

Q. Docker container

[devops-commontrack-mocktest/question5 at main · KPkm25/devops-commontrack-mocktest](#)

1. Cloning the Github Repository using the following command

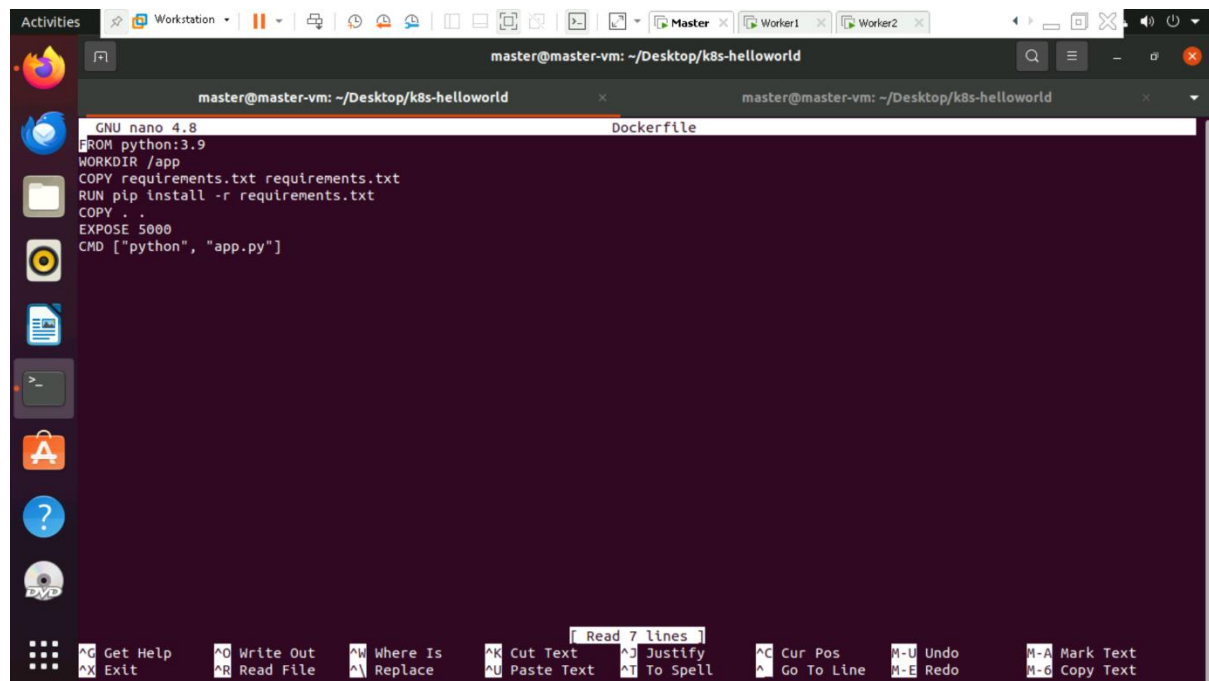
Git clone git@github.com:devops-experience/k8s-helloworld.git

```
master@master-vm: ~/Desktop$ git clone git@github.com:devops-experience/k8s-helloworld.git
Cloning into 'k8s-helloworld'...
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 9 (delta 2), reused 1 (delta 1), pack-reused 4 (from 1)
Receiving objects: 100% (9/9), done.
Resolving deltas: 100% (2/2), done.
```

2. Creating the Dockerfile using the following command

Cd k8s-helloworld

Nano Dockerfile



```
GNU nano 4.8 Dockerfile
FROM python:3.9
WORKDIR /app
COPY requirements.txt requirements.txt
RUN pip install -r requirements.txt
COPY . .
EXPOSE 5000
CMD ["python", "app.py"]
```

3. Building the Docker image using the following command

Docker build -t kpk25/k8s-helloworld

```
master@master-vm: ~/Desktop/k8s-helloworld$ nano Dockerfile
master@master-vm: ~/Desktop/k8s-helloworld$ nano requirements.txt
master@master-vm: ~/Desktop/k8s-helloworld$ docker build -t kpk25/k8s-helloworld .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
             Install the buildx component to build images with BuildKit:
             https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  8.704kB
Step 1/7 : FROM python:3.9
--> 9b398f66708c
Step 2/7 : WORKDIR /app
--> Using cache
--> 01b415d075ef
Step 3/7 : COPY requirements.txt requirements.txt
--> 8dad5e74e25
Step 4/7 : RUN pip install -r requirements.txt
--> Running in 70b78d01fe41
Collecting flask
  Downloading flask-3.1.0-py3-none-any.whl (102 kB)
```

```
Activities Workstation Master Worker1 Worker2
master@master-vm: ~/Desktop/k8s-helloworld

Collecting blinker==1.9
  Downloading blinker-1.9.0-py3-none-any.whl (8.5 kB)
Collecting Jinja2==3.1.2
  Downloading Jinja2-3.1.2-py3-none-any.whl (134 kB)
  134.9/134.9 kB 10.7 MB/s eta 0:00:00
Collecting itsdangerous==2.2
  Downloading itsdangerous-2.2.0-py3-none-any.whl (16 kB)
Collecting zipp==3.20
  Downloading zipp-3.21.0-py3-none-any.whl (9.6 kB)
Collecting MarkupSafe==2.0
  Downloading MarkupSafe-3.0.2-cp39-cp39-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (20 kB)
Installing collected packages: zipp, MarkupSafe, itsdangerous, click, blinker, Werkzeug, Jinja2, importlib-metadata, flask
Successfully installed Jinja2-3.1.6 MarkupSafe-3.0.2 Werkzeug-3.1.3 blinker-1.9.0 click-8.1.8 flask-3.1.0 importlib-metadata-8.6.1 i
tsdangerous-2.2.0 zipp-3.21.0
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager.
It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv

[notice] A new release of pip is available: 23.0.1 -> 25.0.1
[notice] To update, run: pip install --upgrade pip
--> Removed intermediate container 70b78d01fe41
--> ab83f055b8d5
Step 5/7 : COPY . .
--> 1c3234635c7f
Step 6/7 : EXPOSE 5000
--> Running in 37011f8df720
--> Removed intermediate container 37011f8df720
--> 4a7e7d01c6b3
Step 7/7 : CMD ["python", "app.py"]
--> Running in b4b59b214cd2
--> Removed intermediate container b4b59b214cd2
--> 973a04f8e5cd
Successfully built 973a04f8e5cd
Successfully tagged kpk25/k8s-helloworld:latest
master@master-vm:~/Desktop/k8s-helloworld$
```

```
master@master-vm:~/Desktop/k8s-helloworld$ docker images
REPOSITORY          TAG          IMAGE ID          CREATED           SIZE
kpk25/k8s-helloworld latest       973a04f8e5cd      33 seconds ago   1.01GB
kpk25/sample-ci-cd  latest      c07a87494459      4 hours ago      1.01GB
sample-ci-cd        latest      c07a87494459      4 hours ago      1.01GB
portainer/portainer-ce latest      13362f23a453      3 weeks ago      268MB
python              3.9         9b398f66708c      4 months ago     999MB
master@master-vm:~/Desktop/k8s-helloworld$
```

4. Running the container on port 5000 using the following command

Docker run -p 5000:5000 kpk25/k8s-helloworld

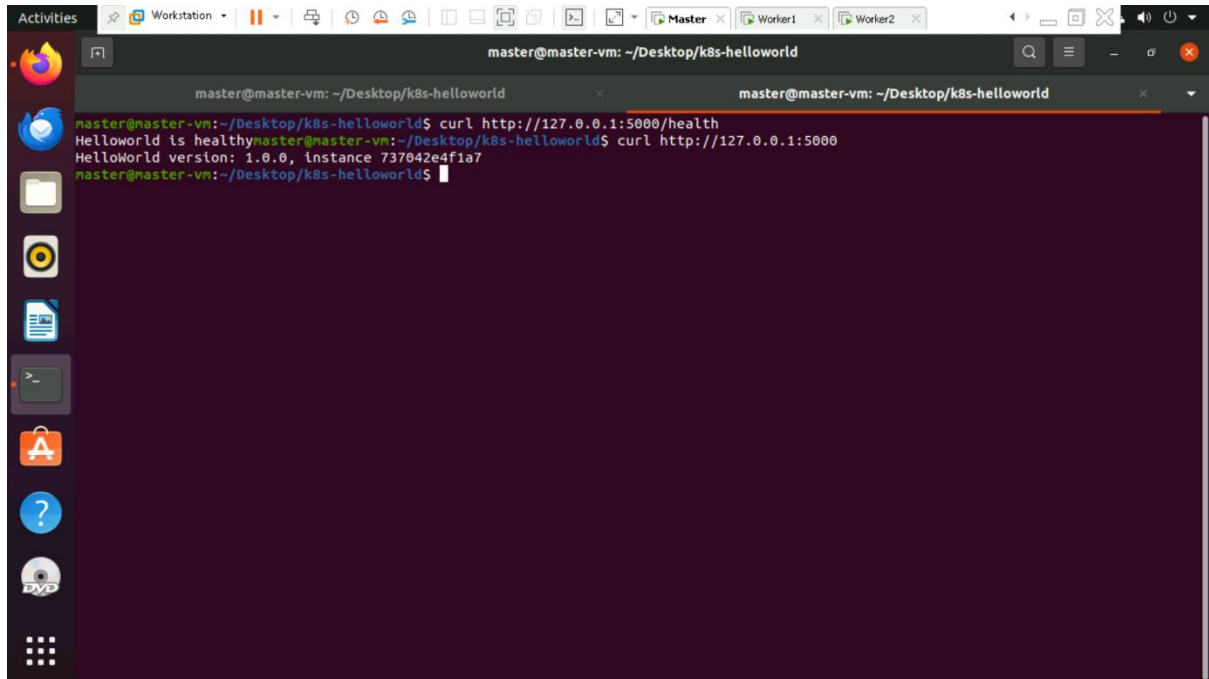
```
Activities Workstation Master Worker1 Worker2
master@master-vm: ~/Desktop/k8s-helloworld

master@master-vm:~/Desktop/k8s-helloworld$ docker run -p 5000:5000 kpk25/k8s-helloworld
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://172.17.0.1:5000
* Running on http://172.17.0.3:5000
Press CTRL+C to quit
172.17.0.1 - - [09/Apr/2025 08:43:15] "GET /health HTTP/1.1" 200 -
172.17.0.1 - - [09/Apr/2025 08:43:21] "GET / HTTP/1.1" 200 -
```

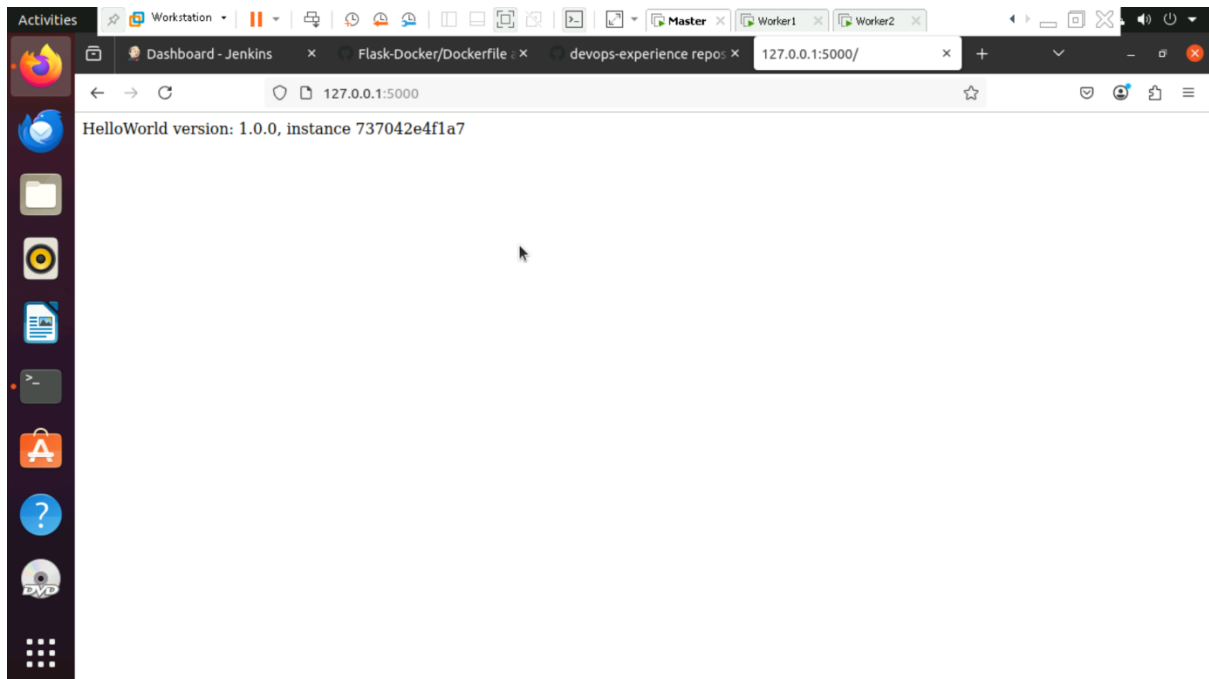
5. Testing the API endpoints using the following curl commands:

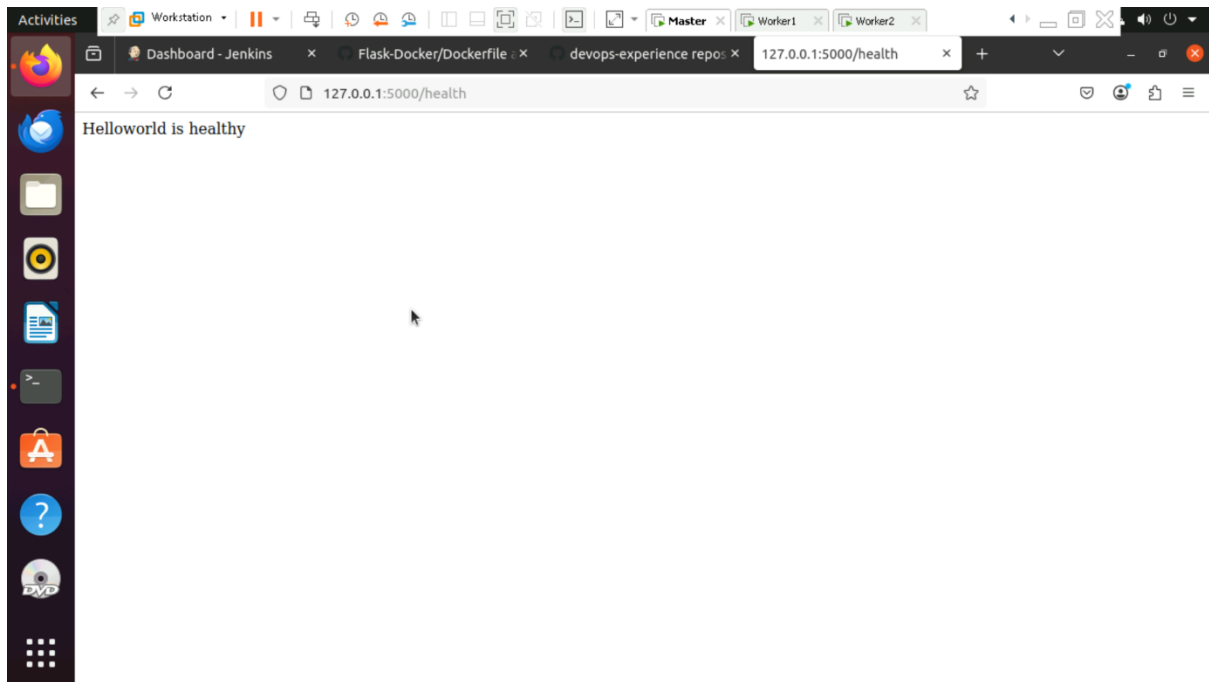
Curl <http://127.0.0.1:5000>

Curl 127.0.0.1:5000/health



```
master@master-vm: ~/Desktop/k8s-helloworld
master@master-vm:~/Desktop/k8s-helloworld$ curl http://127.0.0.1:5000/health
HelloWorld is healthy
master@master-vm:~/Desktop/k8s-helloworld$ curl http://127.0.0.1:5000
HelloWorld version: 1.0.0, instance 737042e4f1a7
master@master-vm:~/Desktop/k8s-helloworld$
```





6. To view the container ID, run the following command

Docker ps

```
master@master-vm:~/Desktop/k8s-helloworld$ docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	NAMES	STATUS	PORTS
a526ceb9739c	kpkm25/k8s-helloworld	"python app.py"	About a minute ago	thirsty_banach	Up About a minute	0.0.0.0:5000->5000/tcp
d5d4213131d7	portainer/portainer-ce:latest	"/portainer"	2 weeks ago	portainer	Up Less than a second	0.0.0.0:8000->8000/tcp, 0.0.0.0:9443->9443/tcp, ::9443->9443/tcp, 9000/tcp

7. To view the working directory we have to go inside the container using the following command

Docker exec -it <container_id> pwd

```
master@master-vm:~/Desktop/k8s-helloworld$ docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	NAMES	STATUS	PORTS
a526ceb9739c	kpkm25/k8s-helloworld	"python app.py"	2 minutes ago	thirsty_banach	Up 2 minutes	0.0.0.0:5000->5000/tcp, ::5000->5000/tcp
d5d4213131d7	portainer/portainer-ce:latest	"/portainer"	2 weeks ago	portainer	Up Less than a second	0.0.0.0:8000->8000/tcp, 0.0.0.0:9443->9443/tcp, ::9443->9443/tcp, 9000/tcp

```
master@master-vm:~/Desktop/k8s-helloworld$ docker exec -it a526ceb9739c pwd
/app
```

8. To view the read-write layer directory on the host, run the following command

Docker inspect <container_id> --format '{{.GraphDriver.Data.UpperDir}}'

```
master@master-vm:~/Desktop/k8s-helloworld$ docker inspect a526ceb9739c --format '{{.GraphDriver.Data.UpperDir}}'
/var/lib/docker/overlay2/5037783e364791b6bdee68b8f73123b2cc2edd977764d604cc388279245ca48c/diff
master@master-vm:~/Desktop/k8s-helloworld$
```