Distributed and Operating Systems

Lab 1:

Bazar.com:

A Multi-tier Online Book Store

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In this project i use python language, and flask framework, for the database we use a JSON file.

Prepare two Ubuntu virtual machine from virtualBox with flask project and use visual studio code as editor.

Write the catalog server on one machine(ubento), orderserver on other machine(ubento), and write the front end at local device(windos).

Highline code:

1. @app.route("/info/<id>",methods=['GET'])

Use this line to set the URL format as required in each operation. In this example info and id change as required in every case. and the method change as the operation requirement.

1. With open('/home/aya/Desktop/pyth/venv/hwdos/

BooksDB.json', 'r') as DBfile:

Use this code to open JSON file and create a nick name for the file, such as DBfile, in order to make it easier to handle.

1. data = DBfile.read()

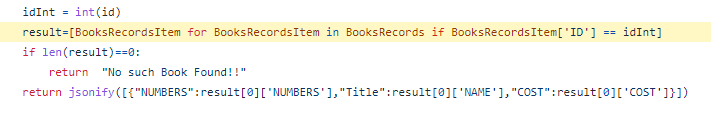
|  |
| --- |
| jsonObject = json.loads(data) |
|  |

Read data from DBfile and convert it to JSON format

1. BooksRecords = jsonObject['BOOK']

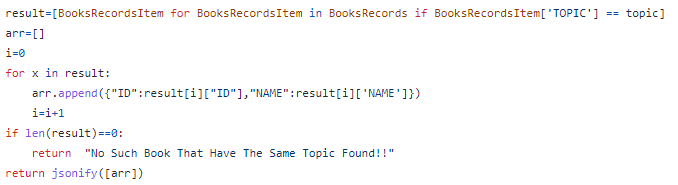
Separate the books database to many record to deal with every record alone, every record contain one book with all its properties.

1. Write the result statement as require in every question:
2. In info question:



Make a for loop that loops for every book in the database, checks if its ID is the same as the enter ID, then displays the title, cost, and number of copies. The result will be just one book. Because the ID is unique.

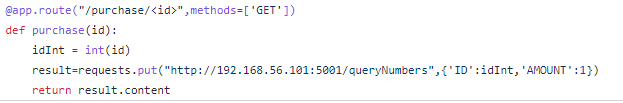
1. In search question:



Search according to book topic, find all books that have the same entering topic, append the book name and id into array to allow convert it to JSON format then show all of them. Then check if the array contain elements so we show the information of the book that have the same topic, but if there is no element then it means no book have the same topic.

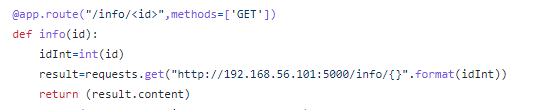
Order server:

Has one operation which is purchase:



In this function send a request to catalog server to buy the book if it’s available (Numbers of book is greater than one to make sure that you can buy it).

Front end client for catalog server:



For example the info operation, send request to catalog server. Then receive the replay from the server. Same as other operations like search, updateCost, queryNumbers, IncreaseNumbers, all of these operations send a request to catalog server to perform the operation, then receive the replay from the server.

Front end of order server:

In this operation, the front end send a request to order server, then receive the replay from order server to show if the book order or not.

In order to connect two virtual machines, we must detect their IP addresses, then make the connection. Unfortunately, the connection fails even though the code is correct.

Catalog server1 IP: 127.0.0.1port 6003

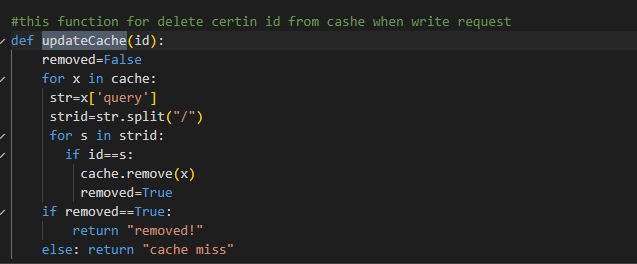
Catalog server2 IP: 127.0.0.1port 6004

Order server2 IP: 127.0.0.1 port 6002

Order server1 IP: 127.0.0.1port 6001

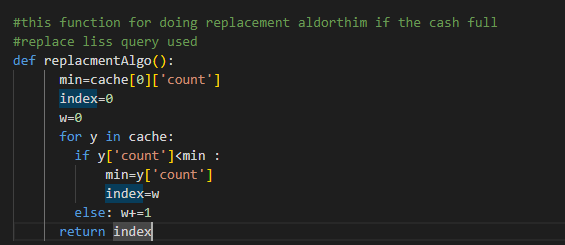
Front end 1270.0.1 port 6000

\*update-cache

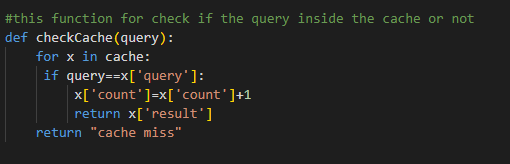


\*replacement algo when cash full:

\



-check cache if query inside cache



Using loop to replacement 2 cataloge servers and order servers

\*\*note part 2 I don’t user virtual box and all servers run locally with front end