An-Najah National University

Faculty Of Engineering

Computer Engineering Department

Distributed Operation Systems (10636456)

Lab 1: Bazar.com: A Multi-tier Online Book Store

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- # Introduction

Bazar.com is a microservices-based online bookstore system designed using **Node.js** and **Docker containers**. The system is composed of three main services that communicate over a Docker network:

1. Front-end Service
2. Order Service
3. Catalog Service

Each service operates independently, exposing APIs that interact to deliver search, item information, and purchasing functionality.

- # Discussion

➢ Front-end Service

Acts as the main entry point for the client. It interacts with the Catalog and Order services.

1. **Search Item**

   Sends request to the Catalog service:

   GET http://catalog:4000/search/:topic

2. **Get Item Info**

   Sends request to catalog service:

   GET http://catalog:4000/info/:item_id

3. **Purchase Item**

   Sends Request to Order Service:

   POST http://order:5000/purchase/:item_id

➢ Order Service

Receives purchase requests from the front-end, fetches item info from the catalog, and updates the stock.

1. **Check item stock.**
   GET http://catalog:4000/info/:item_id
2. **Update stock after purchase**
   PUT http://catalog:4000/update/:item_id

➢ Catalog Service

Handles all product-related data and exposes APIs for search, info, and stock updates.

1. Responds to search and info requests
2. Handles stock quantity updates

• Running the Project with Docker Compose

Everything is managed using docker-compose.yml

Use these commands:

1. docker-compose build
   This command is to build Docker images for all services based on their Dockerfiles.

2. docker-compose up
   This command is to start all services, creating containers and connecting them via the defined network.

3. docker-compose down
   This command is to stop and remove all containers, networks, and volumes.