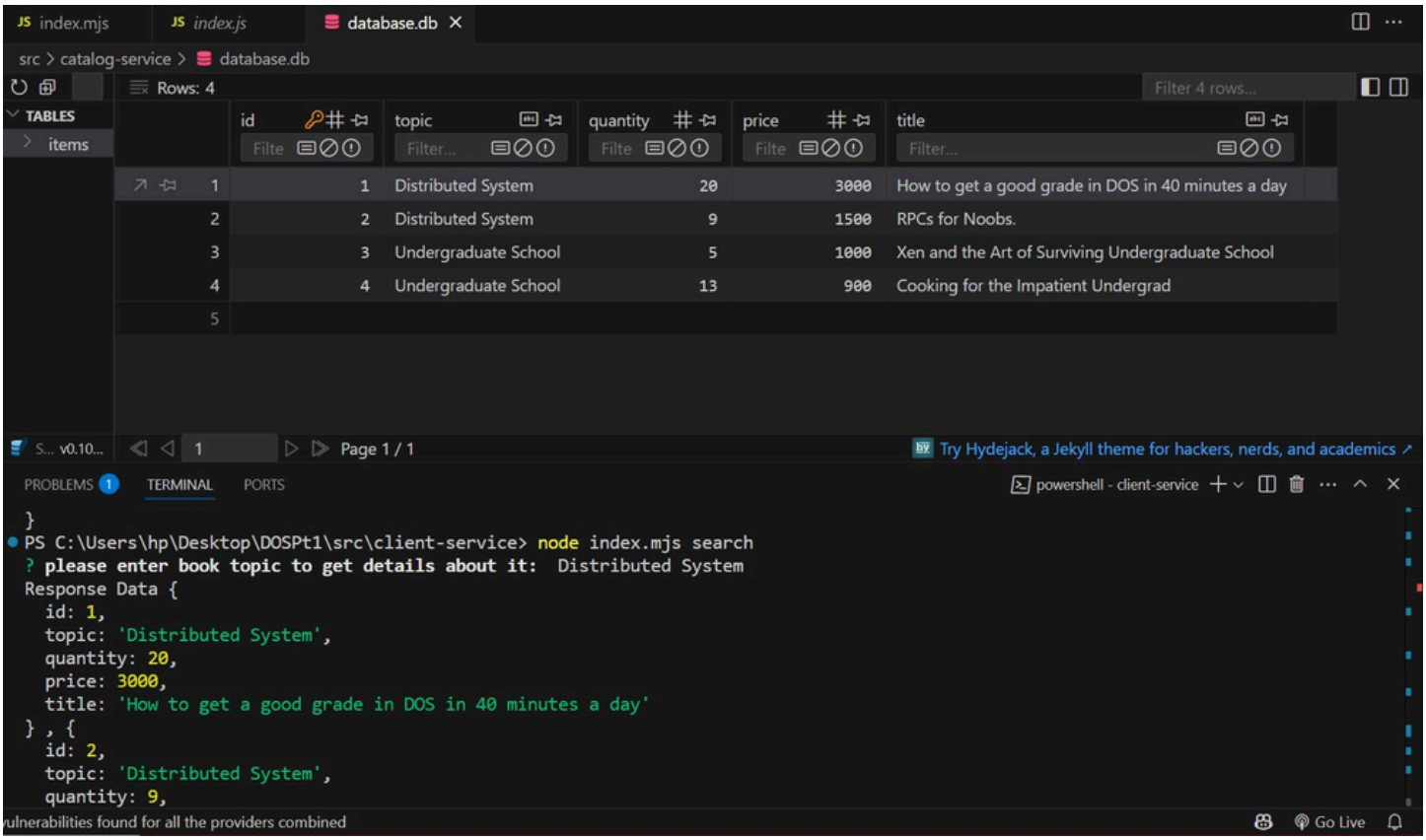


Docker Desktop showing running containers:

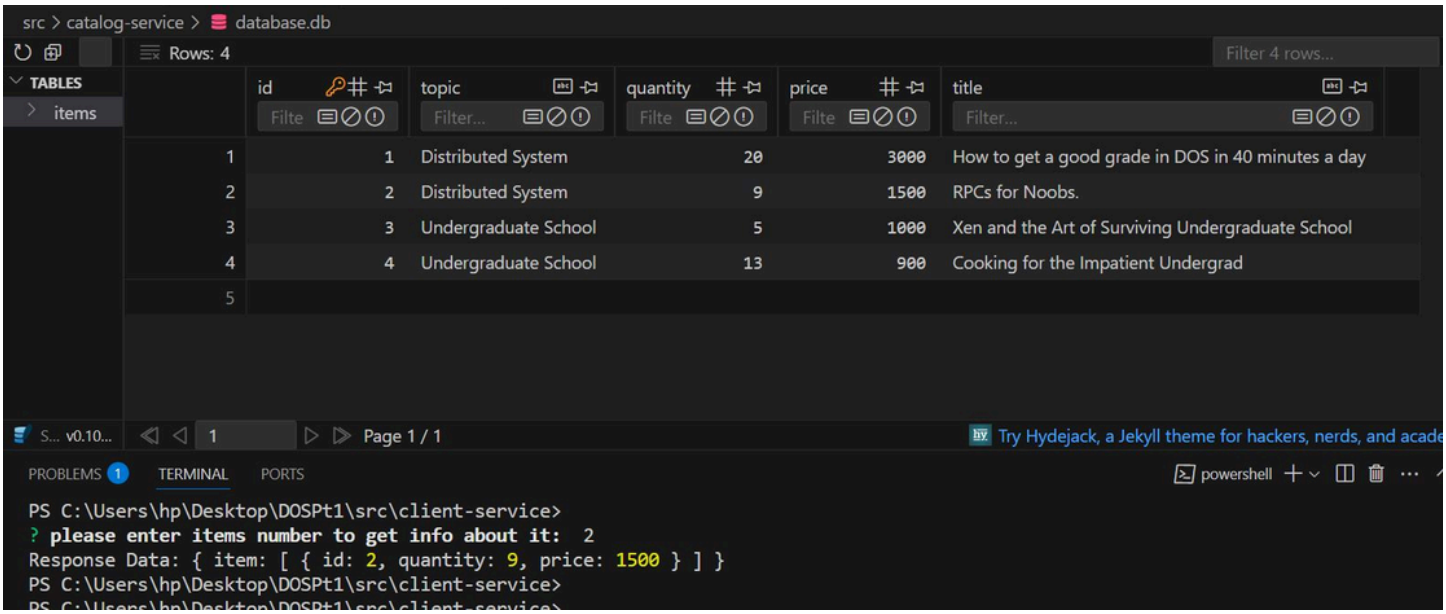


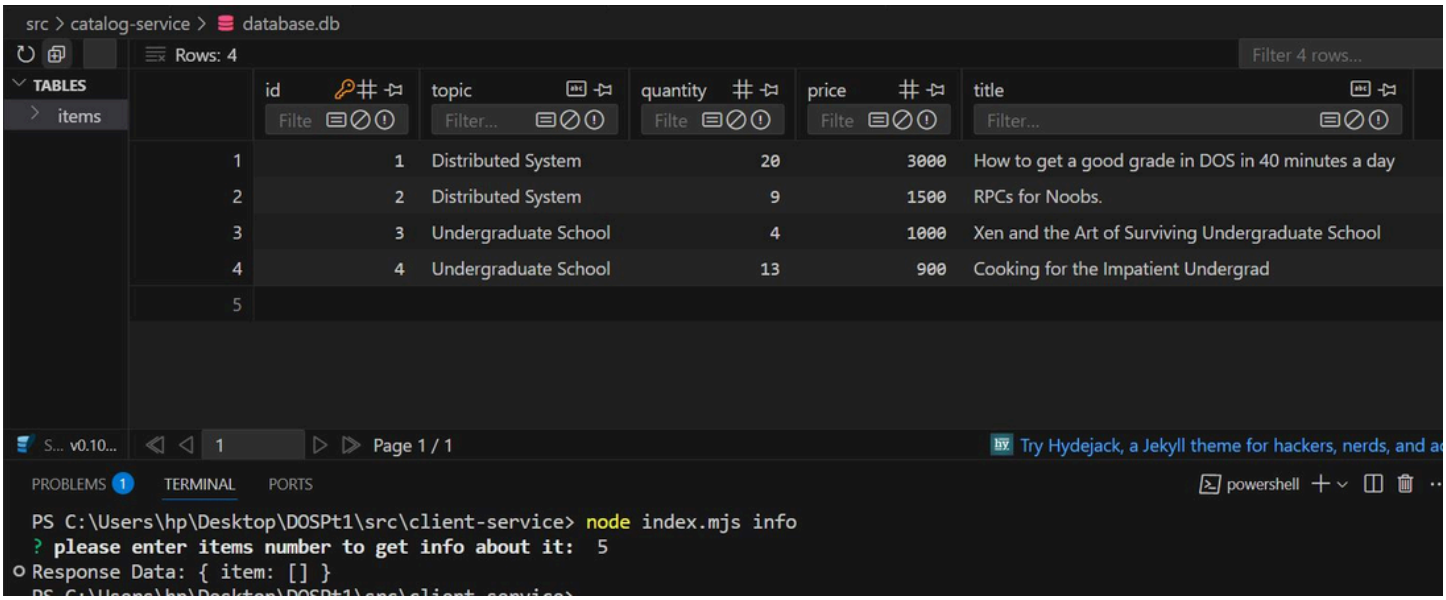
Project structure in VS Code:

Running a search by topic (for example, distributed systems)

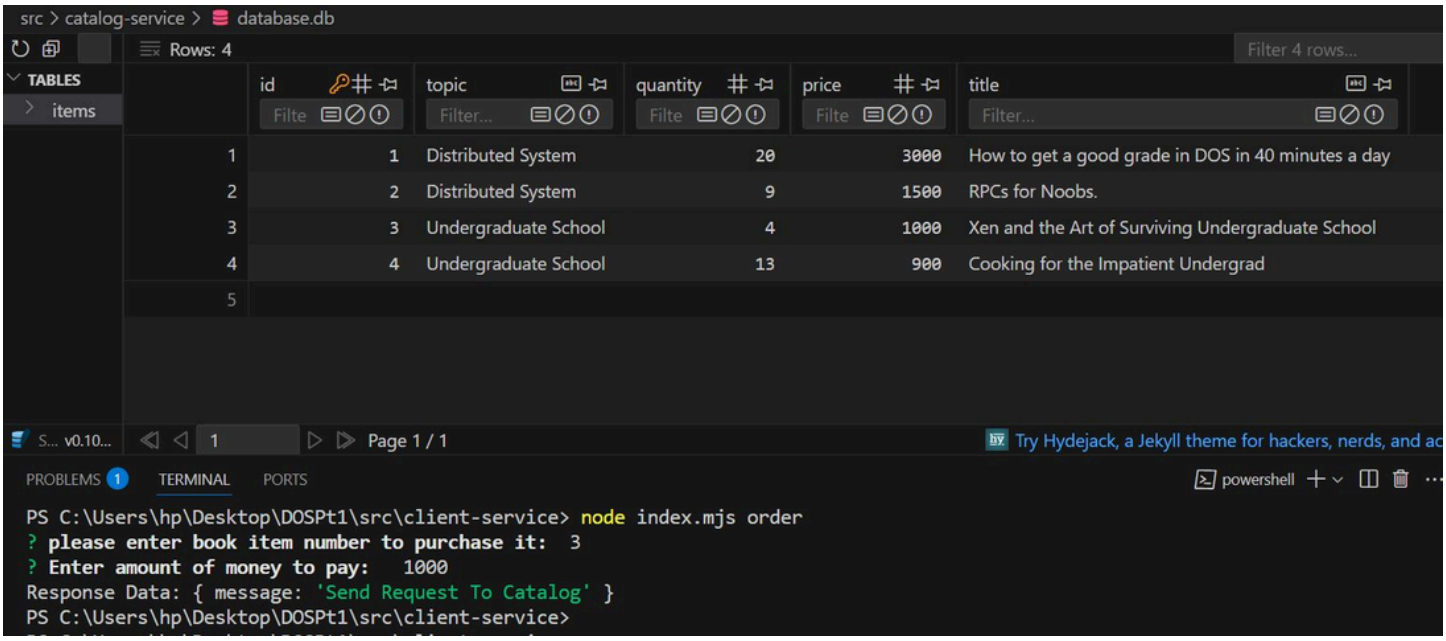


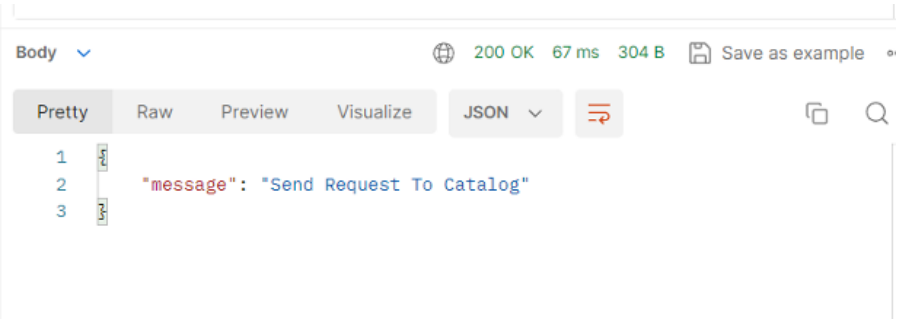
Viewing info of a book :

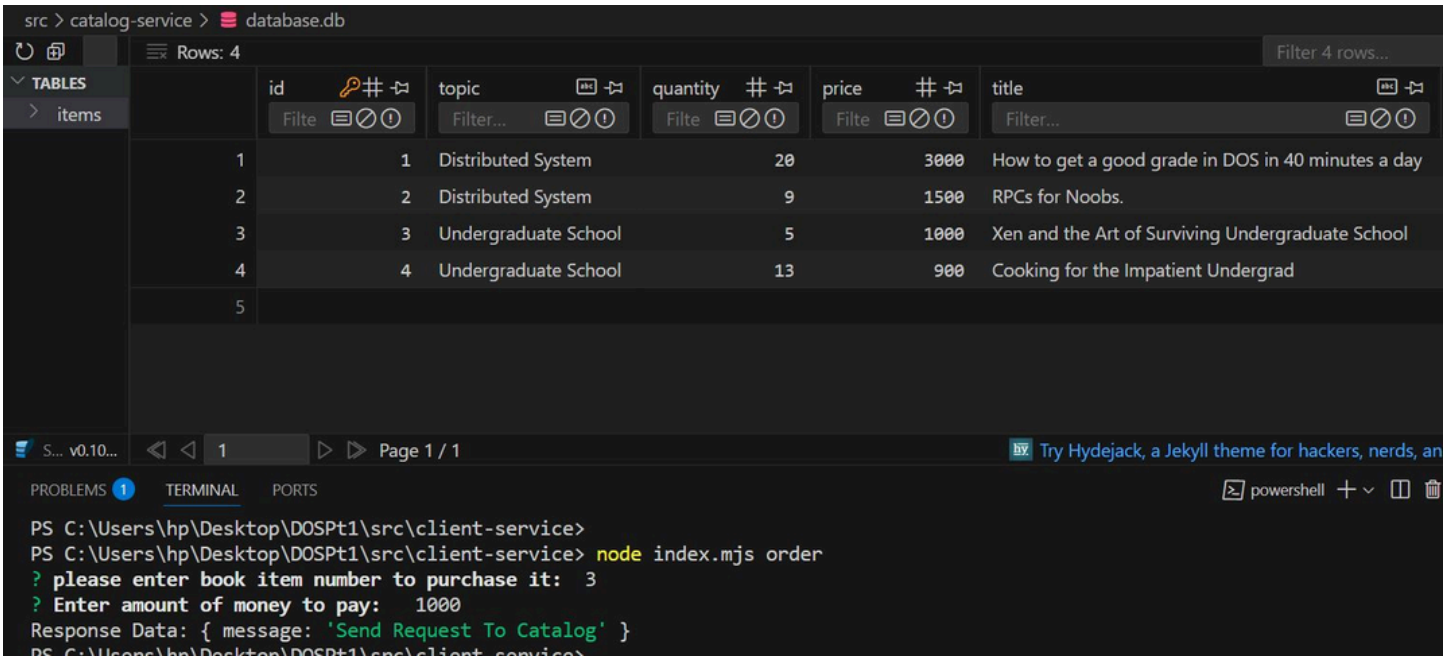




Order before and after:






src > catalog-service > database.db
Rows: 4
Filter 4 rows...
TABLES
items
id
topic
quantity
price
title
1 1 Distributed System 20 3000 How to get a good grade in DOS in 40 minutes a day
2 2 Distributed System 9 1500 RPCs for Noobs.
3 3 Undergraduate School 5 1000 Xen and the Art of Surviving Undergraduate School
4 4 Undergraduate School 13 900 Cooking for the Impatient Undergrad
5
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Try Hydejack, a Jekyll theme for hackers, nerds, an
PROBLEMS 1
TERMINAL
PORTS
powershell
PS C:\Users\hp\Desktop\DOSPt1\src\client-service>
PS C:\Users\hp\Desktop\DOSPt1\src\client-service> node index.mjs order
? please enter book item number to purchase it: 3
? Enter amount of money to pay: 1000
Response Data: { message: 'Send Request To Catalog' }