NationalTextile University

DepartmentofComputerScience

Subject:
Operating Syatem

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Reg number:

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Lab no. :

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Docker Home task

Whole project structure:

Backend image creation:


```
HussainNaweed@Hussain-pc:~/OperatingSystem/Lab12/guest-book/backend$ docker build -t backend .
[+] Building 13.6s (10/10) FINISHED                                      docker:default
 -> [internal] load build definition from Dockerfile                              0.1s
 -> => transferring dockerfile: 162B                                              0.1s
 -> [internal] load metadata for docker.io/library/node:lts-alpine3.23            0.1s
 -> [internal] load .dockerignore                                                 0.1s
 -> => transferring context: 28B                                                  0.1s
 -> CACHED [1/5] FROM docker.io/library/node:lts-alpine3.23@sha256:c921b97d4b74f511174405745754   0.1s
 -> => resoive nocker.io/library/node.1ts                                         0.1s
 -> [2/5] WORKDIR /app                                                            0.1s
 -> [3/5] COPY package*.json ./                                                   0.1s
 -> [4/5] RUN npm install                                                        77.7s
 -> [5/5] COPY server.js .                                                        0.1s
 -> exporting to image                                                            0.1s
 -> => exporting layers                                                           0.1s
 -> => exporting manifestha256:fdef2aF2ade44e1ec8ff983c3c5fc1752bab349ea08dce8a0ae59ia3d08886bb   0.1s
 -> => exporting config sha256:1291a67917581ac9e790653492069986 45f6a205a00fdb487  0.1s
 -> => exporting attestation manifest sha256:52c8348749399b7449534f5fi6febaS3904139584b4B543   0.1s
 -> => exporting manifest list sha256:f479955305183766efabe5cb3d5310103918db      0.1s
 -> => exporting to docker.io/library/backend:latest                              0.1s
 -> => unpacking to docker.io/library/backend:latest                              0.1s
HussainNaweed@Hussain-pc:~/OperatingSystem/Lab12/gust-ook/backend$ docker images
```

Ln 34, Col 55   Spaces: 2   UTF-8   LF   {} Compose   Char quota reached

Frontend image creation:

```
HussainNaweed@Hussain-pc:~/OperatingSystem/Lab12/guest-book/backend$ docker build -t backend .
[+] Building 13.6s (10/10) FINISHED                                              docker:default
 -> [internal] load build definition from Dockerfile                                    0.1s
 -> => transferring dockerfile: 162B                                                     0.1s
 -> [internal] load metadata for docker.io/library/node:lts-alpine3.23                   0.1s
 -> [internal] load .dockerignore                                                        0.1s
 -> => transferring context: 28B                                                         0.1s
 -> CACHED [1/5] FROM docker.io/library/node:lts-alpine3.23@sha256:c921b97d4b74f511174405745754   0.1s
 -> => resoive nocker.io/library/node.1ts                                                0.1s
 -> [2/5] WORKDIR /app                                                                   0.1s
 -> [3/5] COPY package*.json ./                                                          0.1s
 -> [4/5] RUN npm install                                                               77.7s
 -> [5/5] COPY server.js .                                                               0.1s
 -> exporting to image                                                                   0.1s
 -> => exporting layers                                                                  0.1s
 -> => exporting manifestha256:fdef2aF2ade44e1ec8ff983c3c5fc1752bab349ea08dce8a0ae59ïa3d08886bb   0.1s
 -> => exporting config sha256:1291a67917581ac9e79065349206998645f6a205a00fdb487         0.1s
 -> => exporting attestation manifest sha256:52c8348749399b7449534f5f16feba83904139584b4B 543    0.1s
 -> => exporting manifest list sha256:f479955305183766efabe5cb3d5310103918db             0.1s
 -> => exporting to docker.io/library/backend:latest                                     0.1s
 -> => unpacking to docker.io/library/backend:latest                                     0.1s
HussainNaweed@Hussain-pc:~/OperatingSystem/Lab12/gust-ook/backend$ docker images
```

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Webpage ScreenShot:
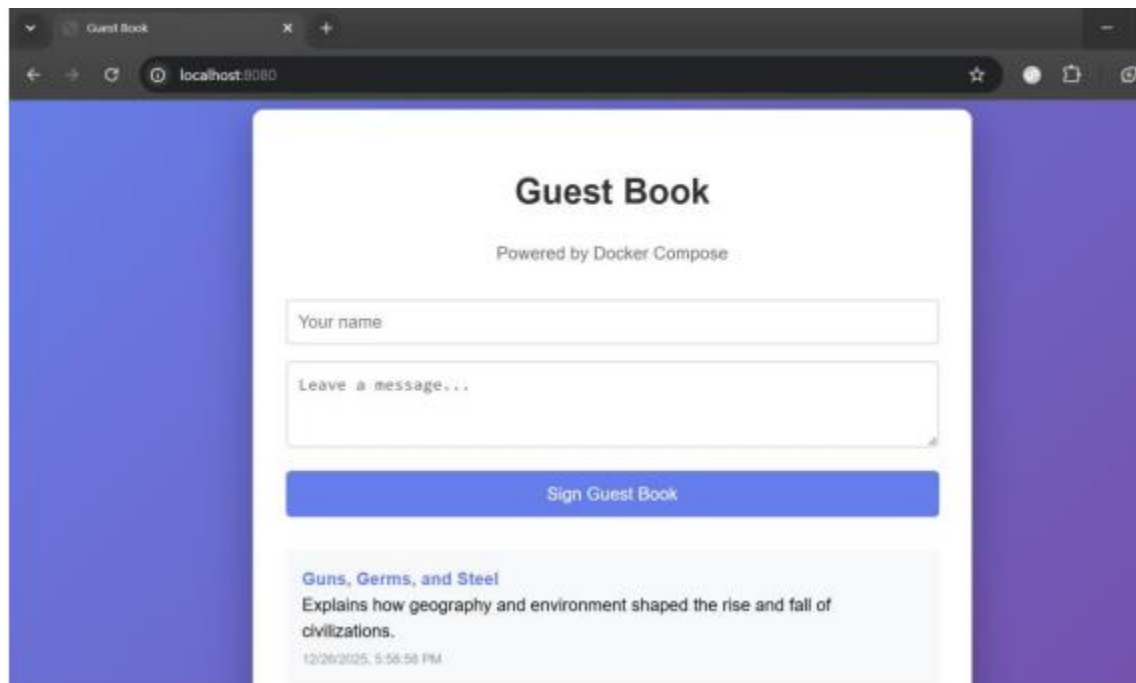
docker-compose.yml File Code:

```yaml
1   version: "3.9"
2
3   services:
4     # MongoDB Database
5     mongodb:
6       image: mongo:7-jammy
7       container_name: guestbook-db
8       volumes:
9         - mongo_data:/data/db
10      networks:
11        - api_db_net
12
13    # Backend API
14    api:
15      image: backend
16      container_name: guestbook-api
17      environment:
18        - MONGO_URL=mongodb://mongodb:27017
19      ports:
20        - "3000:3000"
21      depends_on:
22        - mongodb
23      networks:
24        - frontend_api_net
25        - api_db_net
26
27    # Frontend
28    web:
29      image: frontend
30      container_name: guestbook-web
31      ports:
32        - "8080:80"
33      depends_on:
34        - api
35      networks:
36        - frontend_api_net
37
38  # Networks
39  networks:
40
41    frontend_api_net:
42
43    api_db_net:
44
45  # Volumes
46  volumes:
47    mongo_data:
48
```

Backend/Dockerfile:

```
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"]
```

Frontend/Dockerfile:

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