DevOps Day-3

#DOCKER COMMANDS FOR UBUNTU

$ sudo apt update -y

$ sudo apt install docker -y

$ sudo service docker start (or) sudo systemctl start docker

$ sudo service docker enable (or) sudo systemctl enable docker

DOCKER COMPOSE

Docker Compose is a tool that allows you to define and manage multi-container Docker applications. It simplifies the process of running multiple containers, their configurations, and their interdependencies. Compose uses a YAML file to define the services, networks, and volumes required for your application.

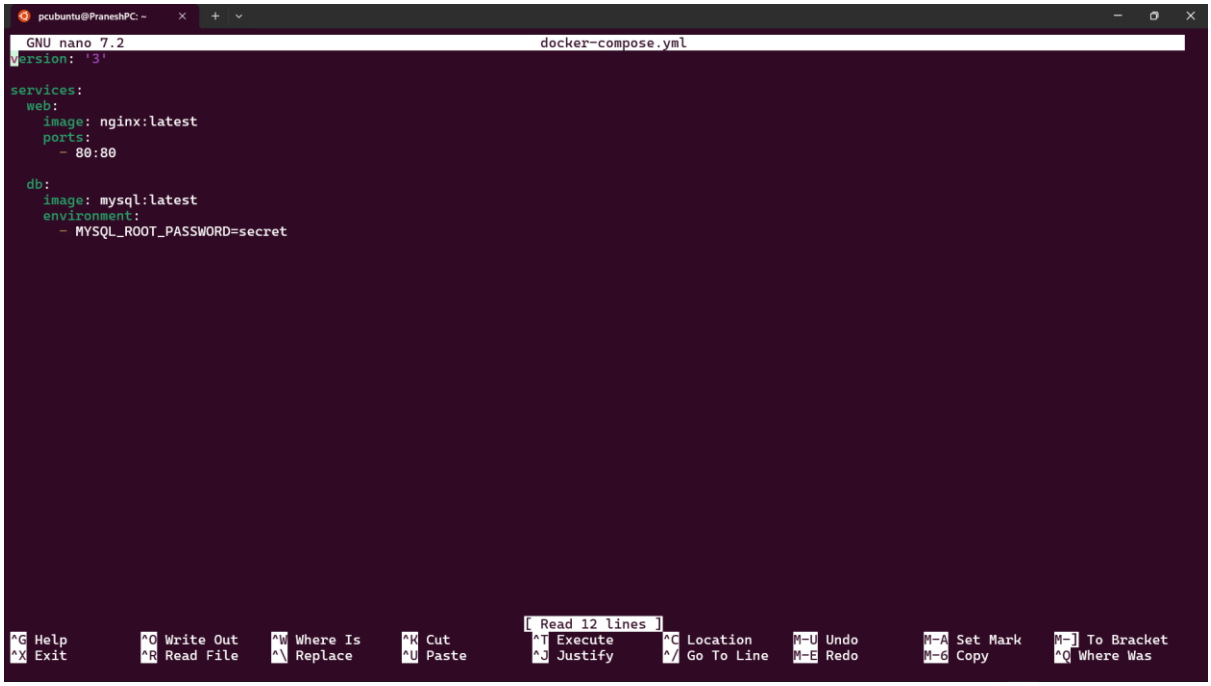
Docker Compose is a tool which is used to manage multi container-based applications.

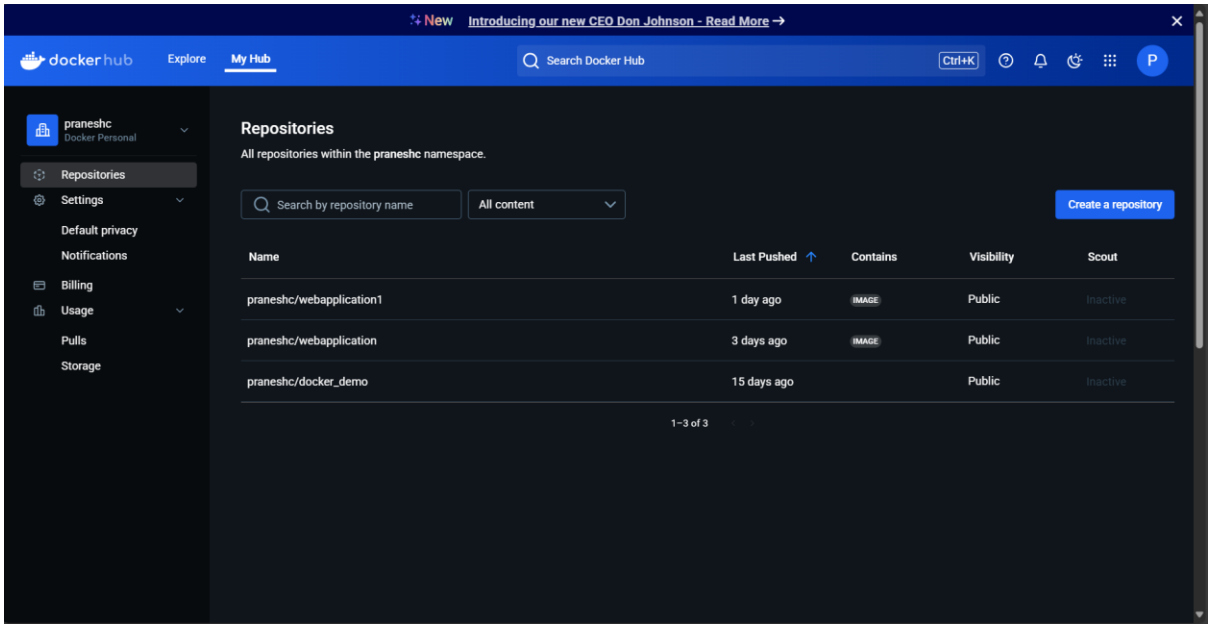
Using Docker Compose we can easily setup & deploy multi container-based applications.

We will give containers information to Docker Compose using YML file (docker-compose.yml)

Docker Compose YML should have all the information related to containers creation.

Docker Compose YML File Looks Like:





Installed Kubectl using :

curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"

```
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 5.15.167.4-microsoft-standard-WSL2 x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Fri Mar 21 04:40:11 UTC 2025

  System load:  0.16               Processes:             50
  Usage of /:   1.2% of 1006.85GB  Users logged in:       0
  Memory usage: 13%                IPv4 address for eth0: 172.26.251.106
  Swap usage:   0%

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

This message is shown once a day. To disable it please create the
/home/pcubuntu/.hushlogin file.
pcubuntu@PraneshPC:~$ ls
DevOps_simple-web-app  docker-compose.yml  pod.yml  rs-test.yml  snap
pcubuntu@PraneshPC:~$ sudo nano docker-compose.yml
[sudo] password for pcubuntu:
pcubuntu@PraneshPC:~$ curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   138  100   138    0     0    292      0 --:--:-- --:--:-- --:--:--   292
100 54.6M  100 54.6M    0     0  4067k      0  0:00:13  0:00:13 --:--:-- 5997k
pcubuntu@PraneshPC:~$
```

sudo install -o root -g root -m 0755 kubectl /usr/local/bin/kubectl

chmod +x kubectl

mkdir -p ~/.local/bin

mv ./kubectl ~/.local/bin/kubectl

 # and then append (or prepend) ~/.local/bin to $PATH

kubectl version --client --output=yaml

```
[sudo] password for pcubuntu:
pcubuntu@PraneshPC:~$ curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   138  100   138    0     0    292      0 --:--:-- --:--:-- --:--:--   292
100 54.6M  100 54.6M    0     0  4067k      0  0:00:13  0:00:13 --:--:-- 5997k
pcubuntu@PraneshPC:~$ kubectl version --client --output=yaml
clientVersion:
  buildDate: "2025-03-11T19:58:53Z"
  compiler: gc
  gitCommit: 32cc146f75aad04beaaa245a7157eb35063a9f99
  gitTreeState: clean
  gitVersion: v1.32.3
  goVersion: go1.23.6
  major: "1"
  minor: "32"
  platform: linux/amd64
kustomizeVersion: v5.5.0

pcubuntu@PraneshPC:~$
```

Minikube Installation:

sudo install minikube-linux-amd64 /usr/local/bin/minikube && rm minikube-linux-amd64

minikube start

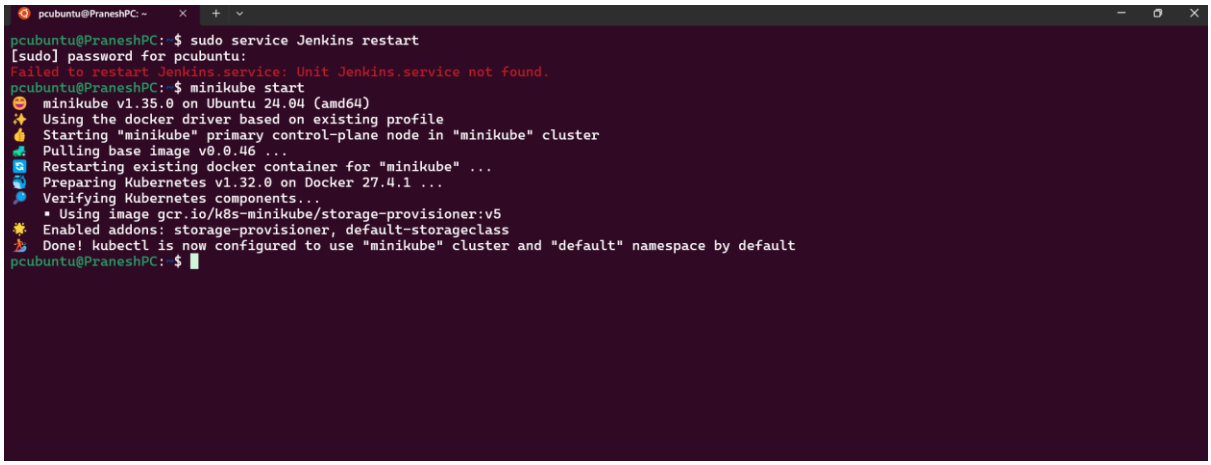
minikube status

kubectl get pod

kubeclt get deploy

kubectl get replica

kubectl get pod -o wide



```
pcubuntu@PraneshPC: $ kubectl run my-pod --image=nginx --port=8083
pod/my-pod created
pcubuntu@PraneshPC:~$ kubectl describe pod my-pod
Name:             my-pod
Namespace:        default
Priority:         0
Service Account:  default
Node:             minikube/192.168.49.2
Start Time:       Fri, 21 Mar 2025 04:52:43 +0000
Labels:           run=my-pod
Annotations:      <none>
Status:           Running
IP:               10.244.0.9
IPs:
  IP:  10.244.0.9
Containers:
  my-pod:
    Container ID:   docker://34944ec829efe7433b8d53138dcf38b4f8bcb2e2c4bfba1a773bbe1010b534ea
    Image:          nginx
    Image ID:       docker-pullable://nginx@sha256:124b44bfc9ccd1f3cedf4b592d4d1e8bddb78b51ec2ed5056c52d3692baebc19
    Port:           8083/TCP
    Host Port:      0/TCP
    State:          Running
      Started:      Fri, 21 Mar 2025 04:52:47 +0000
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-nbr9q (ro)
Conditions:
  Type                        Status
  PodReadyToStartContainers   True
  Initialized                 True
  Ready                       True
  ContainersReady             True
  PodScheduled                True
Volumes:
  kube-api-access-nbr9q:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
```

```
                           node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
  Type    Reason     Age   From               Message
  ----    ------     ----  ----               -------
  Normal  Scheduled  15s   default-scheduler  Successfully assigned default/my-pod to minikube
  Normal  Pulling    15s   kubelet            Pulling image "nginx"
  Normal  Pulled     12s   kubelet            Successfully pulled image "nginx" in 3.434s (3.434s including waiting). Image size: 192004242 byte
s.
  Normal  Created    12s   kubelet            Created container: my-pod
  Normal  Started    12s   kubelet            Started container my-pod
pcubuntu@PraneshPC:~$ kubectl get pods
NAME     READY   STATUS    RESTARTS   AGE
my-pod   1/1     Running   0          52s
pcubuntu@PraneshPC:~$
```