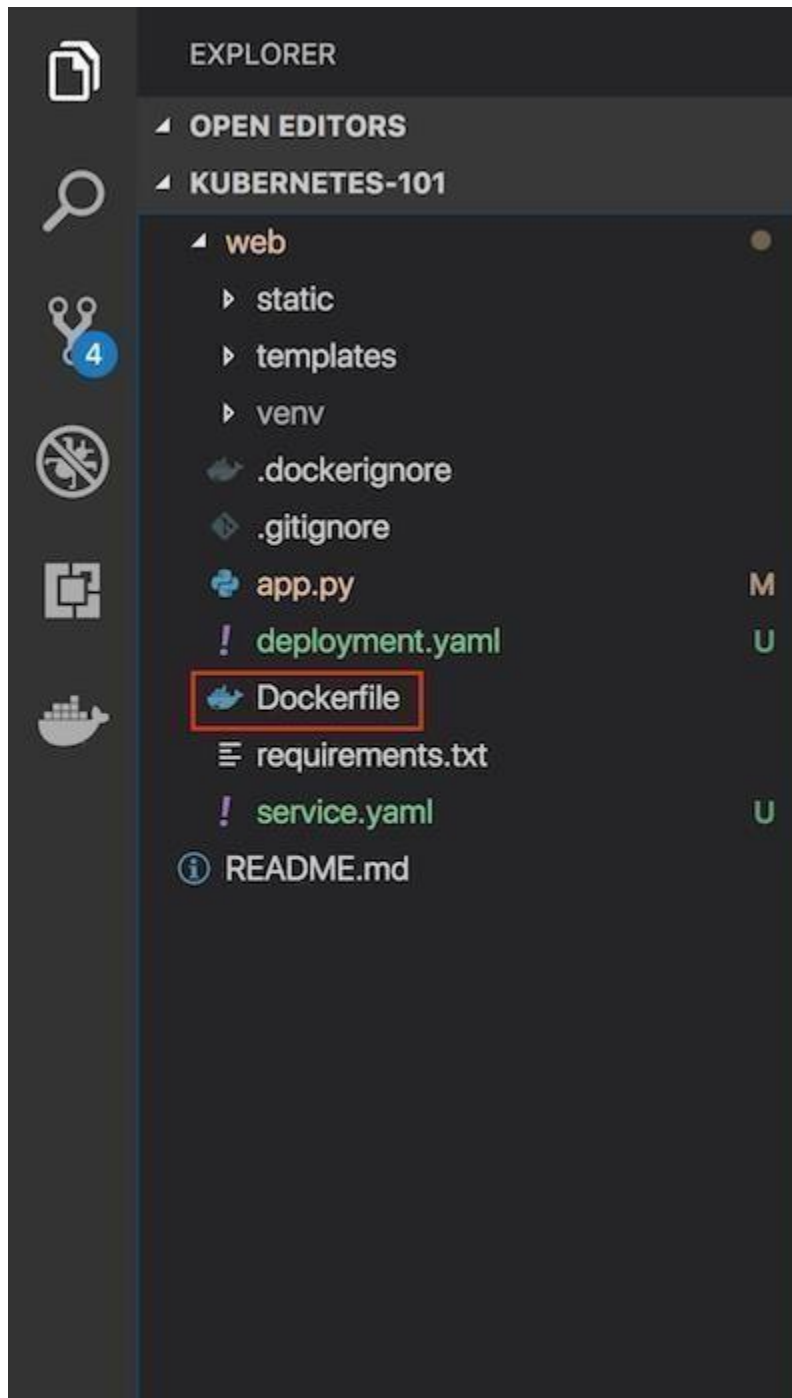


Date	17 November 2022
Team ID	PNT2022TMID25505
Project Name	Plasma Donor Application

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 first part of the code above is:
2. FROM python:2.7

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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, which is defined in the requirements.txt part of the code.
12. RUN pip install --no-cache-dir -r requirements.txt

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

14. EXPOSE 5000

Show more

15. ENTRYPOINT specifies the entrypoint of your application.

16.ENTRYPOINT ["python"]

17.CMD ["app.py"]

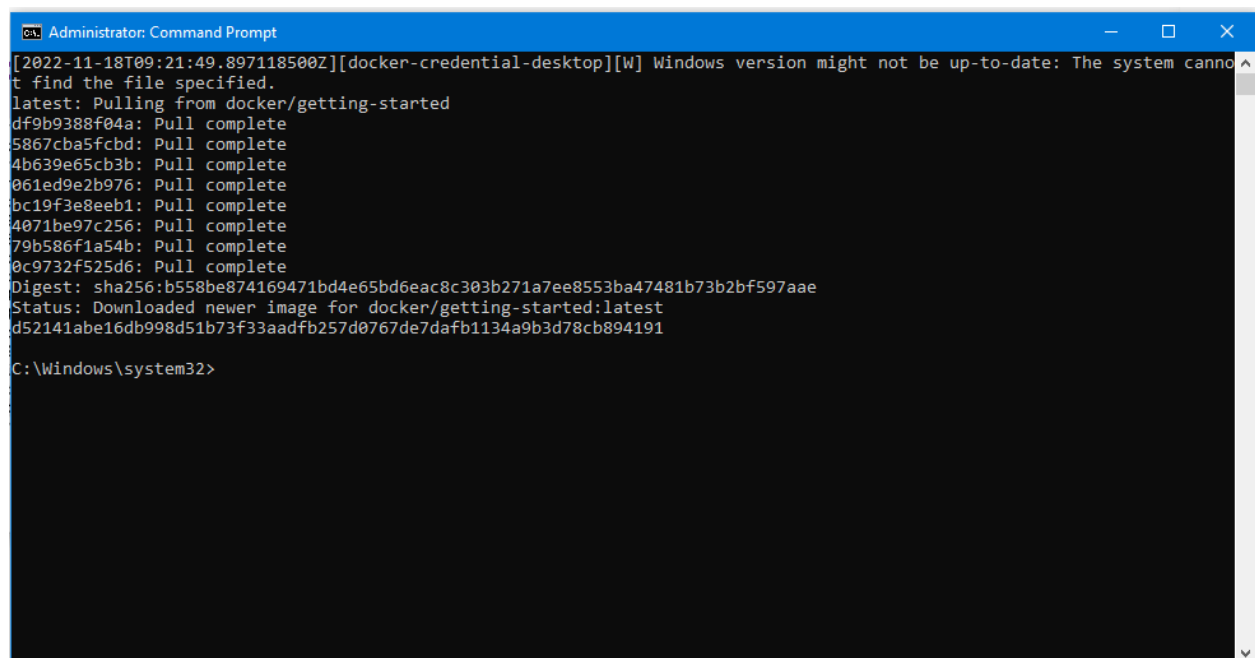
Show more

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 .`

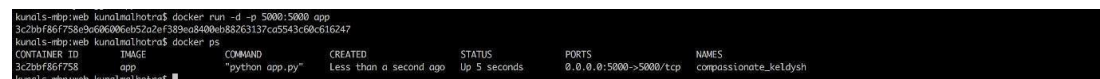


```
Administrator: Command Prompt
[2022-11-18T09:21:49.897118500Z][docker-credential-desktop][W] Windows version might not be up-to-date: The system cannot
t find the file specified.
latest: Pulling from docker/getting-started
df9b9388f04a: Pull complete
5867cba5fcbd: Pull complete
4b639e65cb3b: Pull complete
061ed9e2b976: Pull complete
bc19f3e8eeb1: Pull complete
4071be97c256: Pull complete
79b586f1a54b: Pull complete
0c9732f525d6: Pull complete
Digest: sha256:b558be874169471bd4e65bd6eac8c303b271a7ee8553ba47481b73b2bf597aee
Status: Downloaded newer image for docker/getting-started:latest
d52141abe16db998d51b73f33aadfb257d0767de7dafb1134a9b3d78cb894191
C:\Windows\system32>
```

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.



```
kunals-mbp:web kunal@kunalhotro$ docker run -d -p 5000:5000 app
3c2bbf66f758e6c68300e652a0ef389e0d400b88263137ca5543c08c616247
kunal$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                    NAMES
3c2bbf66f758   app      "python app.py"         Less than a second ago    Up 5 seconds    0.0.0.0:5000->5000/tcp    compassionate_keldysh
kunal$ docker logs kunal@kunalhotro$
```

