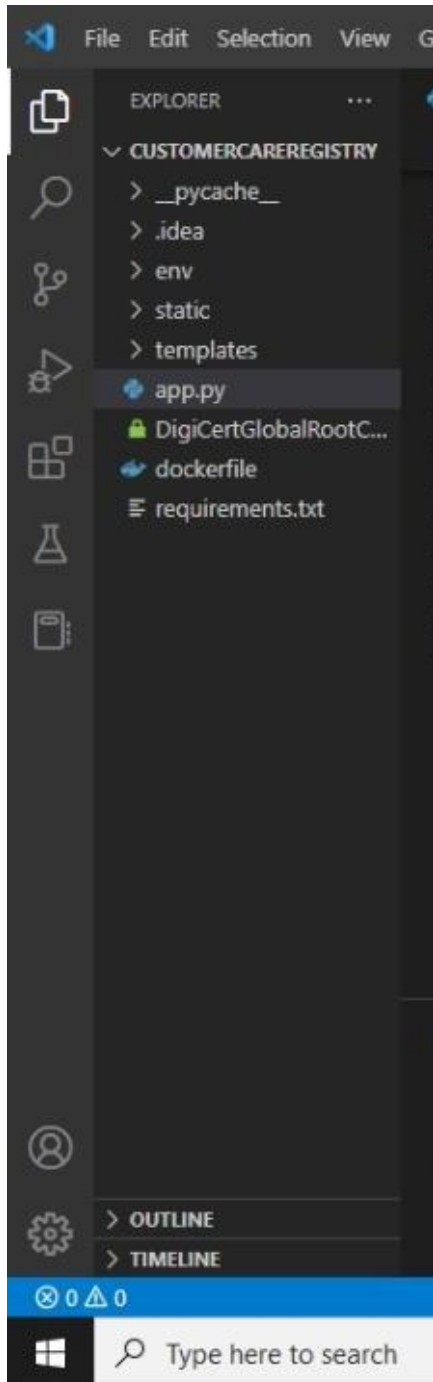


Containerize your Flask application

- In your project directory, create a file named "Dockerfile." *Suggestion: Name your file exactly "Dockerfile," nothing else.*



A "Dockerfile" is used to indicate to Docker a base image, the Docker settings you need, and a list of commands you would like to have executed to prepare and start your new container.

- In the file, paste this code:

```
FROM python:2.7
```

```
LABEL maintainer="Kunal Malhotra, kunal.malhotra1@ibm.com "
```

- RUN apt-get update
- RUN mkdir /app WORKDIR /app COPY ./app
- RUN pip install -r requirements.txt
- EXPOSE 5000
- ENTRYPOINT ["python"]
- CMD ["app.py"]

Show more

Explanation and breakdown of the above Dockerfile code

1.

The FROM python:2.7

first

part of the code above is:

2.

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Because this Flask application uses Python 2.7, we want an environment that supports it and already has it installed. Fortunately, DockerHub has an official image that's installed on top of Ubuntu. In one line, we will have a base Ubuntu image with Python 2.7, virtualenv, and pip. There are tons of images on DockerHub, but if you would like to start off with a fresh Ubuntu image and build on top of it, you could do that.

3. Let's look at the next part of the code:
4. LABEL maintainer="Kunal Malhotra, kunal.malhotra1@ibm.com"
5. RUN apt-get update

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6. Note the maintainer and update the Ubuntu package index. The command is RUN, which is a function that runs the command after it.

7. RUN mkdir /app
8. WORKDIR /app
9. COPY ./app

Show more

10. Now it's time to add the Flask application to the image. For simplicity, copy the application under the /app directory on our Docker Image.

WORKDIR is essentially a **cd** in bash, and COPY copies a certain directory to the provided directory in an image. ADD is another command that does the same thing as COPY, but it also allows you to add a repository from a URL. Thus, if you want to clone your git repository instead of copying it from your local repository (for staging and production purposes), you can use that. COPY, however, should be used most of the time unless you have a URL.

11. Now that we have our repository copied to the image, we will install all of our dependencies,

```
RUN pip install --no-cache-dir -r requirements.txt
```

which is defined in the requirements.txt part of the code.

12.

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13.

We want `EXPOSE 5000`

to expose the port(5000) the Flask application runs on, so we use EXPOSE.

14.

Show more

15. ENTRYPOINT specifies the entrypoint of your application.

16. ENTRYPOINT ["python"]

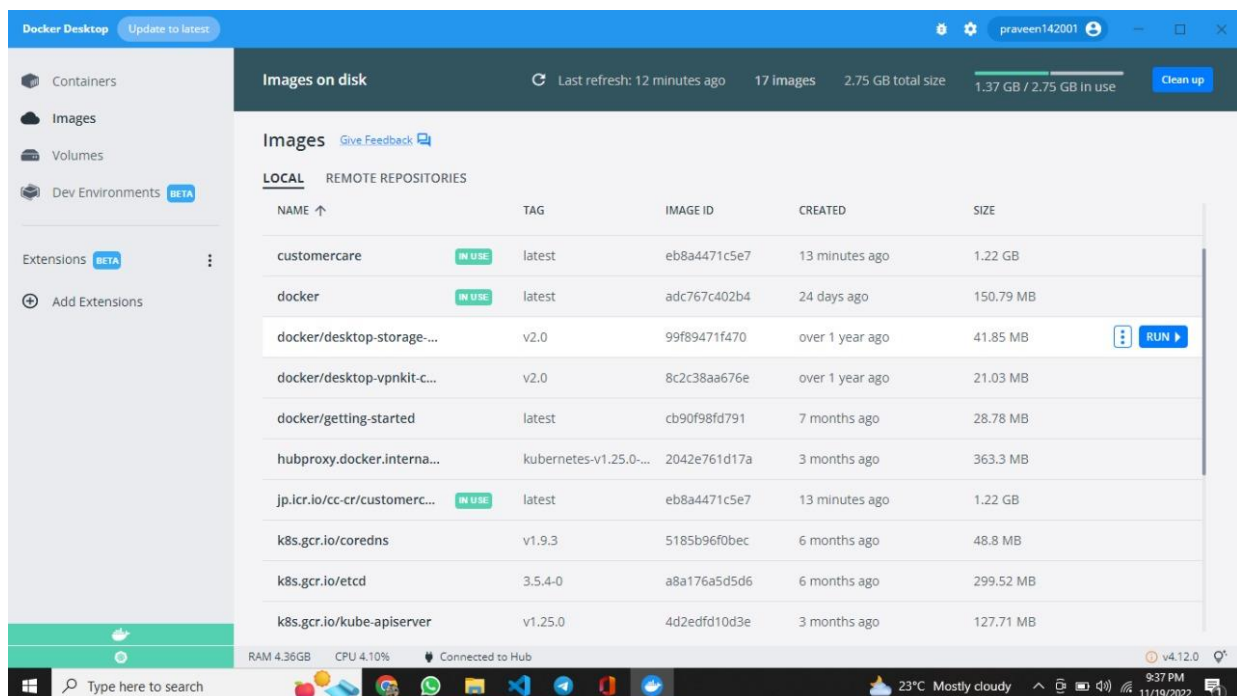
17. CMD ["app.py"]

Show more

Build an image from the Dockerfile

Open the terminal and type this command to build an image from your Dockerfile:

`docker build -t <image_name>:<tag> .` (note the period to indicate we're in our apps top level directory). For example: `docker build -t app:latest .`



Run your container locally and test

After you build your image successfully, type: `docker run -d -p 5000:5000 app`

This command will create a container that contains all the application code and dependencies from the image and runs it locally.

```
C:\Windows\System32\cmd.exe - docker run -p 8080:5000 customercare
docker/getting-started          latest                cb90f98fd791       7 months ago       2
8.8MB
docker/desktop-vpnkit-controller v2.0                8c2c38aa676e       18 months ago       2
1MB
docker/desktop-storage-provisioner v2.0                99f89471f470       19 months ago       4
1.9MB

C:\Users\HP\OneDrive\Desktop\CustomerCareRegistry>ibmcloud cr image-ls
FAILED
'image-ls' is not a registered command. Check your list of installed plug-ins. See 'ibmcloud cr help'.

C:\Users\HP\OneDrive\Desktop\CustomerCareRegistry>docker run -p 8080:5000 customercare
ibm_db.TBM_DBConnection object at 0x7ff5fc025480>
connection successful...
* Serving Flask app 'app'
* Debug mode: on
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://127.0.0.1:5000
* Running on http://172.17.0.3:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 451-625-887
```

