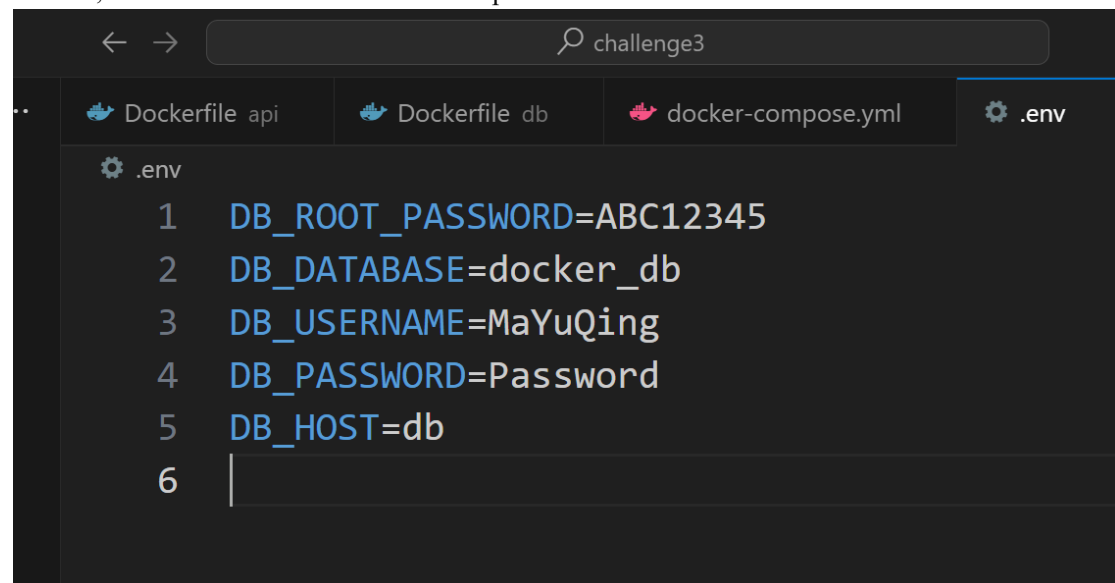# Docker Challenge

Challenge 3

1. Begin by updating the Dockerfile in the db folder to use relative paths instead of absolute ones.

```
2
3   COPY ./init/init.sql /docker-entrypoint-initdb.d
4   |
```

```
6
7   # Copy package.json and package-lock.json
8   COPY package.json package-lock.json* ./
9
```

2. Next, create documentation for the .env parameters.

```
challenge3

Dockerfile api    Dockerfile db    docker-compose.yml    .env

.env
1   DB_ROOT_PASSWORD=ABC12345
2   DB_DATABASE=docker_db
3   DB_USERNAME=MaYuQing
4   DB_PASSWORD=Password
5   DB_HOST=db
6   |
```

3. The third step involves authoring the Docker-compose YAML file, ensuring that the paths are accurately specified.

```yaml
docker-compose.yml
1   version: '3.8'
2
3   services:
4     nginx:
5       build: ./nginx
6       ports:
7         - "8080:80"
8       depends_on:
9         - node-service
10
11    node-service:
12      build: ./api
13      environment:
14        DB_HOST: ${DB_HOST}
15        DB_USERNAME: ${DB_USERNAME}
16        DB_PASSWORD: ${DB_PASSWORD}
17        DB_DATABASE: ${DB_DATABASE}
18      ports:
19        - "3000"
20      depends_on:
21        - db
```
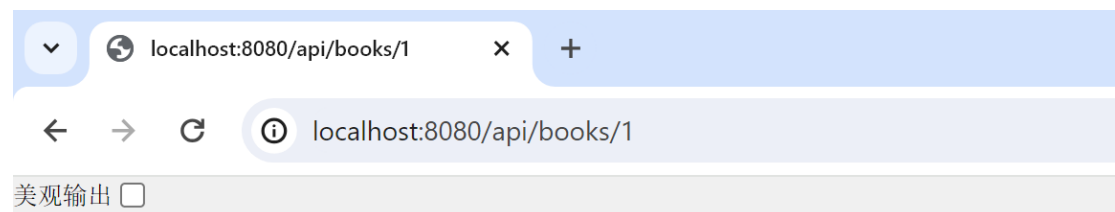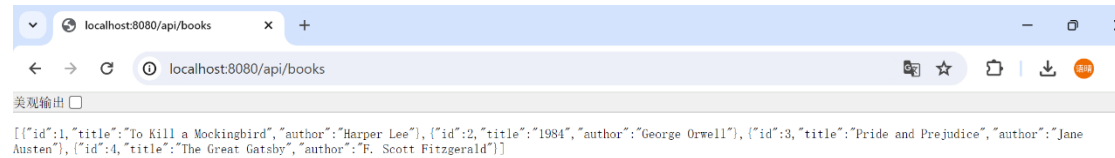
4. Execute the command 'docker-compose up --build' to build and start a new container.

```
PS C:\Users\mayuq\OneDrive\Desktop\docker-challenge Ma YuQing\challenge3>
docker-compose up --build
[+] Building 0.0s (0/0)  docker:default
2024/04/23 14:39:50 http2: server: error reading preface from client //[+]
 Building 43.2s (19/19)                          docker:default
 => => transferring context: 4.21kB                          0.0s
[+] Building 61.5s (28/28) FINISHED                 docker:default
 => [db internal] load build definition from Dockerfile      0.1s
 => => transferring dockerfile: 100B                         0.0s
 => [db internal] load metadata for docker.io/library/mariadb:la  2.3s
 => [db auth] library/mariadb:pull token for registry-1.docker.i  0.0s
 => [db internal] load .dockerignore                         0.1s
 => => transferring context: 2B                              0.0s
 => [db internal] load build context                         0.2s
 => => transferring context: 882B                            0.0s/
 => [db 1/2] FROM docker.io/library/mariadb:latest@sha256:78d0c  15.2s
 => => resolve docker.io/library/mariadb:latest@sha256:78d0c3b8c  0.1s
 => => sha256:0a8a09ba96d478d9ec75b6cabe7a6ba868 2.48kB / 2.48kB  0.0s
 => => sha256:e1ff62268161b7d5f8562e5e9a8f6f7e86 8.79kB / 8.79kB  0.0s
 => => sha256:3785a15fbe9c86acbe916f9d7bc545918e 5.65MB / 5.65MB  1.0s
 => => sha256:78d0c3b8c39b47e91cc32df64ef1e26f79 5.13kB / 5.13kB  0.0s
```

5. Verify the container is operational by accessing 'http://localhost:8080/api/books' and 'http://localhost:8080/api/books/1'.

Challenge 4

6. To increase the node-service from one to three instances, execute the command 'docker-compose up --scale node-service=3 -d'.

7. Verify the success of the scaling operation.

Containers   Give feedback ⧉

Container CPU usage ⓘ	Container memory usage ⓘ	Show charts
0.03% / 1200% (12 CPUs available)	**136.12MB / 7.49GB**	

🔍 Search | ▯▯▯ | ⬤ Only show running containers

		Name	Image	Status	CPU (%)	Port(s)	Last st:	Actions		
☐	⌄ ⊜	**challeng**		Running (5/5)	0.03%		7 minute	▪	⋮	🗑
☐	▣	**db-1** 1b166f	challenge3:	Running	0.03%	3306:3306 ↗	7 minute	▪	⋮	🗑
☐	▣	**node-** e3f6d0	challenge3:	Running	0%	63696:3000 ↗	7 minute	▪	⋮	🗑
☐	▣	**nginx** 58ea33	challenge3:	Running	0%	8080:80 ↗	7 minute	▪	⋮	🗑
☐	▣	**node-** 693e71	challenge3:	Running	0%	63694:3000 ↗	7 minute	▪	⋮	🗑
☐	▣	**node-** fe158b	challenge3:	Running	0%	63695:3000 ↗	7 minute	▪	⋮	🗑

9. Conduct a test by accessing 'http://localhost:8080/api/stats' and document the hostnames, which are e3f6d0977301, 693e714dfea6, and fe158b4e7519.

{"status":"success","contents":{"MemFree":4908472,"MemAvailable":6600656},"pid":1,"hostname":"fe158b4e7519","counter":0}

{"status":"success","contents":{"MemFree":4870540,"MemAvailable":6562792},"pid":1,"hostname":"693e714dfea6","counter":0}

{"status":"success","contents":{"MemFree":4869724,"MemAvailable":6561968},"pid":1,"hostname":"e3f6d0977301","counter":0}