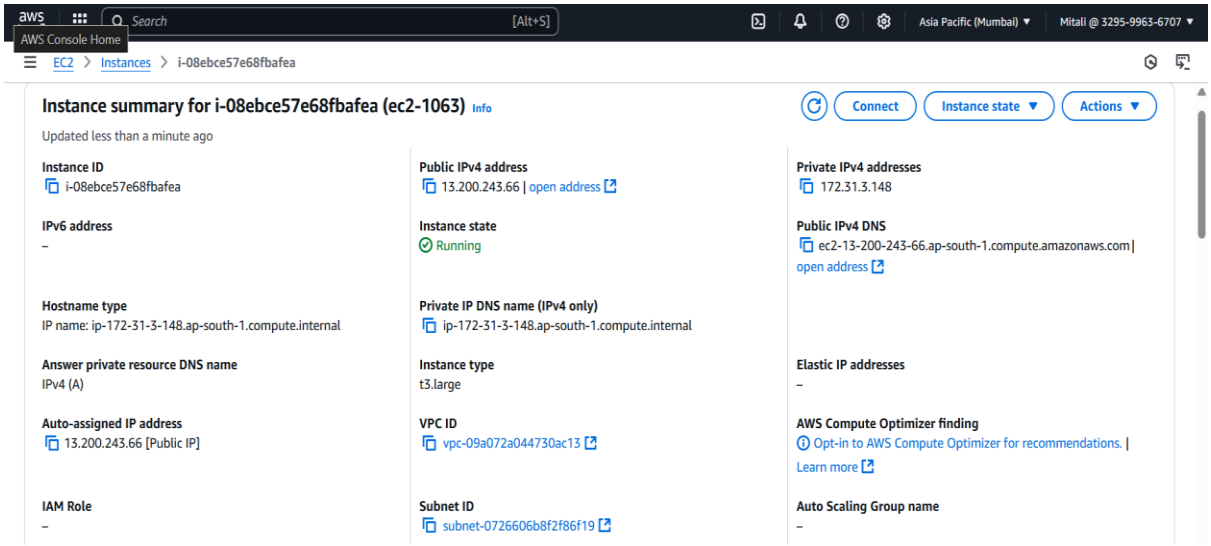
D Y PATIL INTERNATIONAL UNIVERSITY
AKURDI PUNE

School of Computer Science, Engineering and Applications(SCSEA)
B.C.A. TY (CCSA)
Subject: Containers & Orchestration

Name of the Student:	**Mitali Bhattad**	**PRN:**	**20220801063**
Title of Practical:	**Deploying Minikube on a Cloud VM for Remote Kubernetes Developmen**		

STEP 1: Launch EC2 Instance

- **Name**: ec2-1063
- **AMI**: Ubuntu
- **Instance type**: t3.medium
- **Key Pair**: Create or use an existing one
- **Security Group** (Inbound Rules):
  - All



Paste this script:

#!/bin/bash sudo apt-get update -y sudo apt-get install \ apt-transport-https \ ca-certificates \ curl \ gnupg-agent \ software-properties-common -y curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add - sudo add-apt-repository \ "deb [arch=amd64] https://download.docker.com/linux/ubuntu \ $(lsb_release -cs) \ stable" sudo apt-get install docker-ce docker-ce-cli containerd.io -y

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Step-2: CREATE A NON-ROOT USER

1. Create a new user:
   - adduser minikubeuser
2. Give **sudo** permission:
   - usermod -aG sudo minikubeuser
3. Give **docker group** permission:
   - usermod -aG docker minikubeuser

STEP 3: INSTALL BASIC DEPENDENCIES

- **apt update -y**
- **apt install -y curl apt-transport-https docker.io**
- **systemctl start docker**
- **systemctl enable docker**

```
ubuntu@ip-172-31-3-148:~$ sudo -i
root@ip-172-31-3-148:~# sudo apt update && sudo apt upgrade -y
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

STEP 4: SWITCH TO NON-ROOT USER

- **su – minikubeuser**

STEP 5: INSTALL MINIKUBE

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

```
root@ip-172-31-3-148:~#  sudo apt install -y curl wget apt-transport-https ca
certificates gnupg lsb-release conntrack
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

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STEP 5: INSTALL kubectl (Kubernetes CLI)

- curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"
- chmod +x kubectl
- sudo mv kubectl /usr/local/bin/

```
root@ip-172-31-3-148:~# curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  119M  100  119M    0     0  12.2M      0  0:00:09  0:00:09 --:--:-- 15.4M
root@ip-172-31-3-148:~# sudo install minikube-linux-amd64 /usr/local/bin/minikube
```

STEP 6: START MINIKUBE

- minikube start --driver=docker

```
myuser@ip-172-31-3-148:~$ 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 ...
    > gcr.io/k8s-minikube/kicbase...:  500.24 MiB / 500.31 MiB  99.98% 34.63 Mi
    > preloaded-images-k8s-v18-v1...:  333.57 MiB / 333.57 MiB  100.00% 14.73 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: default-storageclass, storage-provisioner
🏄  Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

STEP 7: CHECK STATUS

```
myuser@ip-172-31-3-148:~$ kubectl config view
apiVersion: v1
clusters:
- cluster:
    certificate-authority: /home/myuser/.minikube/ca.crt
    extensions:
    - extension:
        last-update: Sat, 26 Apr 2025 05:24:07 UTC
        provider: minikube.sigs.k8s.io
        version: v1.35.0
      name: cluster_info
    server: https://192.168.49.2:8443
  name: minikube
contexts:
- context:
    cluster: minikube
    extensions:
    - extension:
        last-update: Sat, 26 Apr 2025 05:24:07 UTC
        provider: minikube.sigs.k8s.io
        version: v1.35.0
      name: context_info
    namespace: default
    user: minikube
  name: minikube
current-context: minikube
kind: Config
preferences: {}
users:
- name: minikube
  user:
    client-certificate: /home/myuser/.minikube/profiles/minikube/client.crt
    client-key: /home/myuser/.minikube/profiles/minikube/client.key
```

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