

Project – 3

Jenkins-Docker-Kubernetes Project

```
master@mastervm: ~/Desktop/flask-ci-cd
master@mastervm:~/Desktop$ sudo apt update
sudo apt install -y apt-transport-https ca-certificates curl
[sudo] password for master:
Hit:1 https://download.docker.com/linux/ubuntu noble InRelease
Ign:2 https://pkg.jenkins.io/debian-stable binary/ InRelease
Hit:3 https://pkg.jenkins.io/debian-stable binary/ Release
Get:5 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Hit:6 http://in.archive.ubuntu.com/ubuntu noble InRelease
Get:7 http://in.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [668 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-updates/main amd64 Packages [916 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [128 kB]
Get:12 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [8,964 B]
Get:13 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [719 kB]
Get:14 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [151 kB]
Get:15 http://in.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [754 kB]
Get:16 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [143 kB]
Get:17 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:18 http://in.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [151 kB]
Get:19 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [823 kB]
Get:20 http://in.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:21 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [177 kB]
Get:22 http://in.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1,040 kB]
Get:23 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [51.9 kB]
Get:24 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [26.2 kB]
Get:25 http://in.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [261 kB]
Get:26 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [4,892 B]
Get:27 http://in.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [364 kB]
```

```
master@mastervm:~/Desktop$ curl -LO "https://dl.k8s.io/release/${curl -L -s https://dl.k8s.io/release/stable.txt}/bin/linux/amd64/kubectl"
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 138 100 138 0 0 422 0 --:--:-- --:--:-- --:--:-- 423
100 54.6M 100 54.6M 0 0 9.9M 0 0:00:05 0:00:05 --:--:-- 10.4M
master@mastervm:~/Desktop$ chmod +x kubectl
master@mastervm:~/Desktop$ sudo mv kubectl /usr/local/bin/
master@mastervm:~/Desktop$ kubectl version --client
error: extra arguments: [-client]
master@mastervm:~/Desktop$ kubectl version
Client Version: v1.32.2
Kustomize Version: v5.5.0
Error from server (Forbidden): <html><head><meta http-equiv='refresh' content='1;url=/login?from=%2Fversion%3Ftimeout%3D3032s'><script id='redirect' data-redirect-url='/login?from=%2Fversion%3Ftimeout%3D32s' src='/static/0d1f286a/scripts/redirect.js'></script></head><body style='background-color:white; color:white;'>
Authentication required
<!--
-->

</body></html>
master@mastervm:~/Desktop$ kubectl version --client
Client Version: v1.32.2
Kustomize Version: v5.5.0
```

```
master@mastervm:~/Desktop$ chmod +x minikube-linux-amd64
sudo mv minikube-linux-amd64 /usr/local/bin/minikube
master@mastervm:~/Desktop$ minikube start --driver=docker
🐳 minikube v1.35.0 on Ubuntu 24.04
🔧 Using the docker driver based on user configuration
👉 Using Docker driver with root privileges
👉 Starting "minikube" primary control-plane node in "minikube" cluster
📦 Pulling base image v0.0.46 ...
📦 Downloading Kubernetes v1.32.0 preload ...
> preloaded-images-k8s-v18-v1...: 333.57 MiB / 333.57 MiB 100.00% 11.23 M
> gcr.io/k8s-minikube/kicbase...: 500.31 MiB / 500.31 MiB 100.00% 10.58 M
🔥 Creating docker container (CPUs=2, Memory=2200MB) ...
🚀 Preparing Kubernetes v1.32.0 on Docker 27.4.1 ...
   ▪ Generating certificates and keys ...
   ▪ Booting up control plane ...
   ▪ Configuring RBAC rules ...
🔗 Configuring bridge CNI (Container Networking Interface) ...
🔍 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
master@mastervm:~/Desktop$ kubectl cluster-info
Kubernetes control plane is running at https://192.168.49.2:8443
CoreDNS is running at https://192.168.49.2:8443/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy
```

```

master@master:~/Desktop$ mkdir flask-ci-cd
cd flask-ci-cd
master@master:~/Desktop/flask-ci-cd$ nano app.py
master@master:~/Desktop/flask-ci-cd$ nano app.py
master@master:~/Desktop/flask-ci-cd$ nano Dockerfile
master@master:~/Desktop/flask-ci-cd$ nano requirements.txt
master@master:~/Desktop/flask-ci-cd$ docker build -t kpm25/flask-ci-cd:latest .
[+] Building 70.6s (11/11) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile                0.0s
=> => transferring dockerfile: 177B                                0.0s
=> [internal] load metadata for docker.io/library/python:3.9      4.3s
=> [auth] library/python:pull token for registry-1.docker.io      0.0s
=> [internal] load .dockerignore                                   0.0s
=> => transferring context: 2B                                       0.0s
=> [1/5] FROM docker.io/library/python:3.9@sha256:5ea663a1c6ba266fdcac5949d1d2ea364ce30a2da92a3df95bb3c01437633a 55.1s
=> => resolve docker.io/library/python:3.9@sha256:5ea663a1c6ba266fdcac5949d1d2ea364ce30a2da92a3df95bb3c01437633a 0.0s
=> => sha256:155ad54a8b2812a8ec559ff82c8c6f0f8dddb337a226b11879f09e15f67b69fc 48.48MB / 48.48MB 2.4s
=> => sha256:5ea663a1c6ba266fdcac5949d1d2ea364ce30a2da92a3df95bb3c01437633ad9 10.35kB / 10.35kB 0.0s
=> => sha256:8bc03088662509be09abc0be226220146fb470fd7aa0c2ae05ea52b0f7a73d5c7 2.32kB / 2.32kB 0.0s
=> => sha256:9f98746e2833b7c45b22b70b4f3bede0ee1b9a100c215c346e6074589a2f9ab 6.17kB / 6.17kB 0.0s
=> => sha256:8031108f3cda87bb32f090262d0109c8a0db99160850967becefad502e9a681b 24.06MB / 24.06MB 2.5s
=> => sha256:1d281e58d3e435595c266df06531a7e8c2ebb0c185622c8ab2eed8d760e6576b 64.39MB / 64.39MB 4.2s
=> => sha256:447713e77b4fc3658cfba0c1e816b70ff6d9b06563dc8cfcbb459406aed33b4 211.34MB / 211.34MB 11.3s
=> => sha256:93bee3686f319cf7bd4fcc659256d85121430628478ba3d026b5a96967b35cbe 6.16MB / 6.16MB 3.5s
=> => extracting sha256:155ad54a8b2812a8ec559ff82c8c6f0f8dddb337a226b11879f09e15f67b69fc 10.7s
=> => sha256:95b7220c62e1a4719940920ae7fffd1ea4915befd3139d7020b84da24102ff9d 19.85MB / 19.85MB 5.3s
=> => sha256:95b7220c62e1a4719940920ae7fffd1ea4915befd3139d7020b84da24102ff9d 19.85MB / 19.85MB 5.3s

```

```

master@master:~/Desktop/flask-ci-cd$ kubectl create secret docker-registry docker-hub-secret \
--docker-server=https://index.docker.io/v1/ \
--docker-username=sahil0824 \
--docker-password=Starsahil@2408 \
--docker-email=t.sahilsingh2429@gmail.com
secret/docker-hub-secret created
master@master:~/Desktop/flask-ci-cd$ nano k8s-deployment.yaml
master@master:~/Desktop/flask-ci-cd$ kubectl apply -f k8s-deployment.yaml
deployment.apps/flask-app created
service/flask-service created
master@master:~/Desktop/flask-ci-cd$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
flask-app-58b8cc8758-2692m         0/1     ContainerCreating   0          20s
flask-app-58b8cc8758-dgsxj         0/1     ContainerCreating   0          20s
master@master:~/Desktop/flask-ci-cd$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
flask-app-58b8cc8758-2692m         1/1     Running      0          101s
flask-app-58b8cc8758-dgsxj         1/1     Running      0          101s
master@master:~/Desktop/flask-ci-cd$

```