Project Environment

22 November 2022 07:58

1. Setting up of virtual environment

```
voclabs:~/environment $ cd operationalise-ML/
voclabs:~/environment/operationalise-ML (main) $ python3 -m venv ~/.devops
voclabs:~/environment/operationalise-ML (main) $ source ~/.devops/bin/activate
(.devops) voclabs:~/environment/operationalise-ML (main) $
```

2. Installing dependencies in the requirements.txt

```
voclabs:~/environment/operationalise-ML (main) $ source ~/.devops/bin/activate
(.devops) voclabs:~/environment/operationalise-ML (main) $ make install
# This should be run from inside a virtualenv
pip install --upgrade pip &&\
        pip install -r requirements.txt
Collecting pip
  Downloading pip-22.3.1-py3-none-any.whl (2.1 MB)
     |████████████████████████████████| 2.1 MB 29.1 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-22.3.1
Collecting Click==7.0
  Downloading Click-7.0-py2.py3-none-any.whl (81 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 81.3/81.3 kB 20.4 MB/s eta 0:00:00
Collecting Flask==1.0.2
  Downloading Flask-1.0.2-py2.py3-none-any.whl (91 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 91.4/91.4 kB 23.6 MB/s eta 0:00:00
Collecting itsdangerous==1.1.0
  Downloading itsdangerous-1.1.0-py2.py3-none-any.whl (16 kB)
Collecting Jinja2==2.10.3
```

3. Docker version

```
(.devops) voclabs:~/environment/operationalise-ML (main) $ docker --version
Docker version 20.10.17, build 100c701
(.devops) voclabs:~/environment/operationalise-ML (main) $
```

4. sudo systemctl status docker

```
(.devops) voclabs:~/environment/operationalise-ML (main) $ docker --version
Docker version 20.10.17, build 100c701
(.devops) voclabs:~/environment/operationalise-ML (main) $ sudo systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2022-11-22 03:56:36 UTC; 22min ago
     Docs: https://docs.docker.com
  Process: 3668 ExecStartPre=/usr/libexec/docker/docker-setup-runtimes.sh (code=exited, status=0/SUCCESS)
  Process: 3653 ExecStartPre=/bin/mkdir -p /run/docker (code=exited, status=0/SUCCESS)
 Main PID: 3678 (dockerd)
    Tasks: 8
   Memory: 87.8M
   CGroup: /system.slice/docker.service
           └─3678 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock --default-ulimit nofile=32768:65536

Nov 22 03:56:34 ip-172-31-90-77.ec2.internal dockerd[3678]: time="2022-11-22T03:56:34.685362709Z" level=info msg="ccResolverWrapper:...e=grpc
Nov 22 03:56:34 ip-172-31-90-77.ec2.internal dockerd[3678]: time="2022-11-22T03:56:34.685375622Z" level=info msg="ClientConn switchi...e=grpc
Nov 22 03:56:34 ip-172-31-90-77.ec2.internal dockerd[3678]: time="2022-11-22T03:56:34.833775111Z" level=info msg="[graphdriver] usin...rlay2"
Nov 22 03:56:34 ip-172-31-90-77.ec2.internal dockerd[3678]: time="2022-11-22T03:56:34.860010383Z" level=info msg="Loading containers: start."
Nov 22 03:56:35 ip-172-31-90-77.ec2.internal dockerd[3678]: time="2022-11-22T03:56:35.495441732Z" level=info msg="Default bridge (do...dress"
Nov 22 03:56:35 ip-172-31-90-77.ec2.internal dockerd[3678]: time="2022-11-22T03:56:35.640720319Z" level=info msg="Loading containers: done."
Nov 22 03:56:35 ip-172-31-90-77.ec2.internal dockerd[3678]: time="2022-11-22T03:56:35.985632045Z" level=info msg="Docker daemon" com....10.17
Nov 22 03:56:35 ip-172-31-90-77.ec2.internal dockerd[3678]: time="2022-11-22T03:56:35.985707417Z" level=info msg="Daemon has complet...ation"
Nov 22 03:56:36 ip-172-31-90-77.ec2.internal systemd[1]: Started Docker Application Container Engine.
Nov 22 03:56:36 ip-172-31-90-77.ec2.internal dockerd[3678]: time="2022-11-22T03:56:36.041089338Z" level=info msg="API listen on /run....sock"
Hint: Some lines were ellipsized, use -l to show in full.
```

5. Install HADOLINT

```
(.devops) voclabs:~/environment/operationalise-ML (main) $ sudo wget -O /bin/hadolint https://github.com/hadolint/hadolint/releases/download/
v1.16.3/hadolint-Linux-x86_64--2022-11-22 04:24:11--  https://github.com/hadolint/hadolint/releases/download/v1.16.3/hadolint-Linux-x86_64
Resolving github.com (github.com)... 140.82.114.4
Connecting to github.com (github.com)|140.82.114.4|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/46234189/497d2080-54bd-11e9-94e5-926d35bd3e53?X-Amz-Al
gorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIWNJYAX4CSVEH53A%2F20221122%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20221122T042411Z&X-Amz-E
xpires=300&X-Amz-Signature=d50591f31cb3e8f4bf53d97d83430c790da616d052ee56957f42652340406bc8&X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo
_id=46234189&response-content-disposition=attachment%3B%20filename%3Dhadolint-Linux-x86_64&response-content-type=application%2Foctet-stream [
following]
--2022-11-22 04:24:11--  https://objects.githubusercontent.com/github-production-release-asset-2e65be/46234189/497d2080-54bd-11e9-94e5-926d35
bd3e53?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIWNJYAX4CSVEH53A%2F20221122%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20221122T
042411Z&X-Amz-Expires=300&X-Amz-Signature=d50591f31cb3e8f4bf53d97d83430c790da616d052ee56957f42652340406bc8&X-Amz-SignedHeaders=host&actor_id=
0&key_id=0&repo_id=46234189&response-content-disposition=attachment%3B%20filename%3Dhadolint-Linux-x86_64&response-content-type=application%2
Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.111.133, 185.199.108.133, 185.199.109.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.111.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3683832 (3.5M) [application/octet-stream]
Saving to: ‘/bin/hadolint’
```

```
022-11-22 04:24:11 (236 MB/s) - ‘/bin/hadolint’ saved [3683832/3683832]

.devops) voclabs:~/environment/operationalise-ML (main) $ sudo chmod +x /bin/hadolint
.devops) voclabs:~/environment/operationalise-ML (main) $ hadolint
lease provide a Dockerfile
.devops) voclabs:~/environment/operationalise-ML (main) $
```

6. Make lint

```
(.devops) voclabs:~/environment/operationalise-ML (main) $ make lint
# See local hadolint install instructions:   https://github.com/hadolint/hadolint
# This is linter for Dockerfiles
hadolint Dockerfile
# This is a linter for Python source code linter: https://www.pylint.org/
# This should be run from inside a virtualenv
pylint --disable=R,C,W1203,W1202 app.py

-----------------------------------
Your code has been rated at 10.00/10

(.devops) voclabs:~/environment/operationalise-ML (main) $
```

6. Minikube Installation
   curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
   sudo install minikube-linux-amd64 /usr/local/bin/minikube

```
(.devops) voclabs:~/environment/operationalise-ML (main) $ minikube version
minikube version: v1.28.0
commit: 986b1ebd987211ed16f8cc10aed7d2c42fc8392f
(.devops) voclabs:~/environment/operationalise-ML (main) $
```

1. Kubectl installation

```
(.devops) voclabs:~/environment/operationalise-ML (main) $ clear
(.devops) voclabs:~/environment/operationalise-ML (main) $ curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.
txt)/bin/linux/amd64/kubectl"  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   138  100   138    0     0   1196      0 --:--:-- --:--:-- --:--:--  1200
100 42.9M  100 42.9M    0     0  68.9M      0 --:--:-- --:--:-- --:--:-- 68.9M
(.devops) voclabs:~/environment/operationalise-ML (main) $ curl -LO "https://dl.k8s.io/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin
/linux/amd64/kubectl.sha256"  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   138  100   138    0     0   1438      0 --:--:-- --:--:-- --:--:--  1452
100    64  100    64    0     0    477      0 --:--:-- --:--:-- --:--:--   477
(.devops) voclabs:~/environment/operationalise-ML (main) $ echo "$(cat kubectl.sha256)  kubectl" | sha256sum --check
kubectl: OK
(.devops) voclabs:~/environment/operationalise-ML (main) $ sudo install -o root -g root -m 0755 kubectl /usr/local/bin/kubectl
(.devops) voclabs:~/environment/operationalise-ML (main) $ chmod +x kubectl
(.devops) voclabs:~/environment/operationalise-ML (main) $ mkdir -p ~/.local/bin
(.devops) voclabs:~/environment/operationalise-ML (main) $ mv ./kubectl ~/.local/bin/kubectl
(.devops) voclabs:~/environment/operationalise-ML (main) $
```

8. Kubectl version

```
(.devops) voclabs:~/environment/operationalise-ML (main) $ kubectl version --client --output=yaml
clientVersion:
  buildDate: "2022-11-09T13:36:36Z"
  compiler: gc
  gitCommit: 872a965c6c6526caa949f0c6ac028ef7aff3fb78
  gitTreeState: clean
  gitVersion: v1.25.4
  goVersion: go1.19.3
  major: "1"
  minor: "25"
  platform: linux/amd64
kustomizeVersion: v4.5.7

(.devops) voclabs:~/environment/operationalise-ML (main) $
```

9. Minikube start

```
.devops) voclabs:~/environment/operationalise-ML (main) $ minikube start
 minikube v1.28.0 on Amazon 2
 Automatically selected the docker driver. Other choices: none, ssh

 The requested memory allocation of 1954MiB does not leave room for system overhead (total system memory: 1954MiB). You may face stability i
ssues.
 Suggestion: Start minikube with less memory allocated: 'minikube start --memory=1954mb'

 Using Docker driver with root privileges
 Starting control plane node minikube in cluster minikube
 Pulling base image ...
 Downloading Kubernetes v1.25.3 preload ...
    > preloaded-images-k8s-v18-v1...:  385.44 MiB / 385.44 MiB  100.00% 79.70 M
    > gcr.io/k8s-minikube/kicbase:  386.27 MiB / 386.27 MiB  100.00% 41.41 MiB
    > gcr.io/k8s-minikube/kicbase:  0 B [_____________________________] ?% ? p/s 9.8s
 Creating docker container (CPUs=2, Memory=1954MB) ...

 Docker is nearly out of disk space, which may cause deployments to fail! (90% of capacity). You can pass '--force' to skip this check.
 Suggestion:

    Try one or more of the following to free up space on the device:
```

```
 Creating docker container (CPUs=2, Memory=1954MB) ...

 Docker is nearly out of disk space, which may cause deployments to fail! (90% of capacity). You can pass '--force' to skip this check.
 Suggestion:

    Try one or more of the following to free up space on the device:

    1. Run "docker system prune" to remove unused Docker data (optionally with "-a")
    2. Increase the storage allocated to Docker for Desktop by clicking on:
    Docker icon > Preferences > Resources > Disk Image Size
    3. Run "minikube ssh -- docker system prune" if using the Docker container runtime
 Related issue: https://github.com/kubernetes/minikube/issues/9024

 Preparing Kubernetes v1.25.3 on Docker 20.10.20 ...
  - 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
```

10. Minikube status

```
(.devops) voclabs:~/environment/operationalise-ML (main) $ minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured

(.devops) voclabs:~/environment/operationalise-ML (main) $
```

11. Kubectl version

```
.devops) voclabs:~/environment/operationalise-ML (main) $ kubectl version --output yaml
lientVersion:
 buildDate: "2022-11-09T13:36:36Z"
 compiler: gc
 gitCommit: 872a965c6c6526caa949f0c6ac028ef7aff3fb78
 gitTreeState: clean
 gitVersion: v1.25.4
 goVersion: go1.19.3
 major: "1"
 minor: "25"
 platform: linux/amd64
ustomizeVersion: v4.5.7
erverVersion:
 buildDate: "2022-10-12T10:49:09Z"
 compiler: gc
 gitCommit: 434bfd82814af038ad94d62ebe59b133fcb50506
 gitTreeState: clean
 gitVersion: v1.25.3
 goVersion: go1.19.2
 major: "1"
 minor: "25"
 platform: linux/amd64
```