



NATIONAL TEXTILE
UNIVERSITY

DEPARTMENT OF COMPUTER SCIENCE

Subject

Operating System

SUBMITTED BY:

Fatima Waseem:

23-NTU-CS1155

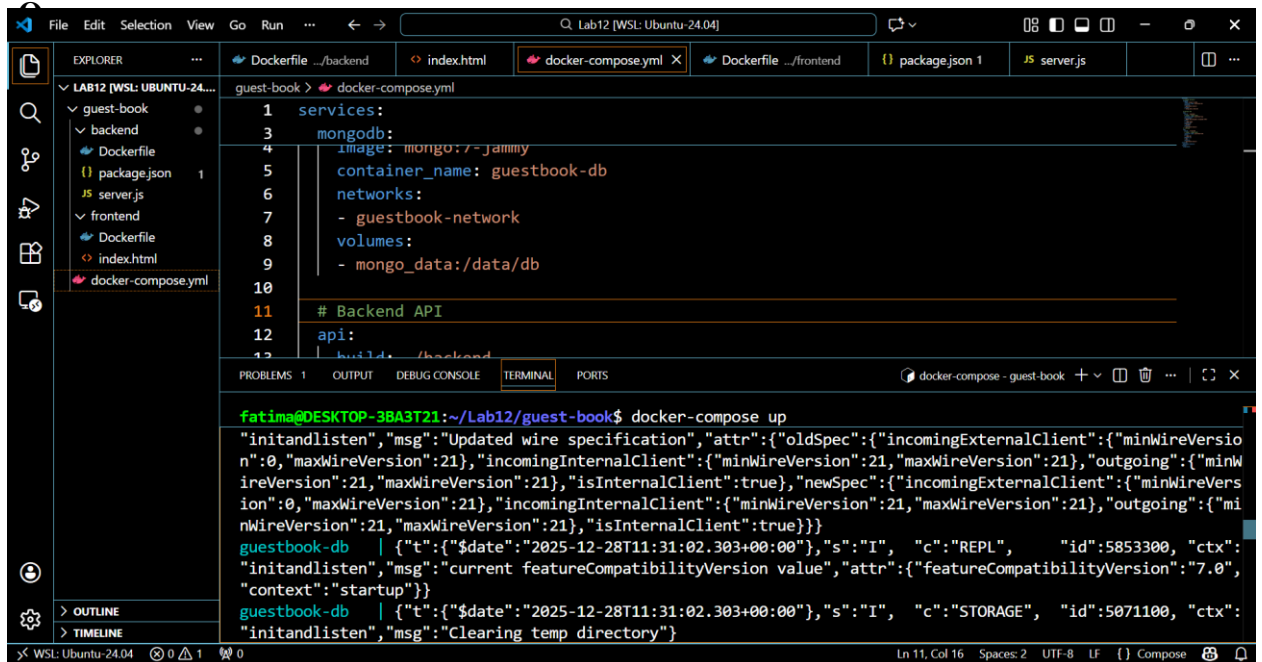
SECTION SE: 5th (A)

SUBMITTED TO:

Sir Nasir

Lab 12

1. Screenshot of Whole Project:



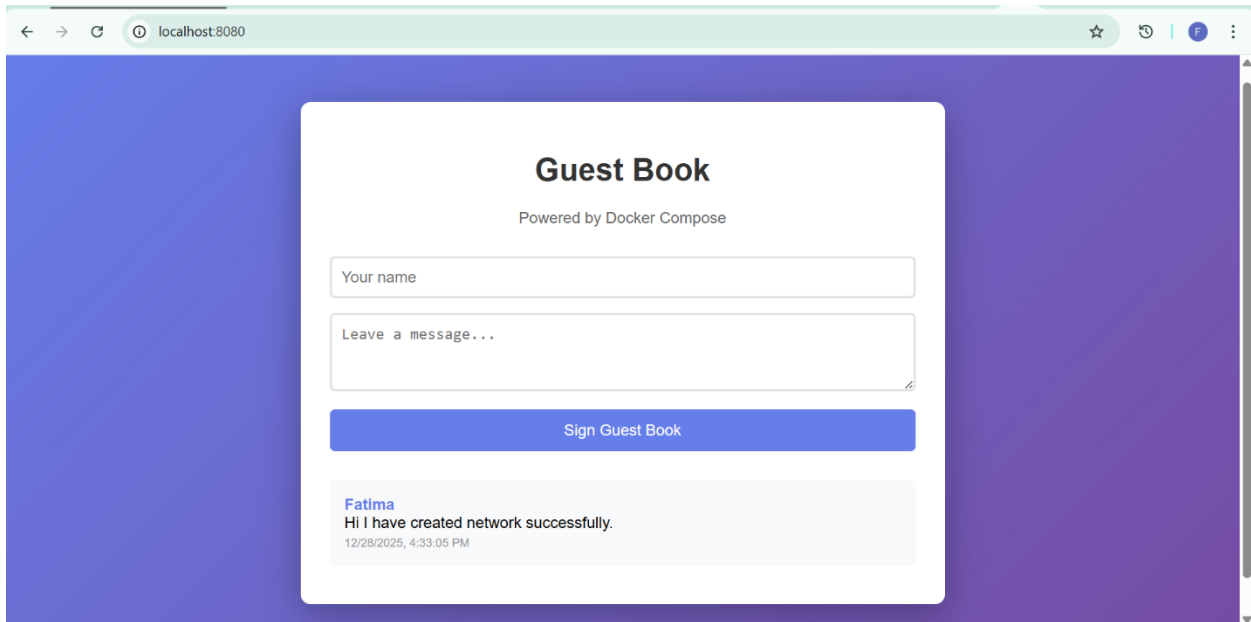
The screenshot shows a VS Code editor window with the following components:

- EXPLORER:** Displays the project structure for 'LAB12 [WSL: UBUNTU-24.04]'. It includes a 'guest-book' directory with subdirectories 'backend' and 'frontend'. The 'backend' directory contains 'Dockerfile', 'package.json', 'server.js', and 'docker-compose.yml'. The 'frontend' directory contains 'Dockerfile', 'index.html', and 'docker-compose.yml'.
- EDITOR:** Shows the 'docker-compose.yml' file for the 'guest-book' service. The file defines a 'services' section with a 'mongodb' service and a 'Backend API' service. The 'mongodb' service uses the 'mongo:7-jammy' image, is named 'guestbook-db', and is connected to the 'guestbook-network'. The 'Backend API' service is built from the 'backend' directory.
- TERMINAL:** Shows the output of the 'docker-compose up' command. The output includes messages about updating wire specifications, starting the 'guestbook-db' service, and clearing the temp directory.

2. Output of Both images:

```
=> [2/5] WORKDIR /app                                0.0s
=> [3/5] COPY package*.json ./                        0.1s
=> [4/5] RUN npm install                             9.4s
=> [5/5] COPY server.js .                             0.1s
=> exporting to image                                 2.6s
=> => exporting layers                                 1.1s
=> => exporting manifest sha256:01715cbcca             0.0s
=> => exporting config sha256:3be676cce63c            0.0s
=> => exporting attestation manifest sha25             0.0s
=> => exporting manifest list sha256:d9964            0.0s
=> => naming to docker.io/library/backend:            0.0s
=> => unpacking to docker.io/library/backe           1.3s
fatima@DESKTOP-3BA3T21:~/Lab12/guest-book/backend$ cd .
fatima@DESKTOP-3BA3T21:~/Lab12/guest-book/backend$ cd ..
fatima@DESKTOP-3BA3T21:~/Lab12/guest-book$ cd frondend
bash: cd: frondend: No such file or directory
fatima@DESKTOP-3BA3T21:~/Lab12/guest-book$ cd ./frontend/
fatima@DESKTOP-3BA3T21:~/Lab12/guest-book/frontend$ docker build -t frontend .
[+] Building 1.2s (7/7) FINISHED docker:default
=> [internal] load build definition from D             0.0s
=> => transferring dockerfile: 103B                  0.0s
=> [internal] load metadata for docker.io/            0.2s
=> [internal] load .dockerignore                      0.0s
=> => transferring context: 2B                        0.0s
=> [internal] load build context                      0.1s
=> => transferring context: 31B                      0.0s
```

3. Webpage at localhost: 8080



4. Docker compose file:

```
1 services:
2   # MongoDB Database
3   mongodb:
4     image: mongo:7-jammy
5     container_name: guestbook-db
6     networks:
7       - guestbook-network
8     volumes:
9       - mongo_data:/data/db
10
11   # Backend API
12   api:
13     build: ./backend
14     # image: <image_name>
15     container_name: guestbook-api
16     environment:
17       - MONGO_URL=mongodb://mongodb:27017
18     ports:
19       - "3000:3000"
20     depends_on:
21       - mongodb
22     networks:
23       - guestbook-network
```

```

22     networks:
23     - guestbook-network
24 # Frontend
25 web:
26     build: ./frontend
27     # image: <image_name>
28     container_name: guestbook-web
29     ports:
30     - "8080:80"
31     depends_on:
32     - api
33     networks:
34     - guestbook-network
35 networks:
36     guestbook-network:
37 volumes:
38     mongo_data:
39

```

Docker file backend:

```

1 FROM node:lts-alpine3.23
2 WORKDIR /app
3 COPY package*.json ./
4 RUN npm install
5 COPY server.js .
6 EXPOSE 3000
7 CMD ["npm", "start"]

```

Docker file frontend:

```

1 FROM nginx:trixie
2 COPY index.html /usr/share/nginx/html/
3 EXPOSE 80

```