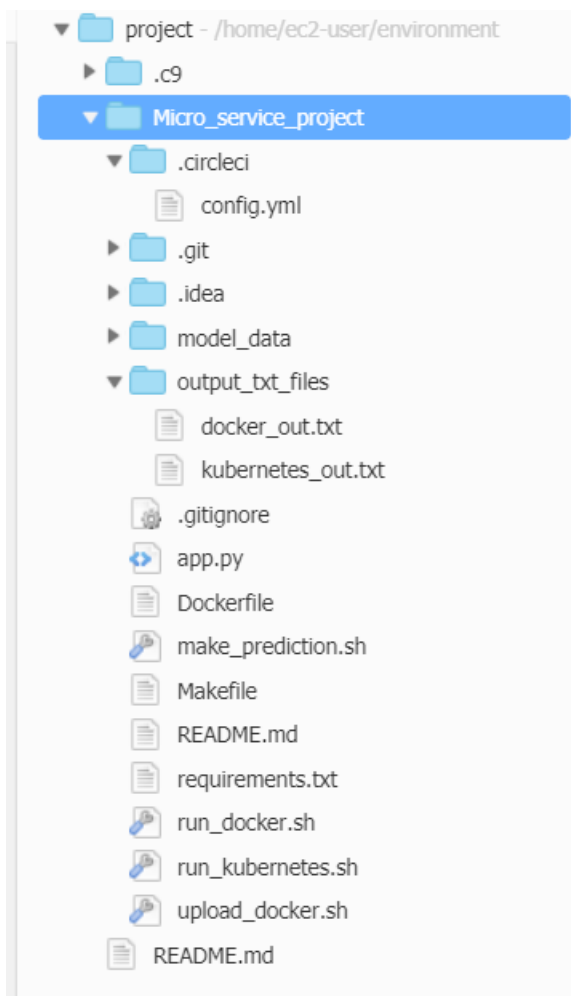


Project 5:

Create and activate an environment

1. Create and Activate an Environment



```
.circleci/config.yml | 45 ++++++
1 file changed, 45 insertions(+)
create mode 100644 .circleci/config.yml
ec2-user:~/environment/Micro_service_project (main) $ python3 -m venv ~/.devops
ec2-user:~/environment/Micro_service_project (main) $ source ~/.devops/bin/activate
(.devops) ec2-user:~/environment/Micro_service_project (main) $ make install
# This should be run from inside a virtualenv
pip install --upgrade pip &&\
    pip install -r requirements.txt
Collecting pip
  Downloading pip-21.2.4-py3-none-any.whl (1.6 MB)
    |████████████████████████████████████████| 1.6 MB 5.1 MB/s
Installing collected packages: pip
  Attempting uninstall: pip
    Found existing installation: pip 20.1.1
    Uninstalling pip-20.1.1:
      Successfully uninstalled pip-20.1.1
Successfully installed pip-21.2.4
Collecting Click==7.0
  Downloading Click-7.0-py2.py3-none-any.whl (81 kB)
    |████████████████████████████████████████| 81 kB 4.5 MB/s
Collecting Flask==1.0.2
  Downloading Flask-1.0.2-py2.py3-none-any.whl (91 kB)
    |████████████████████████████████████████| 91 kB 12.9 MB/s
Collecting itsdangerous==1.1.0
  Downloading itsdangerous-1.1.0-py2.py3-none-any.whl (16 kB)
Collecting Jinja2==2.10.3
  Downloading Jinja2-2.10.3-py2.py3-none-any.whl (125 kB)
    |████████████████████████████████████████| 125 kB 23.0 MB/s
```

Docker

```
Successfully tagged app:latest
(.devops) ec2-user:~/environment/Micro_service_project (main) $ docker image ls
REPOSITORY          TAG                IMAGE ID           CREATED            SIZE
lambci/lambda        python3.8          094248252696      7 months ago     524MB
lambci/lambda        nodejs12.x         22a4ada8399c      7 months ago     390MB
lambci/lambda        nodejs10.x         db93be728e7b      7 months ago     385MB
lambci/lambda        python3.7          22b4b6fd9260      7 months ago     946MB
lambci/lambda        python3.6          177c85a10179      7 months ago     894MB
lambci/lambda        python2.7          d96a01fe4c80      7 months ago     763MB
lambci/lambda        nodejs8.10         5754fee26e6e      7 months ago     813MB
python               3.7.3-stretch     34a518642c76      2 years ago      929MB
app                  latest            34a518642c76      2 years ago      929MB
(.devops) ec2-user:~/environment/Micro_service_project (main) $ docker --version
Docker version 20.10.4, build d3cb89e
(.devops) ec2-user:~/environment/Micro_service_project (main) $
```

Run Lint Checks

```
2 . venv/bin/activate
3 make lint
4
5 # See local hadolint install instructions: https://github.com/hadolint/hadolint
6 # This is linter for Dockerfiles
7 hadolint Dockerfile
8 # This is a linter for Python source code linter: https://www.pylint.org/
9 # This should be run from inside a virtualenv
10 pylint --disable=R,C,W1203,W1309 app.py
11
12 -----
13 Your code has been rated at 10.00/10
14
15 C:\Program Files\Python\Python39\Scripts>
```

Install Minikube

```
e /usr/local/bin/
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total     Spent    Left     Speed
100 66.5M  100 66.5M    0     0  62.7M      0  0:00:01  0:00:01 --:--:-- 62.7M
ubuntu@ip-172-31-43-32:~$ minikube version
minikube version: v1.22.0
commit: a03fbcf166e6f74ef224d4a63be4277d017bb62e
ubuntu@ip-172-31-43-32:~$
```

Project Tasks

Task 1: Complete the Dockerfile

▼  run lint

```
1 #!/bin/bash -eo pipefail
2 . venv/bin/activate
3 make lint
4
5 # See local hadolint install instructions: https://github.com/hadolint/hadolint
6 # This is linter for Dockerfiles
7 hadolint Dockerfile
8 # This is a linter for Python source code linter: https://www.pylint.org/
9 # This should be run from inside a virtualenv
10 pylint --disable=R,C,W1203,W1309 app.py
11
12 -----
13 Your code has been rated at 10.00/10
14
15 CircleCI received exit code 0
```

Task 2: Run a Container & Make a Prediction

ment instead: <https://pip.pypa.io/warnings/venv>

Removing intermediate container c73609b5c997

---> 45c98d8f11ce

Step 5/6 : Expose 80

---> Running in 9326fde347e7

Removing intermediate container 9326fde347e7

---> 4d6d362e7ec9

Step 6/6 : CMD ["python" , "app.py"]

---> Running in 059740bb7fe4

Removing intermediate container 059740bb7fe4

---> 78dadb74358b

Successfully built 78dadb74358b

Successfully tagged projdocker:latest

ec2-user:~/environment/Micro_service_project (main) \$

ec2-user:~/environment \$ cd Micro_service_project/

ec2-user:~/environment/Micro_service_project (main) \$./make_prediction.sh

Port: 8000

```
{
  "prediction": [
    20.35373177134412
  ]
}
```

ec2-user:~/environment/Micro_service_project (main) \$

Task 3: Improve Logging & Save Output

```
* Restarting with stat
* Debugger is active!
* Debugger PIN: 252-945-913
[2021-08-29 20:47:47,813] INFO in app: JSON payload:
{'CHAS': {'0': 0}, 'RM': {'0': 6.575}, 'TAX': {'0': 296.0}, 'PTRATIO': {'0': 15.3}, 'B': {'0': 396.9}, 'LSTAT': {'0': 4.98}}
[2021-08-29 20:47:47,829] INFO in app: Inference payload DataFrame:
  CHAS    RM    TAX  PTRATIO    B  LSTAT
0     0  6.575  296.0    15.3  396.9   4.98
[2021-08-29 20:47:47,840] INFO in app: Scaling Payload:
  CHAS    RM    TAX  PTRATIO    B  LSTAT
0     0  6.575  296.0    15.3  396.9   4.98
[2021-08-29 20:47:47,844] INFO in app: Output Prediction: [20.35373177134412]
172.17.0.1 - - [29/Aug/2021 20:47:47] "POST /predict HTTP/1.1" 200 -
```

Task 4: Upload the Docker Image

```
ec2-user:~/environment/Micro_service_project (main) $ ./upload_docker.sh
WARNING! Using --password via the CLI is insecure. Use --password-stdin.
WARNING! Your password will be stored unencrypted in /home/ec2-user/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
Docker ID and Image: 78dadb74358b/projdocker
Using default tag: latest
The push refers to repository [docker.io/78dadb74358b/projdocker]
1deca1e1efae: Pushed
198e46dc2ce2: Pushed
07af7d8123a6: Pushed
799a7872c8c7: Mounted from library/python
715450468940: Mounted from library/python
c9d608035aef: Mounted from library/python
bb9c02680a15: Mounted from library/python
a637c551a0da: Mounted from library/python
2c8d31157b81: Mounted from library/python
7b76d801397d: Mounted from library/python
f32868cde90b: Mounted from library/python
0db06dffb9d9a: Mounted from library/python
latest: digest: sha256:39408f30994c7a54e630fc318690e92a49873957f93b78ad99cdc6ab5c55207a size: 2850
ec2-user:~/environment/Micro_service_project (main) $
```

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78dadb74358b

78dadb74358b
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projdocker
Using 0 of 1 private repositories. [Get more](#)

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Advanced Image Management

View all your images and tags in this repository, clean up unused content, recover untagged images. Available for Pro and Team accounts.

[View preview](#)

78dadb74358b / projdocker

This repository does not have a description

⌚ Last pushed: 2 minutes ago

Docker commands
[Public View](#)

To push a new tag to this repository,

```
docker push 78dadb74358b/projdocker:tagname
```

Tags and Scans

This repository contains 1 tag(s).

TAG	OS	PULLED	PUSHED
latest		2 minutes ago	2 minutes ago

VULNERABILITY SCANNING - DISABLED [Enable](#)

Automated Builds

Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.

Available on Pro and Team plans.

Task 5: Configure Kubernetes to Run Locally

```
* Pulling base image ...
* Downloading Kubernetes v1.21.2 preload ...
  > preloaded-images-k8s-v11-v1...: 502.14 MiB / 502.14 MiB 100.00% 78.57 MiB
* Creating docker container (CPUs=2, Memory=2200MB) ...
* Preparing Kubernetes v1.21.2 on Docker 20.10.7 ...
  - Generating certificates and keys ...
  - Booting up control plane ...
  - Configuring RBAC rules ...
* Verifying Kubernetes components...
  - Using image gcr.io/k8s-minikube/storage-provisioner:v5
* Enabled addons: storage-provisioner, default-storageclass
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
ubuntu@ip-172-31-42-45:~$
```

```

* Verifying Kubernetes components...
  - Using image gcr.io/k8s-minikube/storage-provisioner:v5
* Enabled addons: storage-provisioner, default-storageclass
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
ubuntu@ip-172-31-42-45:~$ kubectl config view
apiVersion: v1
clusters:
- cluster:
    certificate-authority: /home/ubuntu/.minikube/ca.crt
    extensions:
    - extension:
        last-update: Sun, 29 Aug 2021 23:52:06 UTC
        provider: minikube.sigs.k8s.io
        version: v1.22.0
      name: cluster_info
    server: https://192.168.49.2:8443
  name: minikube
contexts:
- context:
    cluster: minikube
    extensions:
    - extension:
        last-update: Sun, 29 Aug 2021 23:52:06 UTC
        provider: minikube.sigs.k8s.io
        version: v1.22.0
      name: context_info
    namespace: default
    user: minikube
  name: minikube
current-context: minikube
kind: Config
preferences: {}
users:
- name: minikube
  user:
    client-certificate: /home/ubuntu/.minikube/profiles/minikube/client.crt
    client-key: /home/ubuntu/.minikube/profiles/minikube/client.key
ubuntu@ip-172-31-42-45:~$

```

Task 6: Deploy with Kubernetes and Save Output Logs

```

ubuntu@ip-172-31-42-45:~$ ./run_kubernetes.sh
pod/projectkubernetes created
NAME          READY   STATUS    RESTARTS   AGE
projectkub    1/1     Running   0           18m
projectkubernetes 0/1     ContainerCreating 0           0s
error: unable to forward port because pod is not running. Current status=Pending
ubuntu@ip-172-31-42-45:~$
ubuntu@ip-172-31-42-45:~$ kubectl get pod
NAME          READY   STATUS    RESTARTS   AGE
projectkub    1/1     Running   0           19m
projectkubernetes 1/1     Running   0           65s
ubuntu@ip-172-31-42-45:~$

```

```

ubuntu@ip-172-31-42-45:~$ nano make_prediction.sh
ubuntu@ip-172-31-42-45:~$ chmod +x make_prediction.sh
ubuntu@ip-172-31-42-45:~$ ./make_prediction.sh
Port: 8000
{
  "prediction": [
    20.35373177134412
  ]
}
ubuntu@ip-172-31-42-45:~$

```

Task 7: [Important] Delete Cluster

```

ubuntu@ip-172-31-42-45:~$ ^C
ubuntu@ip-172-31-42-45:~$ minikube delete
* Deleting "minikube" in docker ...
* Deleting container "minikube" ...
* Removing /home/ubuntu/.minikube/machines/minikube ...
* Removed all traces of the "minikube" cluster.
ubuntu@ip-172-31-42-45:~$ Connection to 18.118.159.60 closed by remote host.
Connection to 18.118.159.60 closed.

```




Task 8: CircleCI Integration

Link to the CircleCI :

https://app.circleci.com/pipelines/github/MaiRabie/Micro_service_project/13/workflows/76590a75-65bf-459e-8c27-8af2c71cd72b/jobs/13

Link for Github :

https://github.com/MaiRabie/Micro_service_project.git

PIPELINE	STATUS	VIEW BUILD	DETAILS / COMMENTS	DATE	UPDATES	RESTART
Micro_service_project 12	Success	workflow	main 104fad6 push all the result files	41m ago	39s	  
Jobs	build 12				36s	