STEPS TO RUN:

STEP1: (Master and Slave)

```
1) sudo apt update

2) sudo swapoff -a

3) sudo sed -i '/ swap / s/^\(.*\)$/#\1/g' /etc/fstab

4) sudo tee /etc/modules-load.d/containerd.conf <<EOF
overlay
br_netfilter
EOF

5) sudo modprobe overlay

6) sudo modprobe br_netfilter

7) sudo tee /etc/sysctl.d/kubernetes.conf <<EOF
net.bridge.bridge-nf-call-ip6tables = 1
net.bridge.bridge-nf-call-iptables = 1
net.ipv4.ip_forward = 1
EOF

8) sudo sysctl --system

9) sudo apt-get update && sudo apt-get install -y lsb-release

10) sudo apt install ca-certificates curl gnupg lsb-release

11) sudo mkdir -p /etc/apt/keyrings

12) curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg

13) echo "deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.gpg] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
```

```
14) sudo apt update && sudo apt install -y containerd.io

15) containerd config default | sudo tee /etc/containerd/config.toml >/dev/null 2>&1

16) sudo sed -i 's/SystemdCgroup \= false/SystemdCgroup \= true/g' /etc/containerd/config.toml

17) sudo systemctl restart containerd

18) sudo systemctl enable containerd
```

STEP 2: (Master and Slave)

```
1) sudo apt-get update

2) sudo apt-get install -y apt-transport-https ca-certificates curl gpg

3) curl -fsSL https://pkgs.k8s.io/core:/stable:/v1.30/deb/Release.key | gpg --dearmor -o /etc/apt/keyrings/kubernetes-apt-keyring.gpg

4) echo 'deb [signed-by=/etc/apt/keyrings/kubernetes-apt-keyring.gpg] https://pkgs.k8s.io/core:/stable:/v1.30/deb/ /' | tee /etc/apt/sources.list.d/kubernetes.list

5) apt update

6) apt-get update

7) apt-get install -y kubelet kubeadm kubectl

8) apt-mark hold kubelet kubeadm kubectl

9) sudo systemctl enable --now kubelet
```

STEP3: (Only on Master)

```
1) kubeadm init --pod-network-cidr=10.244.0.0/16
```

```
2) mkdir -p $HOME/.kube

3)sudo cp -i /etc/kubernetes/admin.conf
$HOME/.kube/config

4) sudo chown $(id -u):$(id -g) $HOME/.kube/config

5) export KUBECONFIG=/etc/kubernetes/admin.conf

6) kubectl get nodes

7) kubectl apply -f
https://docs.projectcalico.org/manifests/calico.yaml

8) kubectl get pods -A

9) kubectl get nodes
```

#To get the token which gets generated after (kubeadm init –pod-network cidr=10.244.0.0/16) we can execute the below command:

```
kubeadm token create --print-join-command
```

you can join any number of worker nodes by running the following on each as root:

```
kubeadm join 172.31.21.85:6443 --token
023em6.z8lihbm5feurd1mf \
        --discovery-token-ca-cert-hash
sha256:141889a5e867beb788d7b2ab956233f5170864b77c4c50a17a
377cfeadb5ad8c
```