Containerize your Flask application
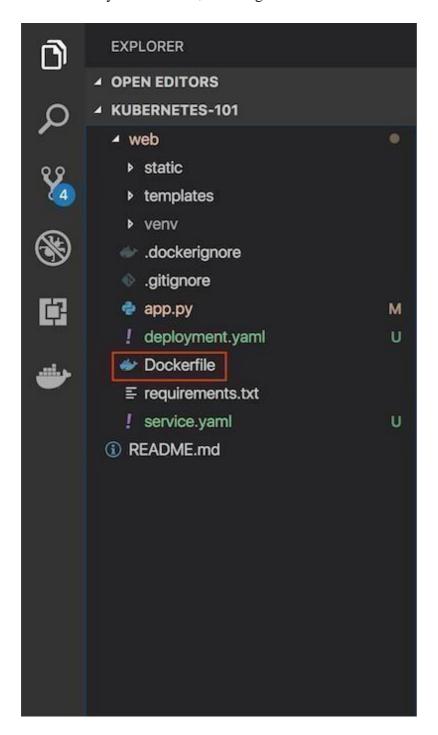
DATE	18-11-2022
PROJECT NAME	NUTRITION ASSISTANT APPLICATION
TEAM ID	PNT2022TMID47022
TEAM MEMBERS	SUDHIR S SANTHOSH M KAVIYUGAN M V GANESH A VINCENT N

• In your project directory, create a file named "**Docker file**." Suggestion: Name yourfile exactly *"**Docker file**,"* nothing else.

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A "Docker File" is used to indicate to Docker a base image, the Docker settings you need, and a list ofcommands 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"]

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Explanation and breakdown of the above Docker file code

1. Th
e   FROM python:2.7
first part of the code aboveis:
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, Docker Hub 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, virtual env, and pip. Thereare tons of images on Docker Hub, 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
```

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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

usethat. `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
```
EXPOSE 5000
```

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

14.

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15. `ENTRYPOINT`specifies the entry point of your application.
16. ENTRYPOINT ["python"]
17. CMD ["app.py"]

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Build an image from the Docker File

Open the terminal and type this command to build an image from your Docker file: docker build -t <image name>:<tag> .(note the period to indicatewe're in our apps top level directory). For example: docker build -t app:latest .

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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.