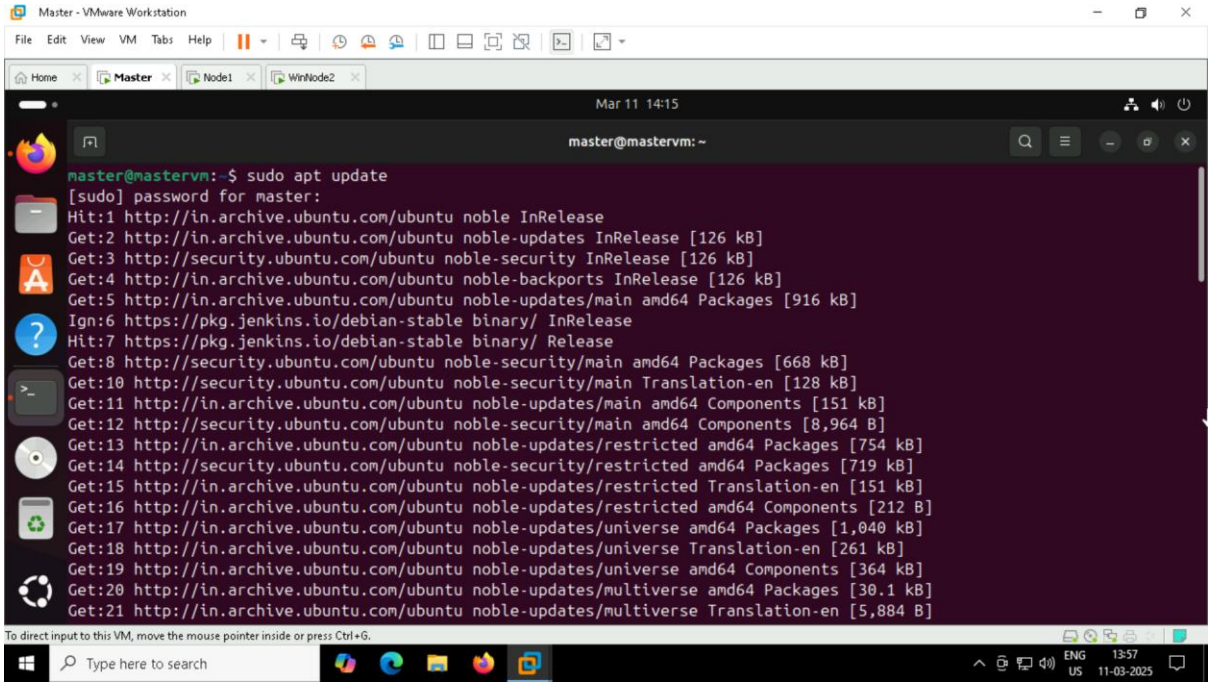
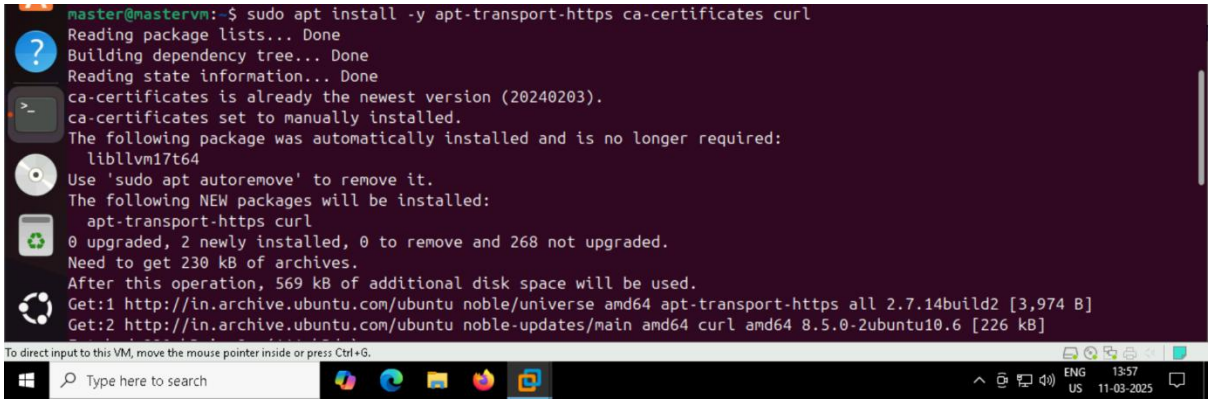
DOCKER PROJECT-3

Dockerized CI/CD Pipeline using Kubernetes

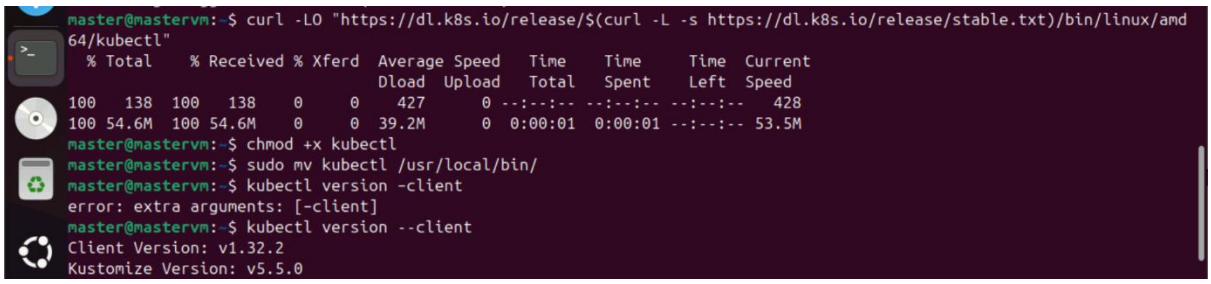
Step 1: Install Kubernetes on Ubuntu



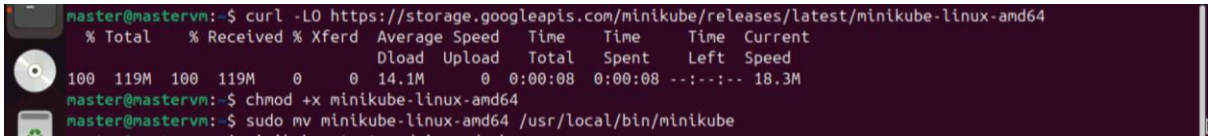
Step 2: Install Dependencies



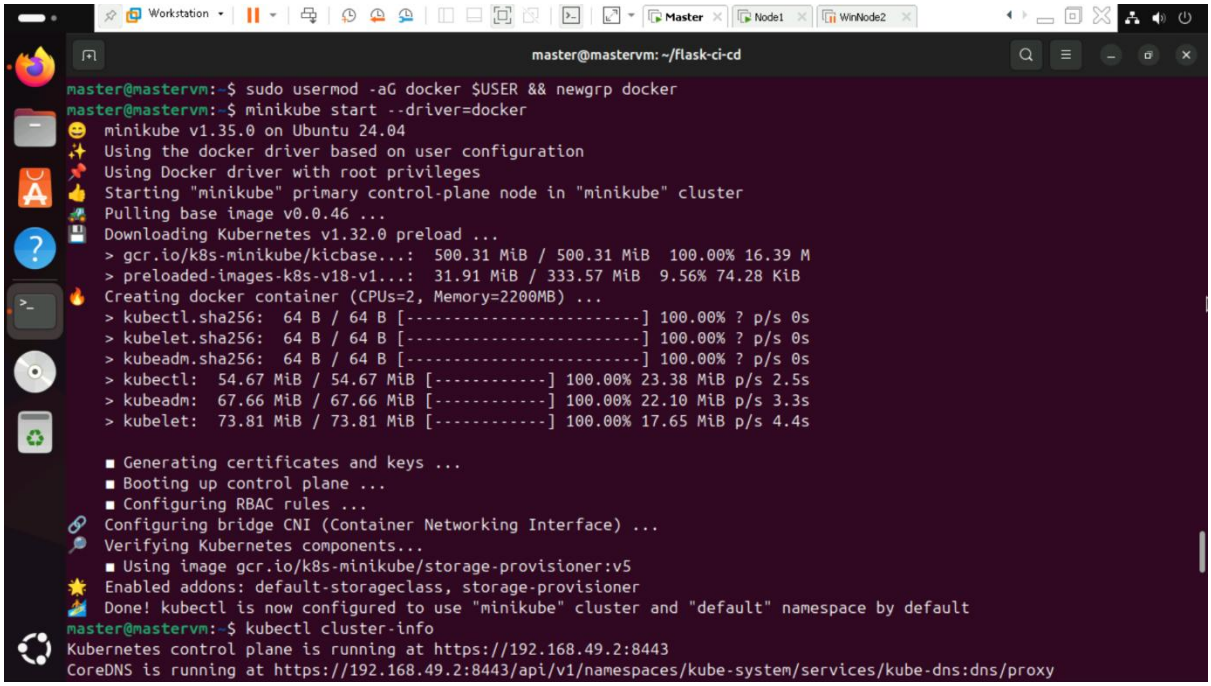
Step 3: Install kubectl



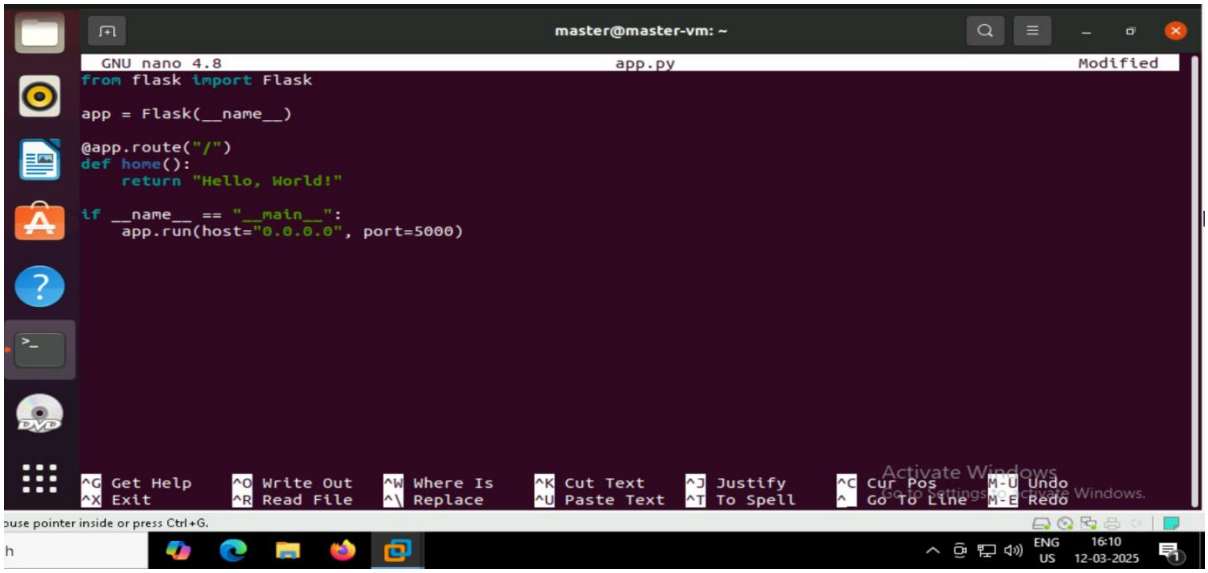
Step 4: Install Minikube

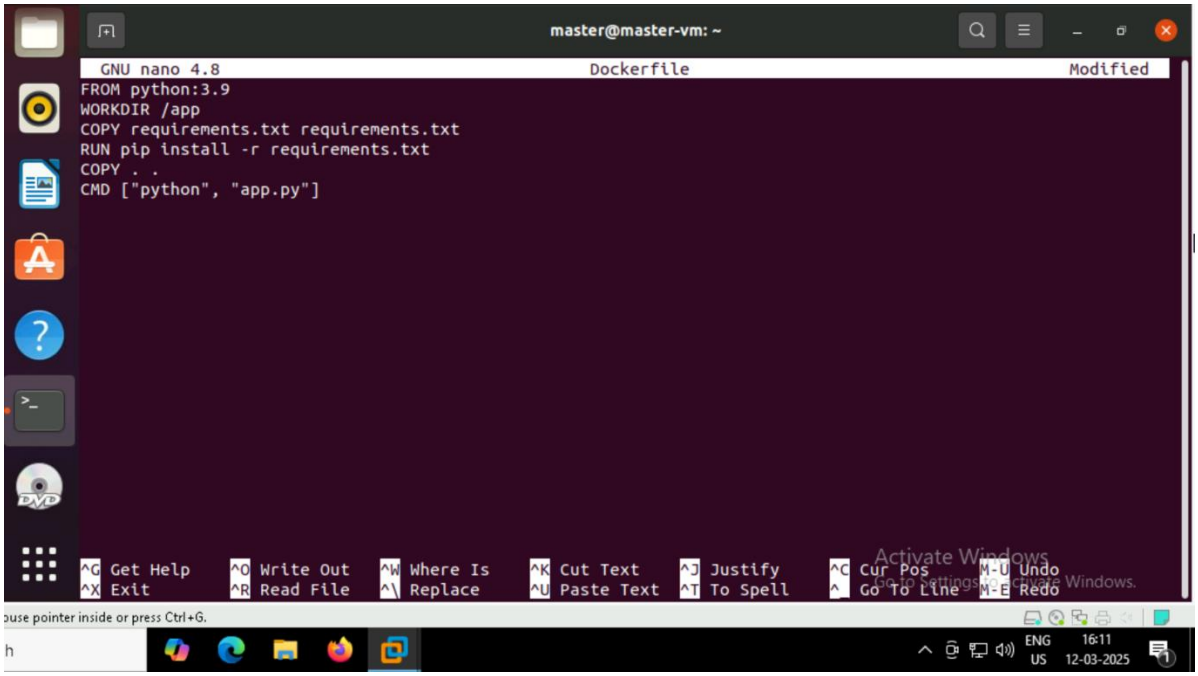


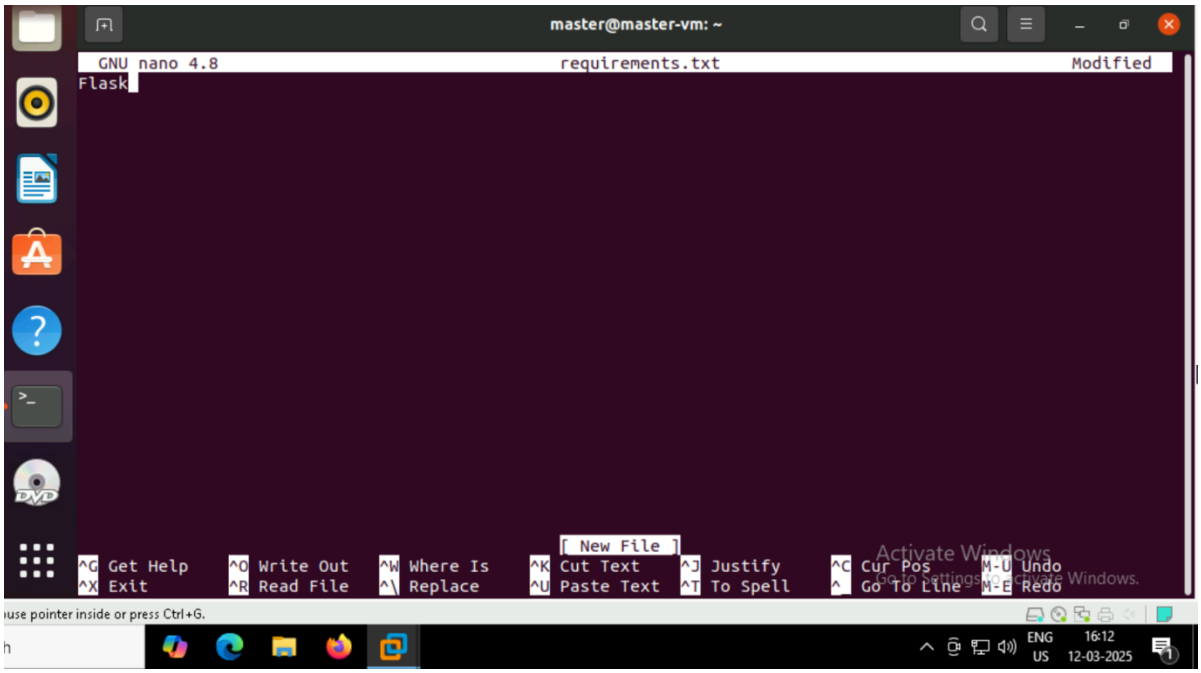
Step 5: Start Minikube and check the status



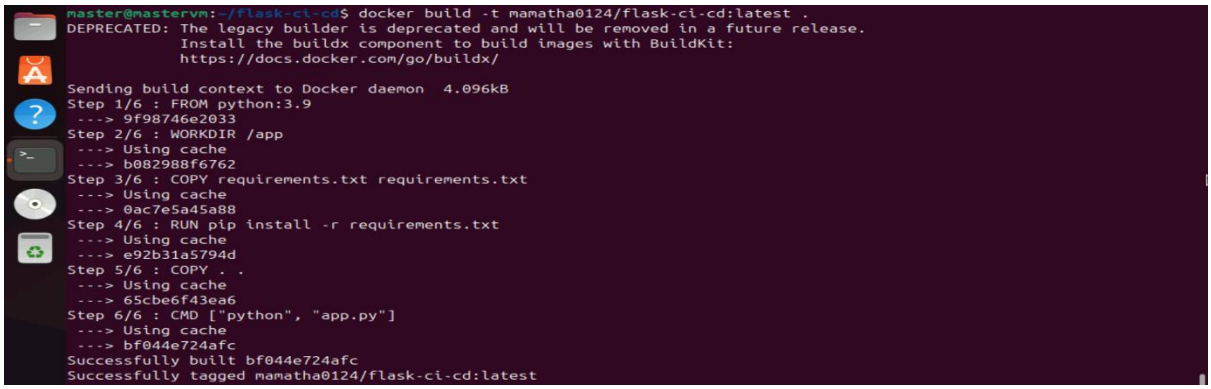
Step 6: Create folder and create a app.py flask app, dockerfile, requirements.txt







Step 7: Build and Push Docker Image



```
master@mastervm:~/flask-ci-cd$ docker login
Authenticating with existing credentials...
WARNING! Your password will be stored unencrypted in /home/master/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
master@mastervm:~/flask-ci-cd$ docker push mamatha0124/flask-ci-cd:latest
The push refers to repository [docker.io/mamatha0124/flask-ci-cd]
41ea8da4070b: Pushed
84667c24123c: Pushed
c7695642d7ef: Pushed
fe40e043d454: Pushed
01db3e67097a: Mounted from kpkm25/flask-ci-cd
e49d0c94aa2a: Mounted from kpkm25/flask-ci-cd
1c86760c5c93: Mounted from kpkm25/flask-ci-cd
4b017a36fd9c: Mounted from kpkm25/flask-ci-cd
20a9b386e10e: Mounted from kpkm25/flask-ci-cd
f8217d7865d2: Mounted from kpkm25/flask-ci-cd
01c9a2a5f237: Mounted from kpkm25/flask-ci-cd
latest: digest: sha256:a6d24844a46d13d3007e520671e314cca996716abc16d5c6b5185ac630584434 size: 2627
```

Step 8: Connect Kubernetes to Docker

```
master@mastervm:~/flask-ci-cd-c$ kubectl create secret docker-registry docker-hub-secret \
  --docker-server=https://index.docker.io/v1/ \
  --docker-username=mamatha0124 \
  --docker-password='PinkyManu@24' \
  --docker-email=289247@ust.com
```

Step 9: Create k8s-deployment.yaml

```
Workstation | Master | Node1 | WinNode2
master@mastervm: ~/flask-ci-cd-c
 GNU nano 7.2                                  k8s-deployment.yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: flask-app
spec:
  replicas: 2
  selector:
    matchLabels:
      app: flask-app
  template:
    metadata:
      labels:
        app: flask-app
    spec:
      imagePullSecrets:
        - name: docker-hub-secret
      containers:
        - name: flask-app
          image: mamatha0124/flask-ci-cd:latest  # Updated to match your correct Docker Hub username
          ports:
            - containerPort: 5000
---
apiVersion: v1
kind: Service
metadata:

Activate Windows
Go to Settings to activate Windows.

^G Help      ^O Write Out   ^W Where Is   ^K Cut       ^T Execute   ^C Location   M-U Undo      M-A Set Mark
^X Exit      ^R Read File   ^\ Replace    ^U Paste     ^J Justify   ^/ Go To Line M-E Redo      M-G Copy
```

Step 10 : Apply the deployment and Check if the pods are running

```
master@mastervm:~/flask-ci-cd$ kubectl apply -f k8s-deployment.yaml
deployment.apps/flask-app created
service/flask-service created
master@mastervm:~/flask-ci-cd$ kubectl get pods
NAME                         READY   STATUS              RESTARTS   AGE
flask-app-58b8cc8758-bbct4   0/1     ContainerCreating   0          22s
flask-app-58b8cc8758-jdv4w   0/1     ContainerCreating   0          22s
master@mastervm:~/flask-ci-cd$ docker pull flask-ci-cd:latest
Error response from daemon: pull access denied for flask-ci-cd, repository does not exist or may require 'docker login':
 denied: requested access to the resource is denied
master@mastervm:~/flask-ci-cd$ docker login
Authenticating with existing credentials...
WARNING! Your password will be stored unencrypted in /home/master/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
master@mastervm:~/flask-ci-cd$ docker pull flask-ci-cd:latest
Error response from daemon: pull access denied for flask-ci-cd, repository does not exist or may require 'docker login':
 denied: requested access to the resource is denied
master@mastervm:~/flask-ci-cd$ kubectl get pods
NAME                         READY   STATUS    RESTARTS   AGE
flask-app-58b8cc8758-bbct4   1/1     Running   0          114s
flask-app-58b8cc8758-jdv4w   1/1     Running   0          114s
```