

Final Exam - Docker Outputs

Name: Hanil Zarbailov

Git clone in SSH and checkout to relevant branch:

...

```
ubuntu@ip-172-31-4-198:~$ git clone https://github.com/hanilz/matrix-finalexam.git
Cloning into 'matrix-finalexam'...
remote: Enumerating objects: 16, done.
remote: Counting objects: 100% (16/16), done.
remote: Compressing objects: 100% (13/13), done.
remote: Total 16 (delta 0), reused 13 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (16/16), 153.06 KiB | 8.06 MiB/s, done.
ubuntu@ip-172-31-4-198:~$ cd matrix-finalexam/
ubuntu@ip-172-31-4-198:~/matrix-finalexam$ git checkout docker
Branch 'docker' set up to track remote branch 'docker' from 'origin'.
Switched to a new branch 'docker'
```

...

Docker build and run in instance:

...

```
ubuntu@ip-172-31-4-198:~/matrix-finalexam$ cd docker
ubuntu@ip-172-31-4-198:~/matrix-finalexam/docker$ docker build -t flask-test .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
            Install the buildx component to build images with BuildKit:
            https://docs.docker.com/go/buildx/
```

```
Sending build context to Docker daemon 9.216kB
Step 1/10 : FROM python:3.9 AS builder
3.9: Pulling from library/python
155ad54a8b28: Pull complete
8031108f3cda: Pull complete
1d281e50d3e4: Pull complete
447713e77b4f: Pull complete
93bee3686f31: Pull complete
95b7226c62e1: Pull complete
521cad6ddc53: Pull complete
Digest:
sha256:5ea663a1c6ba266fdcac5949d1d2ea364ce30a2da92a3df95bb3c01437633ad9
Status: Downloaded newer image for python:3.9
---> 9f98746e2033
Step 2/10 : WORKDIR /app
---> Running in 13be0af5006d
---> Removed intermediate container 13be0af5006d
---> ce71534cfb72
Step 3/10 : COPY requirements.txt .
```

---> e96121a4b712

Step 4/10 : RUN pip install --no-cache-dir --upgrade pip && pip install --no-cache-dir --prefix=/install -r requirements.txt

---> Running in 95f1f95c2336

Requirement already satisfied: pip in /usr/local/lib/python3.9/site-packages (23.0.1)

Collecting pip

Downloading pip-25.0.1-py3-none-any.whl (1.8 MB)

1.8/1.8 MB 46.6 MB/s eta 0:00:00

Installing collected packages: pip

Attempting uninstall: pip

Found existing installation: pip 23.0.1

Uninstalling pip-23.0.1:

Successfully uninstalled pip-23.0.1

Successfully installed pip-25.0.1

WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: <https://pip.pypa.io/warnings/venv>

Collecting flask==3.1.0 (from -r requirements.txt (line 1))

Downloading flask-3.1.0-py3-none-any.whl.metadata (2.7 kB)

Collecting boto3==1.36.18 (from -r requirements.txt (line 2))

Downloading boto3-1.36.18-py3-none-any.whl.metadata (6.7 kB)

Collecting Werkzeug>=3.1 (from flask==3.1.0->-r requirements.txt (line 1))

Downloading werkzeug-3.1.3-py3-none-any.whl.metadata (3.7 kB)

Collecting Jinja2>=3.1.2 (from flask==3.1.0->-r requirements.txt (line 1))

Downloading jinja2-3.1.6-py3-none-any.whl.metadata (2.9 kB)

Collecting itsdangerous>=2.2 (from flask==3.1.0->-r requirements.txt (line 1))

Downloading itsdangerous-2.2.0-py3-none-any.whl.metadata (1.9 kB)

Collecting click>=8.1.3 (from flask==3.1.0->-r requirements.txt (line 1))

Downloading click-8.1.8-py3-none-any.whl.metadata (2.3 kB)

Collecting blinker>=1.9 (from flask==3.1.0->-r requirements.txt (line 1))

Downloading blinker-1.9.0-py3-none-any.whl.metadata (1.6 kB)

Collecting importlib-metadata>=3.6 (from flask==3.1.0->-r requirements.txt (line 1))

Downloading importlib_metadata-8.6.1-py3-none-any.whl.metadata (4.7 kB)

Collecting botocore<1.37.0,>=1.36.18 (from boto3==1.36.18->-r requirements.txt (line 2))

Downloading botocore-1.36.26-py3-none-any.whl.metadata (5.7 kB)

Collecting jmespath<2.0.0,>=0.7.1 (from boto3==1.36.18->-r requirements.txt (line 2))

Downloading jmespath-1.0.1-py3-none-any.whl.metadata (7.6 kB)

Collecting s3transfer<0.12.0,>=0.11.0 (from boto3==1.36.18->-r requirements.txt (line 2))

Downloading s3transfer-0.11.4-py3-none-any.whl.metadata (1.7 kB)

Collecting python-dateutil<3.0.0,>=2.1 (from

botocore<1.37.0,>=1.36.18->boto3==1.36.18->-r requirements.txt (line 2))

Downloading python_dateutil-2.9.0.post0-py2.py3-none-any.whl.metadata (8.4 kB)

Collecting urllib3<1.27,>=1.25.4 (from botocore<1.37.0,>=1.36.18->boto3==1.36.18->-r requirements.txt (line 2))

Downloading urllib3-1.26.20-py2.py3-none-any.whl.metadata (50 kB)

Collecting zipp>=3.20 (from importlib-metadata>=3.6->flask==3.1.0->-r requirements.txt (line 1))

Downloading zipp-3.21.0-py3-none-any.whl.metadata (3.7 kB)

Collecting MarkupSafe>=2.0 (from Jinja2>=3.1.2->flask==3.1.0->-r requirements.txt (line 1))

Downloading

MarkupSafe-3.0.2-cp39-cp39-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (4.0 kB)

INFO: pip is looking at multiple versions of s3transfer to determine which version is compatible with other requirements. This could take a while.

Collecting s3transfer<0.12.0,>=0.11.0 (from boto3==1.36.18->-r requirements.txt (line 2))

Downloading s3transfer-0.11.3-py3-none-any.whl.metadata (1.7 kB)

Collecting six>=1.5 (from

python-dateutil<3.0.0,>=2.1->botocore<1.37.0,>=1.36.18->boto3==1.36.18->-r requirements.txt (line 2))

Downloading six-1.17.0-py2.py3-none-any.whl.metadata (1.7 kB)

Downloading flask-3.1.0-py3-none-any.whl (102 kB)

Downloading boto3-1.36.18-py3-none-any.whl (139 kB)

Downloading blinker-1.9.0-py3-none-any.whl (8.5 kB)

Downloading botocore-1.36.26-py3-none-any.whl (13.4 MB)

13.4/13.4 MB 176.7 MB/s eta 0:00:00

Downloading click-8.1.8-py3-none-any.whl (98 kB)

Downloading importlib_metadata-8.6.1-py3-none-any.whl (26 kB)

Downloading itsdangerous-2.2.0-py3-none-any.whl (16 kB)

Downloading jinja2-3.1.6-py3-none-any.whl (134 kB)

Downloading jmespath-1.0.1-py3-none-any.whl (20 kB)

Downloading s3transfer-0.11.3-py3-none-any.whl (84 kB)

Downloading werkzeug-3.1.3-py3-none-any.whl (224 kB)

Downloading

MarkupSafe-3.0.2-cp39-cp39-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (20 kB)

Downloading python_dateutil-2.9.0.post0-py2.py3-none-any.whl (229 kB)

Downloading urllib3-1.26.20-py2.py3-none-any.whl (144 kB)

Downloading zipp-3.21.0-py3-none-any.whl (9.6 kB)

Downloading six-1.17.0-py2.py3-none-any.whl (11 kB)

Installing collected packages: zipp, urllib3, six, MarkupSafe, jmespath, itsdangerous, click, blinker, Werkzeug, python-dateutil, Jinja2, importlib-metadata, flask, botocore, s3transfer, boto3

Successfully installed Jinja2-3.1.6 MarkupSafe-3.0.2 Werkzeug-3.1.3 blinker-1.9.0

boto3-1.36.18 botocore-1.36.26 click-8.1.8 flask-3.1.0 importlib-metadata-8.6.1

itsdangerous-2.2.0 jmespath-1.0.1 python-dateutil-2.9.0.post0 s3transfer-0.11.3 six-1.17.0 urllib3-1.26.20 zipp-3.21.0

WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager, possibly rendering your system unusable. It is recommended to use a virtual environment instead: <https://pip.pypa.io/warnings/venv>. Use the --root-user-action option if you know what you are doing and want to suppress this warning.

---> Removed intermediate container 95f1f95c2336

```
---> a804202ca9da
Step 5/10 : FROM python:3.9-slim
3.9-slim: Pulling from library/python
7cf63256a31a: Pull complete
82a59f028fa3: Pull complete
09f8c21e9f8e: Pull complete
fb0009da06dd: Pull complete
Digest:
sha256:d1fd807555208707ec95b284afd10048d0737e84b5f2d6fdcbcd2922b9284b56
Status: Downloaded newer image for python:3.9-slim
---> 1a47c1aaa88f
Step 6/10 : WORKDIR /app
---> Running in 46602eac8640
---> Removed intermediate container 46602eac8640
---> 57d37b1544ff
Step 7/10 : COPY --from=builder /install /usr/local
---> 15612b1e5a5b
Step 8/10 : COPY . .
---> 4924c33c2872
Step 9/10 : EXPOSE 5001
---> Running in d05cffd779fa
---> Removed intermediate container d05cffd779fa
---> 49c59a1a3836
Step 10/10 : CMD ["python", "app.py"]
---> Running in 19f3ec3d7365
---> Removed intermediate container 19f3ec3d7365
---> 1c65bb182764
Successfully built 1c65bb182764
Successfully tagged flask-test:latest
...
```

SSH into EC2 instance:

NOTE: I ran the necessary exports before running this command to securely use environment variables!

```
...
ubuntu@ip-172-31-4-198:~/matrix-finalexam/docker$ docker run -p 5001:5001 -e
AWS_ACCESS_KEY_ID=$AWS_ACCESS_KEY_ID -e
AWS_SECRET_ACCESS_KEY=$AWS_SECRET_ACCESS_KEY flask-test
* Serving Flask app 'app'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a
production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5001
* Running on http://172.17.0.2:5001
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
```

* Debugger PIN: 123-213-204

...

Accessing using the browser:



NameError

NameError: name 'vpcs' is not defined

Traceback (most recent call last)

```
File "/usr/local/lib/python3.9/site-packages/flask/app.py", line 1536, in __call__
    return self.wsgi_app(environ, start_response)
File "/usr/local/lib/python3.9/site-packages/flask/app.py", line 1514, in wsgi_app
    response = self.handle_exception(e)
File "/usr/local/lib/python3.9/site-packages/flask/app.py", line 1511, in wsgi_app
    response = self.full_dispatch_request()
File "/usr/local/lib/python3.9/site-packages/flask/app.py", line 919, in full_dispatch_request
    rv = self.handle_user_exception(e)
File "/usr/local/lib/python3.9/site-packages/flask/app.py", line 917, in full_dispatch_request
    rv = self.dispatch_request()
File "/usr/local/lib/python3.9/site-packages/flask/app.py", line 902, in dispatch_request
    return self.ensure_sync(self.view_functions[rule.endpoint])(**view_args) # type: ignore[no-any-return]
File "/app/app.py", line 36, in home
    vpc_data = [{"VPC ID": vpc["VpcId"], "CIDR": vpc["CidrBlock"]} for vpc in vpcs["Vpcs"]]
```

NameError: name 'vpcs' is not defined

The debugger caught an exception in your WSGI application. You can now look at the traceback which led to the error.

To switch between the interactive traceback and the plaintext one, you can click on the "Traceback" headline. From the text traceback you can also create a paste of it.

Brought to you by [DON'T PANIC](#), your friendly Werkzeug powered traceback interpreter.