

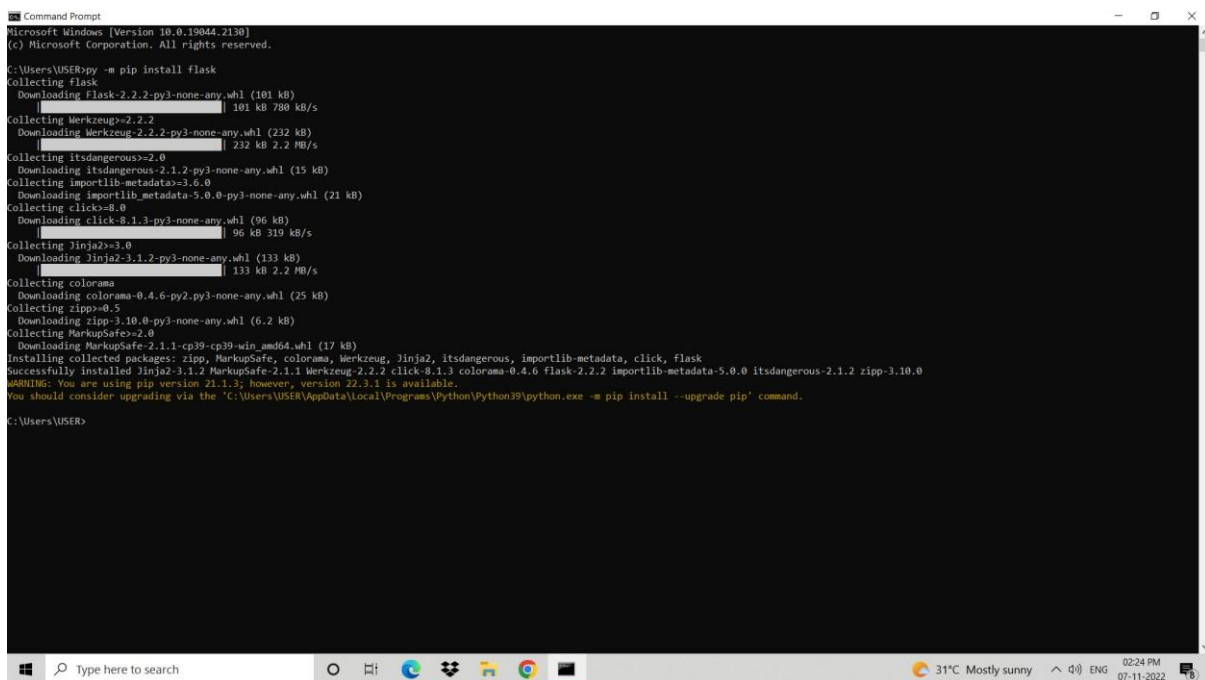
# Containerize your Flask application

TEAM ID : PNT2022PMID25588

TITLE : PERSONAL EXPENSE TRACKER APPLICATION

## Containerize your Flask application

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.



```
Microsoft Windows [Version 10.0.19044.2130]
(c) Microsoft Corporation. All rights reserved.

C:\Users\USER>pip install flask
Collecting flask
  Downloading flask-2.2.2-py3-none-any.whl (101 kB)
    |#####| 101 kB 780 kB/s
Collecting Werkzeug>=2.2.2
  Downloading Werkzeug-2.2.2-py3-none-any.whl (232 kB)
    |#####| 232 kB 2.2 MB/s
Collecting itsdangerous>=2.0
  Downloading itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Collecting importlib-metadata>=3.6.0
  Downloading importlib_metadata-5.0.0-py3-none-any.whl (21 kB)
Collecting click>=8.0
  Downloading click-8.1.3-py3-none-any.whl (96 kB)
    |#####| 96 kB 319 kB/s
Collecting Jinja2>=3.0
  Downloading Jinja2-3.1.2-py3-none-any.whl (133 kB)
    |#####| 133 kB 2.2 MB/s
Collecting colorama
  Downloading colorama-0.4.6-py2.py3-none-any.whl (25 kB)
Collecting zipp>=0.5
  Downloading zipp-3.10.0-py3-none-any.whl (6.2 kB)
Collecting MarkupSafe>=2.0
  Downloading MarkupSafe-2.1.1-cp39-cp39-win_amd64.whl (17 kB)
Installing collected packages: zipp, MarkupSafe, colorama, Werkzeug, Jinja2, itsdangerous, importlib-metadata, click, flask
Successfully installed Jinja2-3.1.2 MarkupSafe-2.1.1 Werkzeug-2.2.2 click-8.1.3 colorama-0.4.6 flask-2.2.2 importlib-metadata-5.0.0 itsdangerous-2.1.2 zipp-3.10.0
WARNING: You are using pip version 21.1.3; however, version 22.3.1 is available.
You should consider upgrading via the 'C:\Users\USER\AppData\Local\Programs\Python\Python39\python.exe -m pip install --upgrade pip' command.

C:\Users\USER>
```

## 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 .`

```
kunals-nbp: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.malhotra@ibm.com"
--> Using cache
--> d8b57d41591c
Step 3/8 : RUN apt-get update
--> Using cache
--> 6262a134e40e
Step 4/8 : COPY ./app
--> f07f7377059f
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/e7/08578774ed4536d3242b14dadb4696386634607af824ea997202cd0edb4b/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/a600caba945c00f6d608d8975131ab3f25b22f2bcfe1dab221165194b2d4/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/da/32df741db316d8fb7680822dd37001e77a448255de9699ab4bfcdf4172b/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/eb49a5c612fffe1c5a632146b16596f9e64676768661e4e46
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
--> 66a2636b97bc
Step 7/8 : ENTRYPOINT [ "python" ]
--> Running in bdc1c83815e1
Removing intermediate container bdc1c83815e1
--> 73cef38ac1c
Step 8/8 : CMD [ "app.py" ]
--> Running in a784d430dd6f
Removing intermediate container a784d430dd6f
--> d8b6b83763a5
Successfully built d8b6b83763a5
Successfully tagged app:latest
kunals-nbp:web kunalmalhotra$
```

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```

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Collecting Werkzeug==0.14.1 (from -r requirements.txt (line 6))
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Successfully built itsdangerous MarkupSafe
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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
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--> Running in bdc1c83815e1
--> 728efc38ac1c
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Step 8/8 : CMD [ "app.py" ]
--> Running in a784d430dd6f
Removing intermediate container a784d430dd6f
--> d8b6b83763a5
Successfully built d8b6b83763a5
Successfully tagged app:latest
kunal@mbp:~$

```

## 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.

```

kunal@mbp:~$ docker run -d -p 5000:5000 app
3c2bbf86f758e9a60600eb52a2ef389ea8400eb88263137ca5543c60c616247
kunal@mbp:~$ 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_kelldysh

```

kunal@mbp:~$

```

