Introduction to Database Systems: CS305 Setting up MongoDB with Docker

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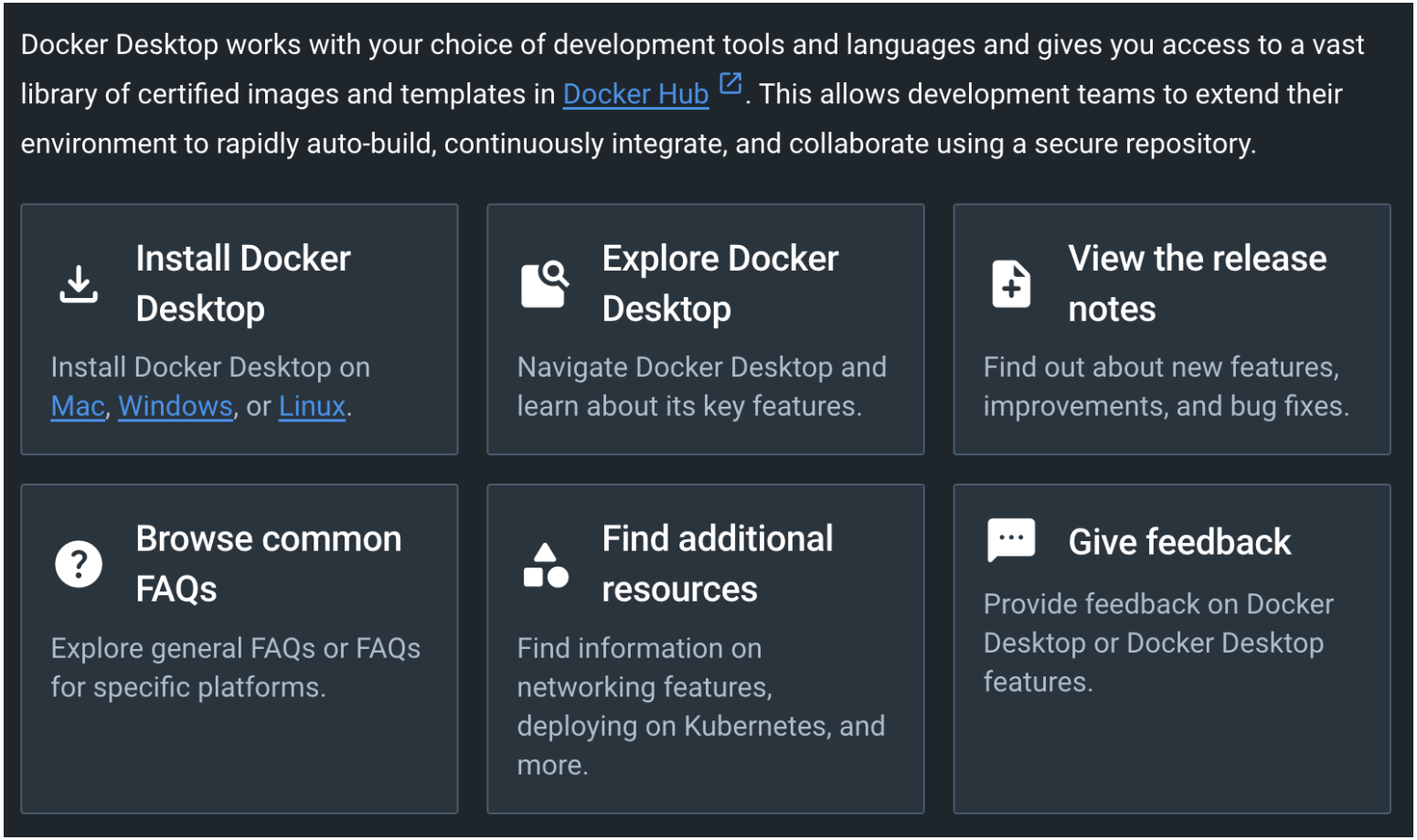
Setup Docker

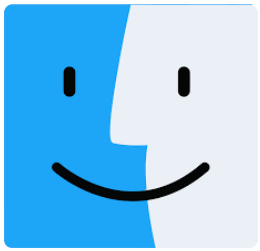
Read the Docker Install Docs

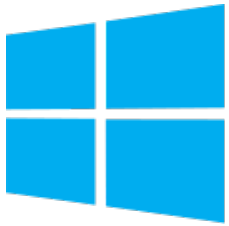


`https://docs.docker.com/desktop/`

Setup Mongo in Docker Container

Build the data directory





MacOS and Linux: Create a directory for data to persist.

```
mkdir -p ~/mongodata
```

Windows: Create a directory for data to persist.

```
mkdir C:\Users\olive\OneDrive\mongodata
```

Replace *oliver* with your own windows username

Setup Mongo in Docker Container

Construct the container

MacOS and Linux: Start a Docker container by downloading from DockerHub

```
sudo docker run -it -v ~/mongodata:/data/db --name mongodb -d mongo
```

Windows: Start a Docker container by downloading from DockerHub

```
docker run -it -v C:\Users\olive\OneDrive\mongodata:/data/db
     --name mongodb -d mongo
```

For **Windows** commands (below), remove the term:

sudo

Setup Mongo in Docker Container

Maintenance commands

Check log to see that the server is operational

```
sudo docker logs mongodb
```

Check status: Is the `mongodb` running?

```
sudo docker ps
```

If `mongodb` container is not running, then start it up

```
sudo docker start mongodb
```

To stop the `mongodb` container at the end of your work

```
sudo docker stop mongodb
```

Run instance of MongoDB, goes into `root` of container.

```
sudo docker exec -it mongodb bash
```

Setup Mongo in Docker Container

From inside the container

You are now able to run MongoDB commands here.

Start the MongoDB client

```
mongosh
```

Leave the container

```
exit
```

Setup Mongo in Docker Container

Leaving/removing the container

Stop MongoDB container

```
sudo docker stop mongodb
```

Removing all stopped containers, if necessary due to errors in launching container

```
sudo docker rm $(docker ps -a -q)
```

Let's code
Schools Data

Populate the MongoDB database

```
db.schools.insertMany([
  { 'school': "Washington", name: 'Ryan', gender: 'M', 'Job':'Teacher' },
  { 'school': "Edison", name: 'Joanna', gender: 'F', 'Job':'Professor'},
  { 'school': "Eaton", name: 'Roger', gender: 'M', 'Job':'Instructor'},
  { 'school': "Lewis", name: 'Presilla', gender: 'F', 'Job':'Instructor'}
]);
```

General Syntax

`db.schools.find({ SEARCH-SPACE }, {CONSTRAINTS} )`

- `SEARCH-SPACE` → Scan this search space
- `CONSTRAINTS` → Find constraint(s) within the search space

Querying "Jobs" == "Instructor", show *name*, *gender* and *school*

```
db.schools.find(['Job':'Instructor'},
    {'name': 1, 'gender': 1, 'school':1}).pretty()
```