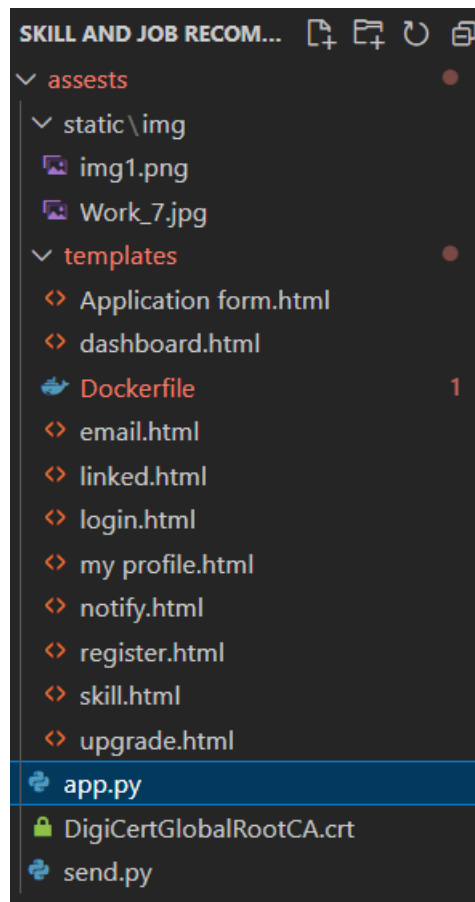


Containerize your Flask application

Team Id	PNT2022TMID03974
Project Name	Skill/Job Recommender Application
Team Members	Pradeep Narayanan, Akshai Kumar, Naveen Kumar , S S V K Sahit

- 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="S S V K Sahit,sahitssvk@gmail.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

Show more

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="S S V K Sahit, sahitssvk@gmail.com"
5. RUN apt-get update

Show more

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

Show more

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 .

```
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"
----> d8b57d41591c
----> Using cache
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
----> 0bcca720e3d
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/cl/8806f99713dbb993c5366c362b2f908f18269f8d792aff1abfd700775a77/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/ff/08578774ed4536d3242b14dabc4696386634607af824ea997202cd0edb4b/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/de/b4/a60bcbda945c00f6d608d8975131ab3f25b22f2bfcfe1dab221165194b2d4/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/32d741db316d8fdb7680822dd37001ef7a448255de9699ab4bfcdbf4172b/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/ebe49a5c612ffef1c5a632146b16596f9e64676768661e4e46
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
----> 66d2630b97bc
Step 7/8 : ENTRYPOINT [ "python" ]
----> Running in bd1c83815e1
Removing intermediate container bd1c83815e1
----> 73cfc38ac1c
Step 8/8 : CMD [ "app.py" ]
----> Running in a784d430dd6f
Removing intermediate container a784d430dd6f
----> d86b83763a5
Successfully built d86b83763a5
Successfully tagged 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.

```
3c22bf86f758e9c60600eb52a2ef389e08400eb88263137ca5543c60c616247
kunal@msb-mp:~$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                    NAMES
3c22bf86f758   app       "python app.py"         Less than a second ago   Up 5 seconds   0.0.0.0:5000->5000/tcp   compassionate_keldysh
```

