Distributed Operating System

HW.2: Microwebservices

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**Introduction:**

On this project, or we might call it a lab, we will deal with some frameworks, database, virtual machines to operate gusts operating systems …etc. we will learn to deal with micro-webservices and make requests to these services and handle the responses to build a small distributed system project.

**Requirements:**

1. VMware: to operate gusts operating systems that will operate servers separately.
2. Gusts OS: ubuntu-18.04.3.
3. Micro-web framework: We use FLASK for Python language.
4. Database: We use SQLite3.
5. Text editor: Visual Studio Code.
6. Github account: <https://github.com/AsemIsht/DOS_HW-ASEM>

**Design:**

The project consists of three severs each server is installed on Flask framework for Python language that consist of micro-webservices, each server has separate purpose and works on separate gust operating system on VMware for virtualization, and these servers are:

1. Frontend Sever.
2. Order Server.
3. Catalo Server.

The client will request one of three micro-webservices to Frontend server:

1. search(topic).

http://Frontend-server/search/<topic>

1. lookup(item\_number).

http://Frontend-server/lookup/<item\_number>

1. buy(item\_number).

http://Frontend-server/buy/<item\_number>

Note that the **Database** is controlled by catalog server only. And if any of other servers need any data from Database will request from Catalog. As well as requests for update and modification any data.

Catalog Server will response to frontend and order servers, therefor it has these micro-webservices:

1. Query\_by\_topic(topic):

http://Catalog-server/query\_by\_topic/<topic>

1. Query\_by\_item\_number(item\_number):

http://Catalog-server/query\_by\_ item\_number/<item\_number>

1. Update(item\_number):

http://Catalog-server/update/<item\_number>

Order Server will response only to frontend server, therefor it has this micro-webservices:

buy(item\_number):

http://Order-server/buy/<item\_number>

**Sequence of operating:**

Search for a topic/item category(search, lookup): client requests a get request tp frontend server which handle this request and requests from Catalog server a query to get all items that categorized on this topic. When Frontend server get the data will return it to client application with nicely formatted.

Host requests from frontend server 🡺 frontend server request the data from Catalog server 🡺 Catalog server check this query and return the results to frontend server which in turn will return the information in a nicely formatted to Client application.

Buy an item (Buy): Client requests to buy an item by get request to

إعادة الصياغة مع تحديد الميثود (جيت/ بوست/ بووت)