# CONTAINERIZE THE APP

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| TEAM ID | PNT2022TMID34929 |
| PROJECT NAME | Project - Personal Expense Tracker |
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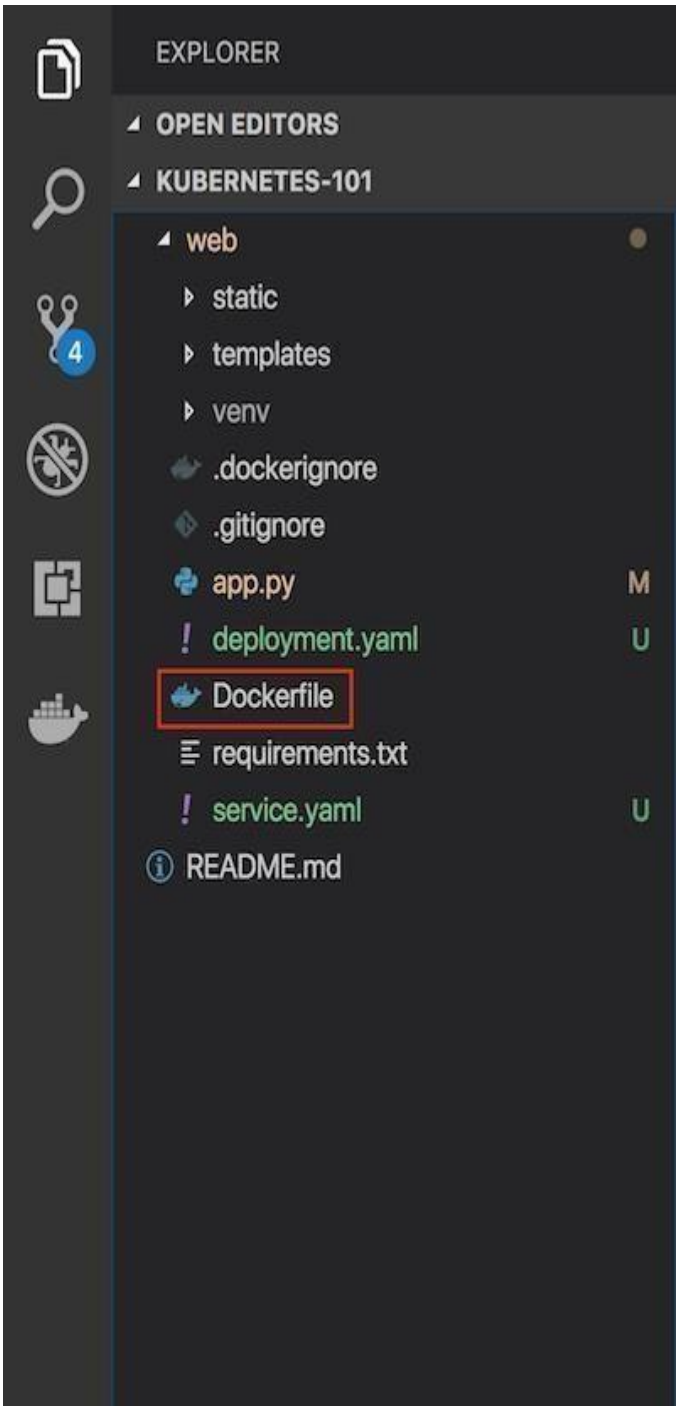
## Containerize your Flask application




In your project directory, create a file named "Dockerfile"

**Step 1**: A "Dockerfile" 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.

**Step 2**: In this file paste the Code:

```
From python :2.7
LABEL maintainer=’Krithiga, 962819104056smartinternz.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” ]
```

**Step 3**: Now it's time to add the Flask application to the image. For simplicity, copy the application underthe /appdirectory 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 insteadof 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

**Step 4:** Now that we have our repository copied to the image, we will install all our dependencies,which is defined in the requirements.txt part of the code.

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

**Step 5**: We want to expose the port(5000) the Flask application runs on, so we use EXPOSE.

```
EXPOSE 5000
```

**Step 6**: ENTRYPOINT specifies the entrypoint of your application

```
ENTRYPOINT [ “python”]
CMD [“app.py”]
```

## Build an image from the Dockerfile

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 we are in our apps top level directory). For example: docker build -t app:latest .

```
kunals-mbp:web kunalmalhotra$ docker build -t app:latest .
Sending build context to Docker daemon  348.2kB
Step 1/8 : FROM python:2.7
 ---> 6c76e39e7cfe
Step 2/8 : LABEL maintainer="Kunal Malhotra, kunal.malhotra1@ibm.com"
 ---> Using cache
 ---> d8b57d41591c
Step 3/8 : RUN apt-get update
 ---> Using cache
 ---> 6262a134e40e
Step 4/8 : COPY . /app
 ---> f07f7377099f
Step 5/8 : WORKDIR /app
Removing intermediate container f9010b99d2fe
 ---> 0bcc6af20e3d
Step 6/8 : RUN pip install -r requirements.txt
 ---> Running in 8153040b00b7
Collecting click==6.7 (from -r requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/34/c1/8806f99713ddb993c5366c362b2f908f18269f8d792aff1abfd700775a77/click-6.7-py2.py3-none-any.whl (71kB)
Collecting Flask==1.0.2 (from -r requirements.txt (line 2))
  Downloading https://files.pythonhosted.org/packages/7f/e7/08578774ed4536d3242b14dacb4696386634607af824ea997202cd0edb4b/Flask-1.0.2-py2.py3-none-any.whl (91kB)
Collecting itsdangerous==0.24 (from -r requirements.txt (line 3))
  Downloading https://files.pythonhosted.org/packages/dc/b4/a60bcdba945c00f6d608d8975131ab3f25b22f2bcfe1dab221165194b2d4/itsdangerous-0.24.tar.gz (46kB)
Collecting Jinja2==2.10 (from -r requirements.txt (line 4))
  Downloading https://files.pythonhosted.org/packages/7f/ff/ae64bacdfc95f27a016a7bed8e8686763ba4d277a78ca76f32659220a731/Jinja2-2.10-py2.py3-none-any.whl (126kB)
Collecting MarkupSafe==1.0 (from -r requirements.txt (line 5))
  Downloading https://files.pythonhosted.org/packages/4d/de/32d741db316d8fdb7680822dd37001ef7a448255de9699ab4bfcbdf4172b/MarkupSafe-1.0.tar.gz
Collecting Werkzeug==0.14.1 (from -r requirements.txt (line 6))
  Downloading https://files.pythonhosted.org/packages/20/c4/12e3e56473e52375aa29c4764e70d1b8f3efa6682bef8d0aae04fe335243/Werkzeug-0.14.1-py2.py3-none-any.whl (322kB)
Building wheels for collected packages: itsdangerous, MarkupSafe
  Running setup.py bdist_wheel for itsdangerous: started
  Running setup.py bdist_wheel for itsdangerous: finished with status 'done'
  Stored in directory: /root/.cache/pip/wheels/2c/4a/61/5599631c1554768c6290b08c02c72d7317910374ca602ff1e5
  Running setup.py bdist_wheel for MarkupSafe: started
  Running setup.py bdist_wheel for MarkupSafe: finished with status 'done'
  Stored in directory: /root/.cache/pip/wheels/33/56/20/ebe49a5c612fffe1c5a632146b16596f9e64676768661e4e46
Successfully built itsdangerous MarkupSafe
Installing collected packages: click, itsdangerous, MarkupSafe, Jinja2, Werkzeug, Flask
Successfully installed Flask-1.0.2 Jinja2-2.10 MarkupSafe-1.0 Werkzeug-0.14.1 click-6.7 itsdangerous-0.24
Removing intermediate container 8153040b00b7
 ---> 66d2636b97bc
Step 7/8 : ENTRYPOINT [ "python" ]
 ---> Running in bdc1c83815e1
Removing intermediate container bdc1c83815e1
 ---> 73cefc38ac1c
Step 8/8 : CMD [ "app.py" ]
 ---> Running in a784d430dd6f
Removing intermediate container a784d430dd6f
 ---> d8b6b83763a5
Successfully built d8b6b83763a5
Successfully tagged app:latest
kunals-mbp:web kunalmalhotra$
```

## 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 kunalmalhotra$ docker run -d -p 5000:5000 app
3c2bbf86f758e9a606006eb52a2ef389ea8400eb88263137ca5543c60c616247
kunals-mbp:web kunalmalhotra$ docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED              STATUS              PORTS                    NAMES
3c2bbf86f758        app                 "python app.py"     Less than a second ago   Up 5 seconds        0.0.0.0:5000->5000/tcp   compassionate_keldysh
kunals-mbp:web kunalmalhotra$
```