

DEVOPS ASSIGNMENT -2

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Q1: Using Docker Desktop or Docker Playground, perform the following:

a. Create a Container with PostgresDB or MySQL database installed

Step 1: Check Whether Docker is Installed or not

```
PS C:\Users\knave> docker --version
Docker version 20.10.17, build 100c701
```

Step 2: We need to pull the docker image using the below command.

```
PS C:\Users\knave> docker pull postgres
Using default tag: latest
latest: Pulling from library/postgres
8a628cdd7ccc: Pull complete
e4847368ad17: Pull complete
97cdd47d9131: Pull complete
2817206b0512: Pull complete
3a6f8814136c: Pull complete
07db60713289: Pull complete
0c942aac37b1: Pull complete
8c63b71925de: Pull complete
97f28320a07a: Pull complete
2a08aad74366: Pull complete
6cea4d95608f: Pull complete
c1b7de8085d1: Pull complete
f15c43cffa70: Pull complete
6948dc7760c1: Pull complete
Digest: sha256:fe3f571d128e8efadcd8b2fde0e2b73ebab6dbec33f6bfe69d98c682c7d8f7bd
Status: Downloaded newer image for postgres:latest
docker.io/library/postgres:latest
```

Step 3: Run the docker image using the Postgres credentials

```
PS C:\Users\knave> docker run --name pg-container -e POSTGRES_USER=admin -e POSTGRES_PASSWORD=admin123 -e POSTGRES_DB=testdb -p 5432:5432 -d postgres
be3f8fac92ed9a229ca9130065ca0e267844c74955cc8393314f69a274b0d55d
```

Step 4: Check whether the docker image is running or not

```
PS C:\Users\knave> docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
be3f8fac92ed   postgres  "docker-entrypoint.s..." 31 seconds ago Up 30 seconds 0.0.0.0:5432->5432/tcp             pg-container
```

Step 5: Connect to the database and test by creating a TABLE

```
PS C:\Users\knave> docker exec -it pg-container psql -U admin -d testdb
psql (17.4 (Debian 17.4-1.pgdg120+2))
Type "help" for help.

testdb=# create table test_table (id serial primary key, name text); insert into test_table (name) values ('VReqST user'); select * from test_table;
CREATE TABLE
INSERT 0 1
 id | name
----+-----
  1 | VReqST user
(1 row)

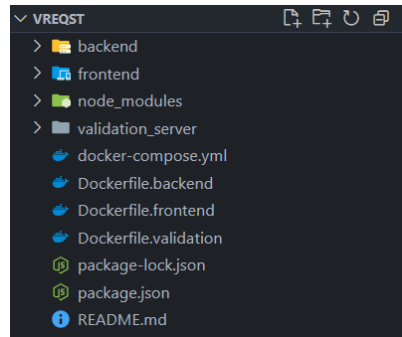
testdb=# |
```

Q1 B) Deploy VReqST – A requirement specification tool in a container.

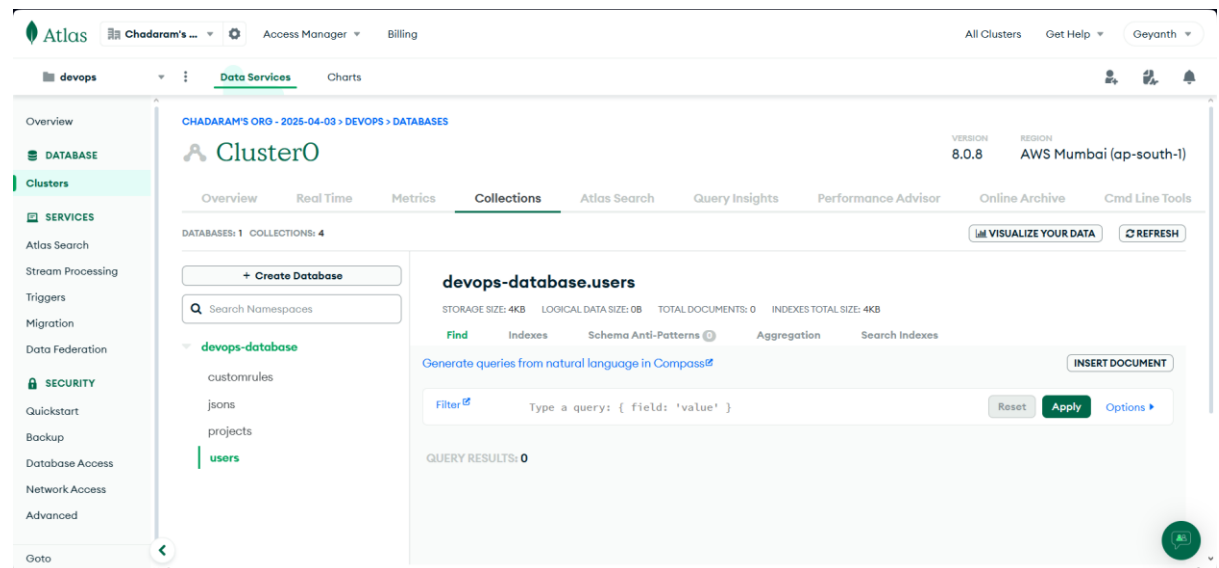
Step 1 : Clone the Repository using the commands

```
1 git clone https://github.com/<your-repository>/VReqST-2
2 cd VReqST-2/VReqST-main/VReqST
```

Step 2: Verify the folder structure



Step 4: Create Collections in MongoDB Atlas and use MONGO_URI to link to the application (the link is given in docker-composer file)

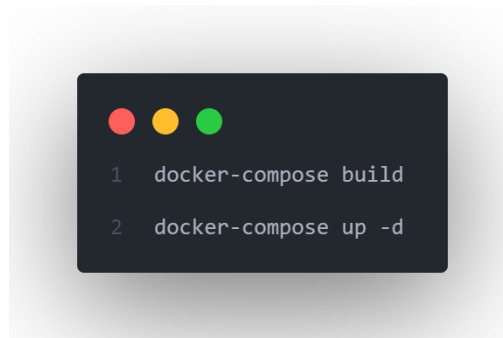


Step 3: Setup Docker

- a. **Install Docker & Docker Compose** - Ensure both Docker and Docker Compose are installed and working.
- b. **Create docker file `docker-compose.yml`** - Used to run the docker containers
- c. **Create subfolders for different services** - Configure `Dockerfile.frontend`, `Dockerfile.backend`, `Dockerfile.validation`

```
1 version: '3.8'
2
3 services:
4   backend:
5     build:
6       context: .
7       dockerfile: Dockerfile.backend
8     ports:
9       - "5002:5002"
10    environment:
11      - <MONGODB_URI>
12
13   validation:
14     build:
15       context: .
16       dockerfile: Dockerfile.validation
17     ports:
18       - "5001:5001"
19     environment:
20       - <MONGODB_URI>
21
22   frontend:
23     build:
24       context: .
25       dockerfile: Dockerfile.frontend
26     ports:
27       - "3000:3000"
28     depends_on:
29       - backend
30       - validation
```

d. Build and Start Container



Outputs:

```
D:\M.Tech\2nd Sem\Devops\Assignments\devops_tool\VReqST-2\VReqST-main\VReqST>docker-compose up -d
time="2025-04-19T21:23:15+05:30" level=warning msg="D:\M.Tech\2nd Sem\Devops\Assignments\devops_tool\VReqST-2\VReqST-main\VReqST\docker-compose.yml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion"
[+] Running 4/4
 ✓ Network vreqst_default          Created           0s
 ✓ Container vreqst-backend-1      Started          3s
 ✓ Container vreqst-validation-1   Started          3s
 ✓ Container vreqst-frontend-1     Started          2s
```

- Running the Application

```
D:\M.Tech\2nd Sem\Devops\Assignments\devops_tool\VReqST-2\VReqST-main\VReqST>docker-compose up --build -d
time="2025-04-19T21:30:42+05:30" level=warning msg="D:\M.Tech\2nd Sem\Devops\Assignments\devops_tool\VReqST-2\VReqST-main\VReqST\docker-compose.yml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion"
Compose can now delegate builds to bake for better performance.
To do so, set COMPOSE_BAKE=true.
[+] Building 226.9s (26/26) FINISHED                                docker:desktop-linux
=> [validation internal] load build definition from Dockerfile.validation 0.0s
=> => transferring dockerfile: 154B 0.0s
=> [backend internal] load build definition from Dockerfile.backend 0.1s
=> => transferring dockerfile: 280B 0.0s
=> [frontend internal] load metadata for docker.io/library/node:14 2.2s
=> [backend internal] load .dockerignore 0.0s
=> => transferring context: 2B 0.0s
=> [validation internal] load .dockerignore 0.1s
=> => transferring context: 2B 0.0s
=> [backend internal] load build context 17.3s
=> => transferring context: 32.59MB 17.1s
=> [frontend 1/5] FROM docker.io/library/node:14@sha256:a158d3b9b4e3fa813fa6c8c590b8f0a860e015ad4e59bbce5744d 0.2s
=> => resolve docker.io/library/node:14@sha256:a158d3b9b4e3fa813fa6c8c590b8f0a860e015ad4e59bbce5744d2f6fd8461 0.0s
=> [validation internal] load build context 1.1s
=> => transferring context: 67.22kB 0.9s
=> CACHED [frontend 2/5] WORKDIR /app 0.0s
=> CACHED [validation 3/4] COPY validation_server/ . 0.0s
=> CACHED [validation 4/4] RUN npm install 0.0s
=> [validation] exporting to image 0.6s
=> => exporting layers 0.0s
=> => exporting manifest sha256:054f0155f3a3378988bbb8a442d1b686e32e8f2052deebecee896cec402ce587 0.0s
```

```

D:\M.Tech\2nd Sem\Devops\Assignments\devops_tool\VReqST-2\VReqST-main\VReqST>docker-compose up --build -d
time="2025-04-19T21:30:42+05:30" level=warning msg="D:\M.Tech\2nd Sem\Devops\Assignments\devops_tool\VReqST-2\VReqST-main\VReqST\docker-compose.yml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion"
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=> => resolve docker.io/library/node:14@sha256:a158d3b9b4e3fa813fa6c8c590b8f0a860e015ad4e59bbce5744d2f6fd8461 0.0s
=> [validation internal] load build context 1.1s
=> => transferring context: 67.22kB 0.9s
=> CACHED [frontend 2/5] WORKDIR /app 0.0s
=> CACHED [validation 3/4] COPY validation_server/ . 0.0s
=> CACHED [validation 4/4] RUN npm install 0.0s
=> [validation] exporting to image 0.6s
=> => exporting layers 0.0s
=> => exporting manifest sha256:054f0155f3a3378988bbb8a442d1b686e32e8f2052deebecee896cec402ce587 0.0s

```

Step 4: Access the Application

Open your browser and go to: **http://localhost:3000**