

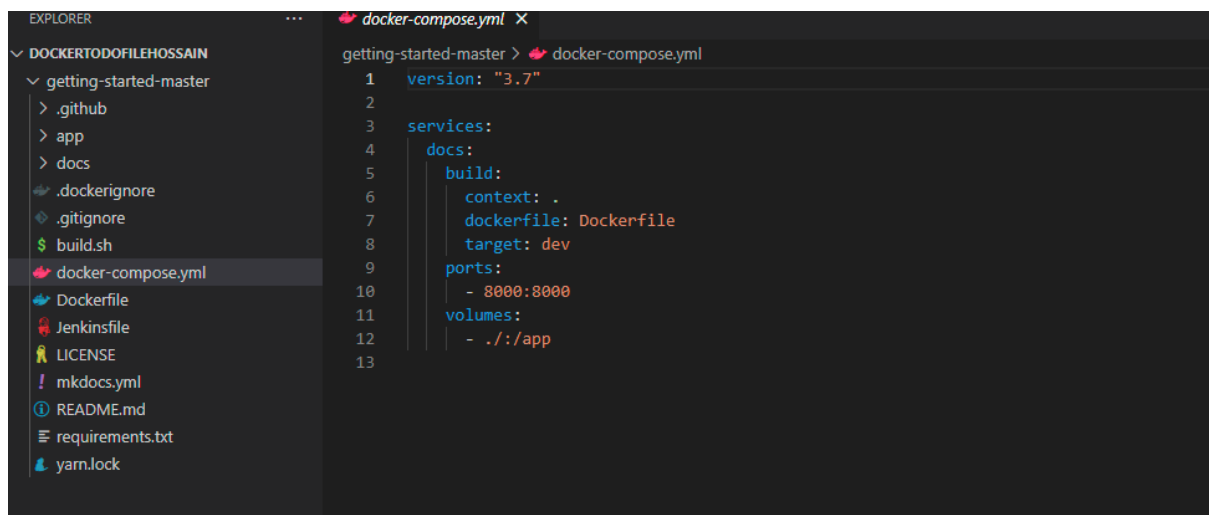
Docker Homework 01

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Part 1

Start MySQL



The screenshot shows a Visual Studio Code editor with two panels. The left panel is the Explorer, showing a file tree for a project named 'DOCKERTODOFILEHOSSAIN'. The tree includes a folder 'getting-started-master' with sub-items like '.github', 'app', 'docs', '.dockerignore', '.gitignore', 'build.sh', 'docker-compose.yml' (selected), 'Dockerfile', 'Jenkinsfile', 'LICENSE', 'mkdocs.yml', 'README.md', 'requirements.txt', and 'yarn.lock'. The right panel shows the content of 'docker-compose.yml' with the following configuration:

```
1 version: "3.7"
2
3 services:
4   docs:
5     build:
6       context: .
7       dockerfile: Dockerfile
8       target: dev
9     ports:
10      - 8000:8000
11     volumes:
12      - ./:/app
13
```

Create the network.

```
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker network create todo-app
66576aced16563a87334d835d83f3bbfa7904751ac85a836b9505c6f9668843c
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> |
```

Start a MySQL container and attach it to the network. We're also going to define a few environment variables that the database will use to initialize the database.

```

PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker run -d `
>> --network todo-app --network-alias mysql `
>> -v todo-mysql-data:/var/lib/mysql `
c19d5474d2cf: Pull complete
734cfb67bc8c: Pull complete
729529a0299e: Pull complete
63d3c603a591: Pull complete
305e0fbc2dc8: Pull complete

```

```

PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker run -d `
>> --network todo-app --network-alias mysql `
>> -v todo-mysql-data:/var/lib/mysql `
>> -e MYSQL_ROOT_PASSWORD=secret `
>> -e MYSQL_DATABASE=todos `
>> mysql:5.7
19279a0f450268cbefd98f09a4174147cc98226b4e88a09eeffe83abee08a76f
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain>

```

```

PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
da415e298ac4   mysql:5.7 "docker-entrypoint.s..." 12 minutes ago Up 12 minutes 3306/tcp, 33060/tcp             Heuristic-Hyrovsky
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker exec -it da415e298ac4 mysql -u root -p
Enter password:

```

Ln 1, Col 1 Spaces: 2 UTF-8 LF

To confirm we have the database up and running, connect to the database and verify it connects.

```

Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 4
Server version: 5.7.40 MySQL Community Server (GPL)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>

```

Ln 1

#Output looks like this

```
-> \c
mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
| todos |
+-----+
5 rows in set (0.01 sec)

mysql> 
```

Exit the MySQL shell to return to the shell on our machine.

```
mysql> exit
Bye
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> 
```

Connect to MySQL

Start a new container using the nicolaka/netshoot image. Make sure to connect it to the same network.

```
mysql> exit
Bye
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker run -it --network todo-app nicolaka/netshoot
Unable to find image 'nicolaka/netshoot:latest' locally
latest: Pulling from nicolaka/netshoot
2408cc74d12b: Pull complete
3cf03e9fd7e4: Pull complete
d3299a042ee2: Pull complete
e00dbf0b44c3: Pull complete
1cb6452f30ec: Pull complete
cc37e878581f: Pull complete
4f4fb700ef54: Pull complete
b01a5ec78db0: Pull complete
123e924da2d1: Pull complete
367cf0ba0067: Pull complete
5a3733011111: Pull complete
```

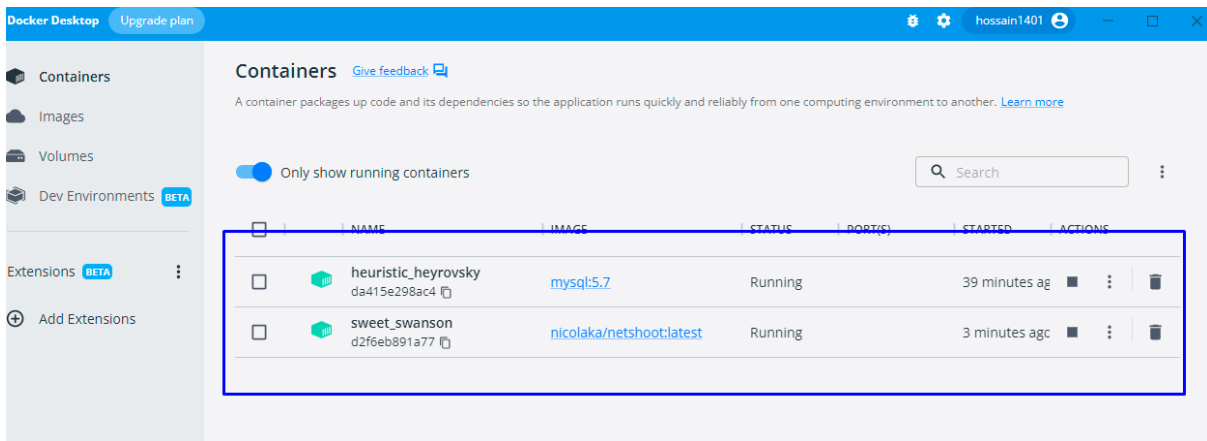
In 1 Col 1

```
6adf3d98c1c3: Pull complete
77c79836780d: Pull complete
4aafb6d72b2b: Pull complete
Digest: sha256:aeafd567d7f7f1edb5127ec311599bb2b8a9c0fb31d7a53e9cff26af6d29fd4e
Status: Downloaded newer image for nicolaka/netshoot:latest

      dP      dP      dP
      88      88      88
88d888b. .d8888b. d8888P .d8888b. 88d888b. .d8888b. .d8888b. d8888P
88' `88 88oooo8 88 Y8oooo. 88' `88 88' `88 88' `88 88
88 88 88. ... 88      88 88 88 88. .88 88. .88 88
dP dP `88888P' dP `88888P' dP dP `88888P' `88888P' dP

Welcome to Netshoot! (github.com/nicolaka/netshoot)

d2f6eb891a77 ~ |
```



Inside the container, we’re going to use the dig command, which is a useful DNS tool. We’re going to look up the IP address for the hostname mysql.

```
d2f6eb891a77 ~ dig mysql
```

```
;; <<>> DiG 9.18.3 <<>> mysql
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 63416
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;mysql.                IN      A

;; ANSWER SECTION:
mysql.                 600     IN      A      172.18.0.2

;; Query time: 180 msec
```

```
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 63416
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;mysql.                IN      A

;; ANSWER SECTION:
mysql.                 600     IN      A      172.18.0.2

;; Query time: 180 msec
;; SERVER: 127.0.0.11#53(127.0.0.11) (UDP)
;; WHEN: Sat Oct 29 11:56:30 UTC 2022
;; MSG SIZE rcvd: 44
```

```
d2f6eb891a77 ~
```

Run app with MySQL

```
mysql> ALTER USER root IDENTIFIED WITH mysql_native_password BY secret
-> flush privileges
-> []
```

We'll specify each of the environment variables above, as well as connect the container to our app network.

```

volumes: Remove anonymous volumes associated with the container
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker run -dp 4000:4000 `
>> -w /app -v "$(pwd):/app" `
>> --network todo-app `
>> -e MYSQL_HOST=mysql `
>> -e MYSQL_USER=root `
>> -e MYSQL_PASSWORD=secret `
>> -e MYSQL_DB=todos `
>> node:12-alpine `
>> sh -c "yarn install && yarn run dev"
690f4cd5c78358163edf055f9920d38bbd4f9f9cbd07d3c0894da05dd4aa8f5c
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain>

```

Built docker file:

```

PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker build -t getting-started .
[+] Building 1.7s (2/2) FINISHED
=> [internal] load build definition from Dockerfile                                1.1s
=> => transferring dockerfile: 2B                                                0.2s
=> [internal] load .dockerignore                                                 1.4s
=> => transferring context: 2B                                                  0.3s
failed to solve with frontend dockerfile.v0: failed to read dockerfile: open /var/lib/docker/tmp/buildkit-mount985958070/dockerfile: no such file or directory
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain>

```

Docker Images exist:

```

PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> ls

Directory: C:\Users\User\OneDrive\Desktop\DockertodofileHossain

Mode                LastWriteTime         Length Name
----                -
d-----          29-Oct-22   2:07 PM             getting-started-master
d-----          29-Oct-22   4:36 PM             node_modules
-a----          29-Oct-22   4:36 PM              86 yarn.lock

PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain>

```

Connect to the mysql database and prove that the items are being written to the database. Remember, the password is secret.

```
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker exec -it da415e298ac4 mysql -p todos
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 7
Server version: 5.7.40 MySQL Community Server (GPL)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> 
```

Part 2

Install Docker Compose

```
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker compose version
Docker Compose version v2.12.0
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> 
```

Create the Compose file

```
DOCKERTODOFILEHOSSAIN getting-started-master > docker-compose 2.yml > {} services > {} app > {} environment > {} volumes > todo-mysql-data
  version: "3.7"
  services:
    app:
      image: node:12-alpine
      command: sh -c "yarn install && yarn run dev"
      ports:
        - 4000:4000
      working_dir: /app
      volumes:
        - ./:/app
      environment:
        MYSQL_HOST: mysql
        MYSQL_USER: root
        MYSQL_PASSWORD: secret
        MYSQL_DB: todos
      mysql:
        image: mysql:5.7
        vlumes:
          - todo-mysql-data:/var/lib/mysql
        environment:
          MYSQL_ROOT_PASSWORD: secret
          MYSQL_DATABASE: todos
        volumes:
          - todo-mysql-data:

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL JUPYTER
6a1e688aeb5dee70fcad226df07dd0528925ec9e6f1ed16b90311a608f88547f
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker compose up -d
no configuration file provided: not found
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain>
```

Define the app service


















```
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker run -dp 4000:4000 `
>> -w /app -v "$(pwd):/app" `
>> --network todo-app `
>> -e MYSQL_HOST=mysql `
>> -e MYSQL_USER=root `
>> -e MYSQL_PASSWORD=secret `
>> -e MYSQL_DB=todos `
>> node:12-alpine `
>> sh -c "yarn install && yarn run dev"
a2c824669e8d0e1a8a20345f304553f6bc9c23b3c55308b32e5ea832a3191231
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain>
```

Define the MySQL service

```
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain> docker run -d `
>> --network todo-app --network-alias mysql `
>> -v todo-mysql-data:/var/lib/mysql `
>> -e MYSQL_ROOT_PASSWORD=secret `
>> -e MYSQL_DATABASE=todos `
>> mysql:5.7
d666d611e5e384898b2db5f3b90886b99c7d5cf50e37c60634b8897cab013a25
PS C:\Users\User\OneDrive\Desktop\DockertodofileHossain>
```


Run the application stack

```
mysql> docker compose up -d
-> Creating networking "app_default" with the default driver
-> Creating volume "app_todo-mysql-data" with the default driver
-> Creating app_app_1 ...done
-> Creating app_mysql_1 ..done
```

<input type="checkbox"/>	NAME	IMAGE	STATUS	PORT(S)	STARTED	ACTIONS
<input type="checkbox"/>	 heuristic_heyrovsky da415e298ac4	mysql:5.7	Running		4 hours ago	  
<input type="checkbox"/>	 sweet_swanson d2f6eb891a77	nicolaka/netshoot:latest	Running		3 hours ago	  
<input type="checkbox"/>	 festive_chaum a2c824669e8d	node:12-alpine	Running	4000:4000 	2 seconds agc	  
<input type="checkbox"/>	 romantic_nobel d666d611e5e3	mysql:5.7	Running		23 seconds ag	  

Github_link

<https://github.com/Alamin2022/Docker-HW-1-Cloud-systems>.