

Distributed Operating Systems

Part 1- of project

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BAZAR

The program contains of 3 different python programmed files, two are regarded as back-end servers, and one is a front-end Command Line (No GUI) program [CLI] that is made out of the old but gold, timeless, infinite loop menu.

For the backend we have catalog.py which has 3 basic functionalities:

1- info (Book ID \rightarrow (input) // (output) \leftarrow INFO)

2- search (topic \rightarrow (input) // (output) \leftarrow books title with it's ID)

[both are invoked by the front end (cli.py)]

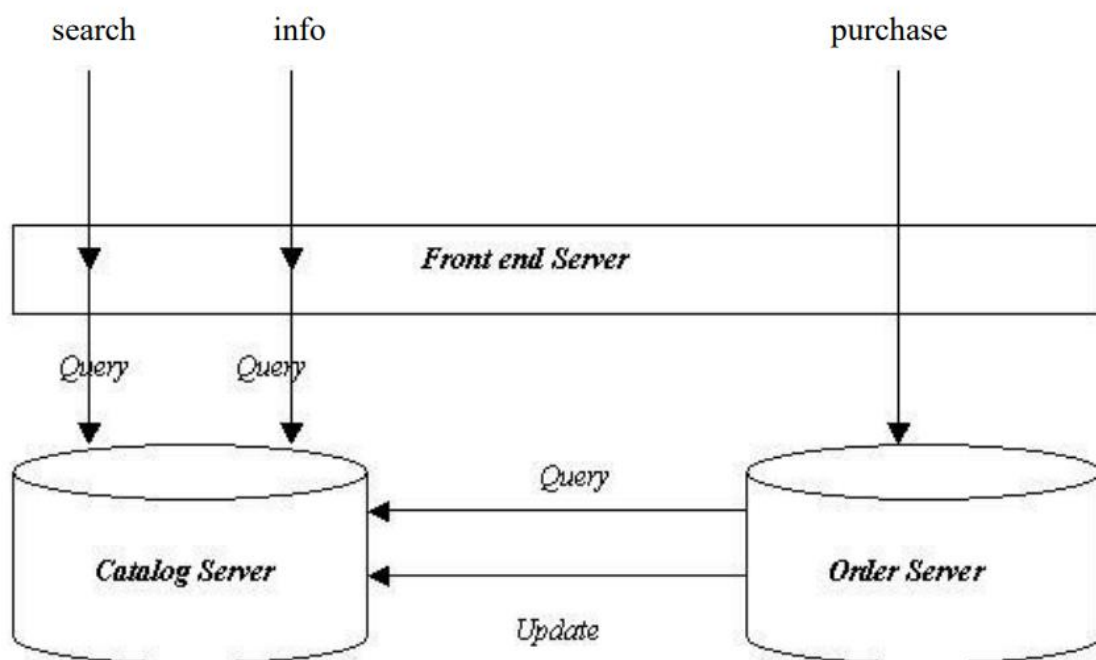
and

3- update [is invoked by (order.py)]

and order.py which basically has 1 main functionality

1- purchase (Book ID \rightarrow (input))

[it checks the book if available or not, if available it checks the stock, if not empty it decrement it by invoking the update functionality in (catalog.py) and return a JSON object saying it was purchased right, else it return the right argument regarding where it failed or stopped]



```
sami@ASUS-TOPTEN:/mnt/c/Users/ASUS/Desktop/Python/DOS_Project$ sudo docker rm cli-service
cli-service
sami@ASUS-TOPTEN:/mnt/c/Users/ASUS/Desktop/Python/DOS_Project$ sudo docker run -it --name cli-service cli-service
Welcome to the Bazar!

Options:
1. Search books by topic
2. Get book information by ID
3. Purchase a book
4. Exit
Enter your choice: 1
Enter the topic: distributed
{'items': {'How to get a good grade in DOS in 40 minutes a day.': 1, 'RPCs for Noobs.': 2}}

Options:
1. Search books by topic
2. Get book information by ID
3. Purchase a book
4. Exit
Enter your choice: 1
Enter the topic: school
{'items': {'Cooking for the Impatient Undergrad.': 4, 'Xen and the Art of Surviving Undergraduate School.': 3}}

Options:
1. Search books by topic
2. Get book information by ID
3. Purchase a book
4. Exit
Enter your choice: 4
Thank you for coming to Bazar !!
```

Activate

here you can see

- how the [search by topic works as wanted]

- How we can Exit from our book store BAZAR!

```
Options:
1. Search books by topic
2. Get book information by ID
3. Purchase a book
4. Exit
Enter your choice: 2
Enter the book ID: 1
Title: How to get a good grade in DOS in 40 minutes a day., Author: Sami, Topic: distributed systems, Stock: 10, Cost: 25.0

Options:
1. Search books by topic
2. Get book information by ID
3. Purchase a book
4. Exit
Enter your choice: 3
Enter the book ID to purchase: 1
Purchase successful!

Options:
1. Search books by topic
2. Get book information by ID
3. Purchase a book
4. Exit
Enter your choice: 2
Enter the book ID: 1
Title: How to get a good grade in DOS in 40 minutes a day., Author: Sami, Topic: distributed systems, Stock: 9, Cost: 25.0
```

Successfully purchasing a book that is in stock, and showing how it was decremented by getting book information by ID twice before and after the purchasing

```
Options:
1. Search books by topic
2. Get book information by ID
3. Purchase a book
4. Exit
Enter your choice: 2
Enter the book ID: 2
Title: RPCs for Noobs., Author: Sami, Topic: distributed systems, Stock: 0, Cost: 20.0

Options:
1. Search books by topic
2. Get book information by ID
3. Purchase a book
4. Exit
Enter your choice: 3
Enter the book ID to purchase: 2
Failed to purchase book. Status code: 400

Options:
1. Search books by topic
2. Get book information by ID
3. Purchase a book
4. Exit
Enter your choice: |
```

Purposely failing a purchase operation by making it out of stock, you can see how it returns RESTful HTML Status code 400 which tell us that Data Validation Errors happened, with a message “Failed to purchase book”

HOW TO RUN MY PROGRAM

3 Docker containers were made for each file,
both order-service and catalog-service were assigned to IPs
172.17.0.3 : 5002

172.17.0.2 : 5001

and are first made running:

```
sudo docker run -it --name order-service catalog-service
```

```
sudo docker run -it --name catalog-service catalog-service
```

Then we run cli-service after building it:

```
sudo docker run -it --name cli-service cli-service
```

After 3 containers are LIVE, we can use it cli-service (front-end) should successfully be able to reach back-end servers, and it's made user-friendly with a basic (easy to understand) looping menu.

هذا والحمد لله

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