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Course: Executive Post Graduate Certification in Cloud Computing

Contact No. 7720003531

**Assignment 4: Kubernetes**

**Task To Be performed:**

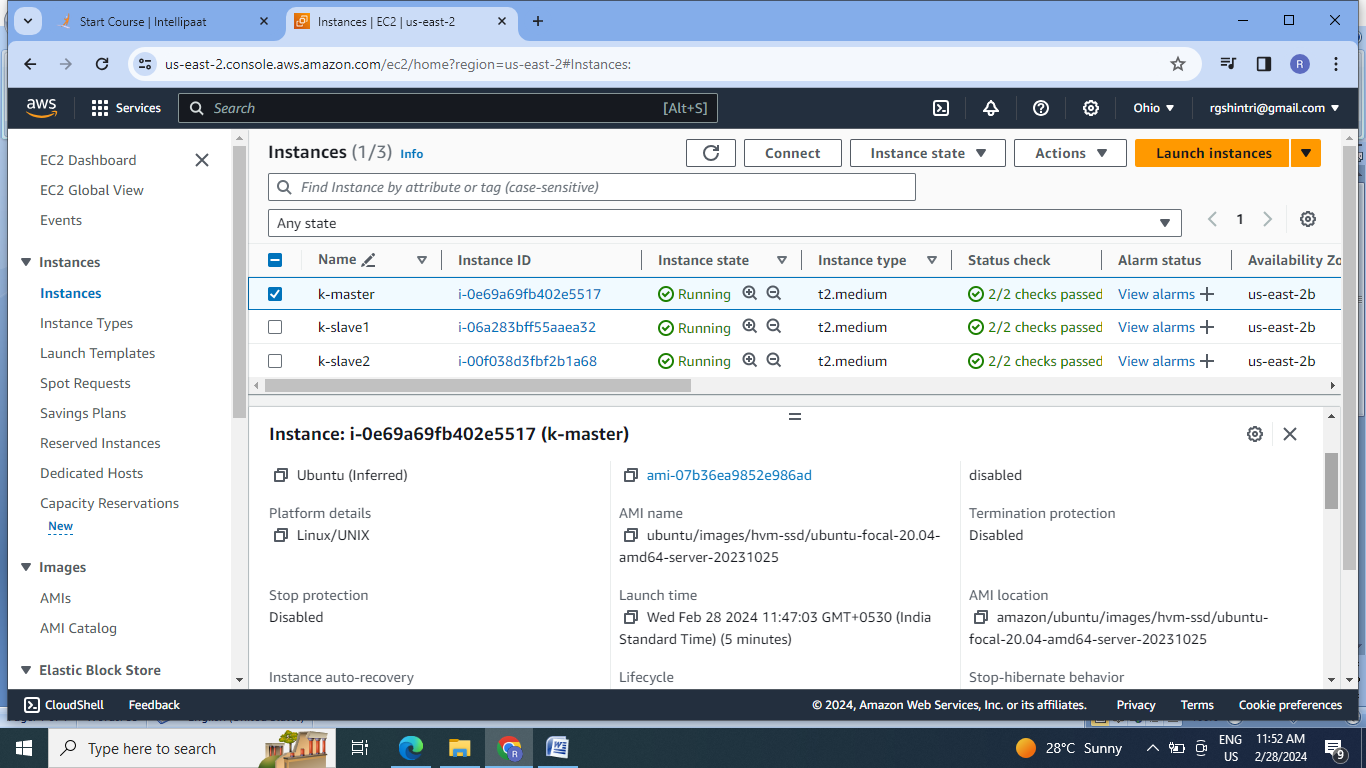
**A] Assignment 1:**

● Deploy a Kubernetes Cluster for 3 nodes

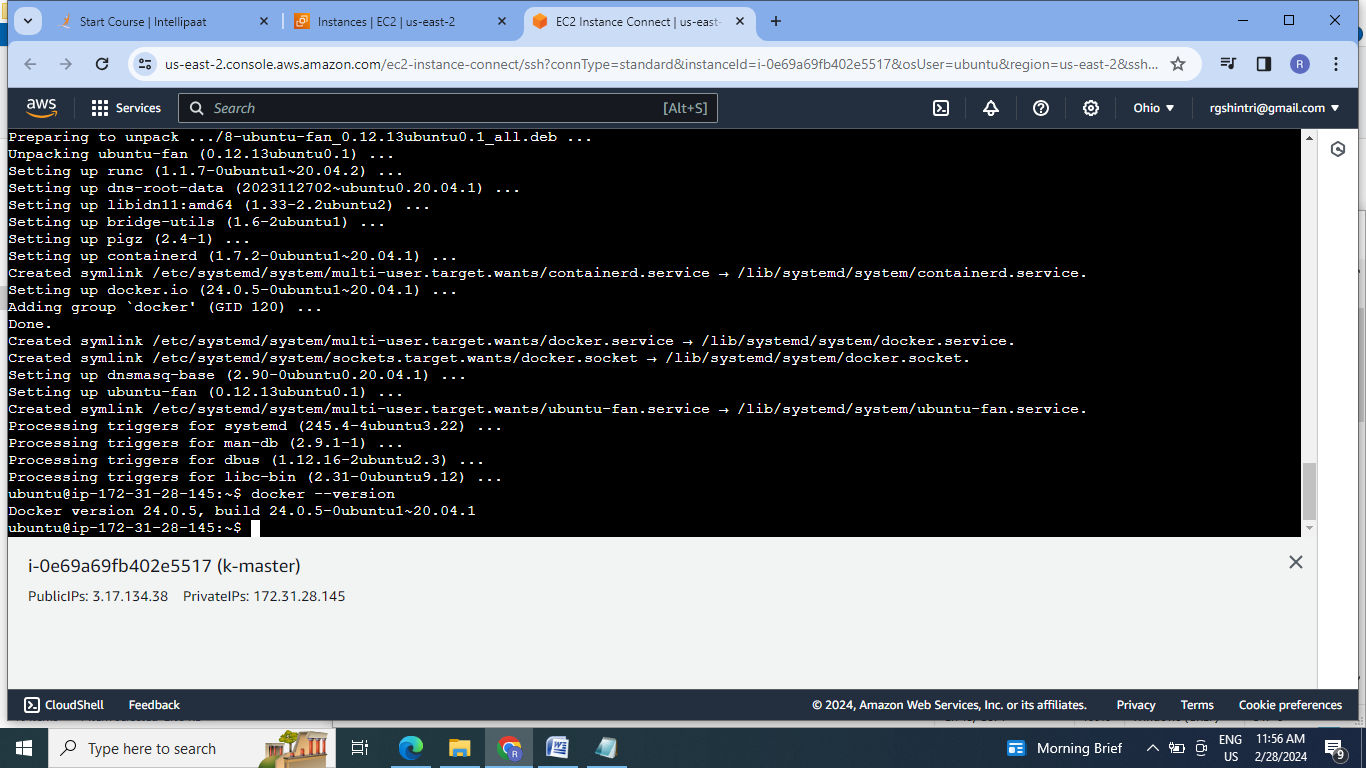
● Create a nginx deployment of 3 replicas

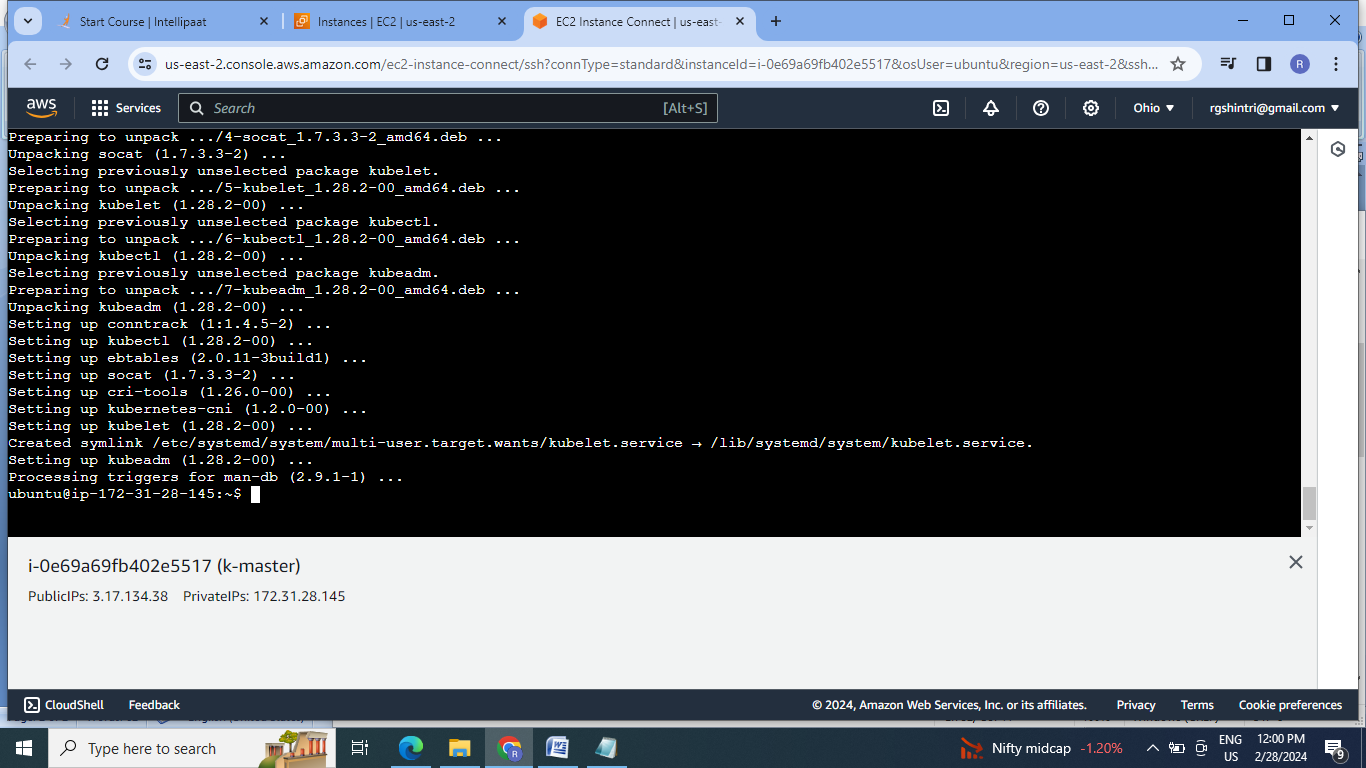
Steps:

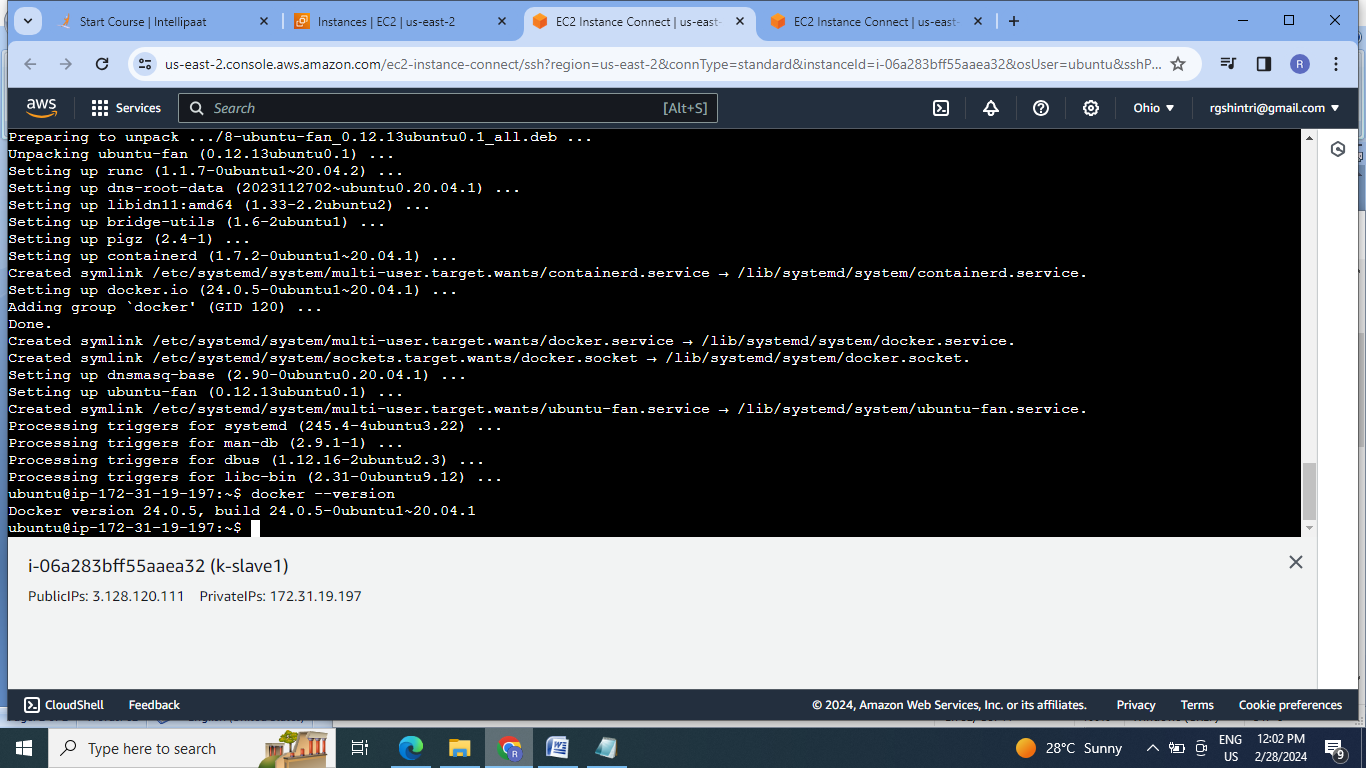
1.Create 3 EC2 ubuntu instances with 2cpu’s & 4 GiB ram :

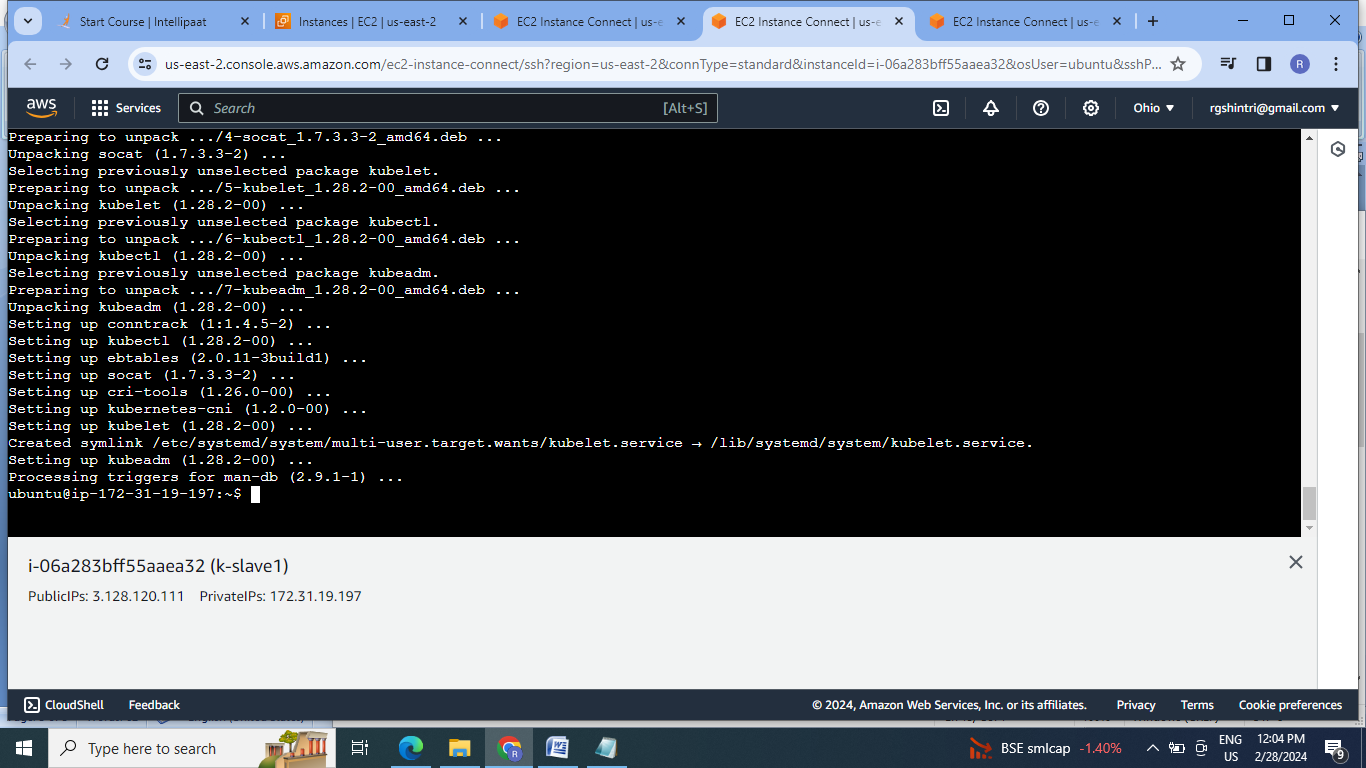


2.Install Docker & kubeadm on all instances:

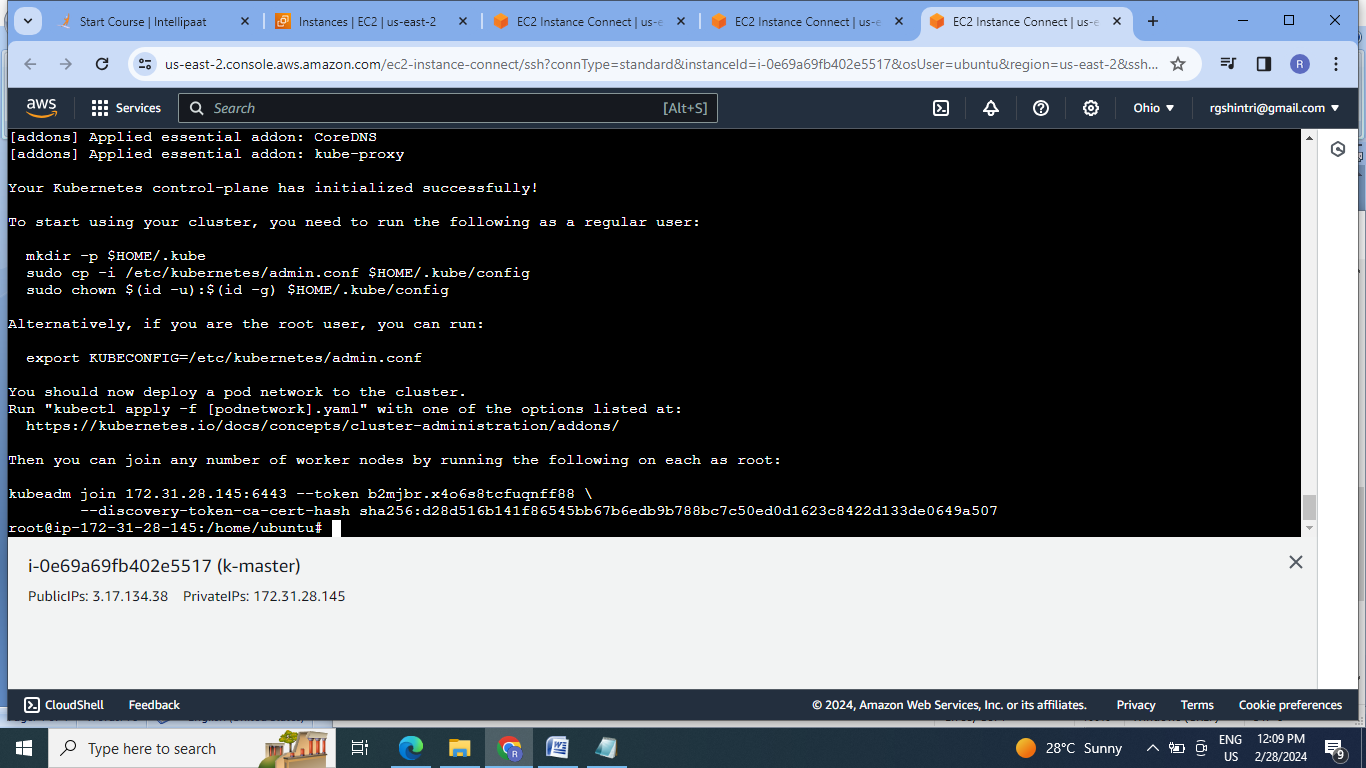


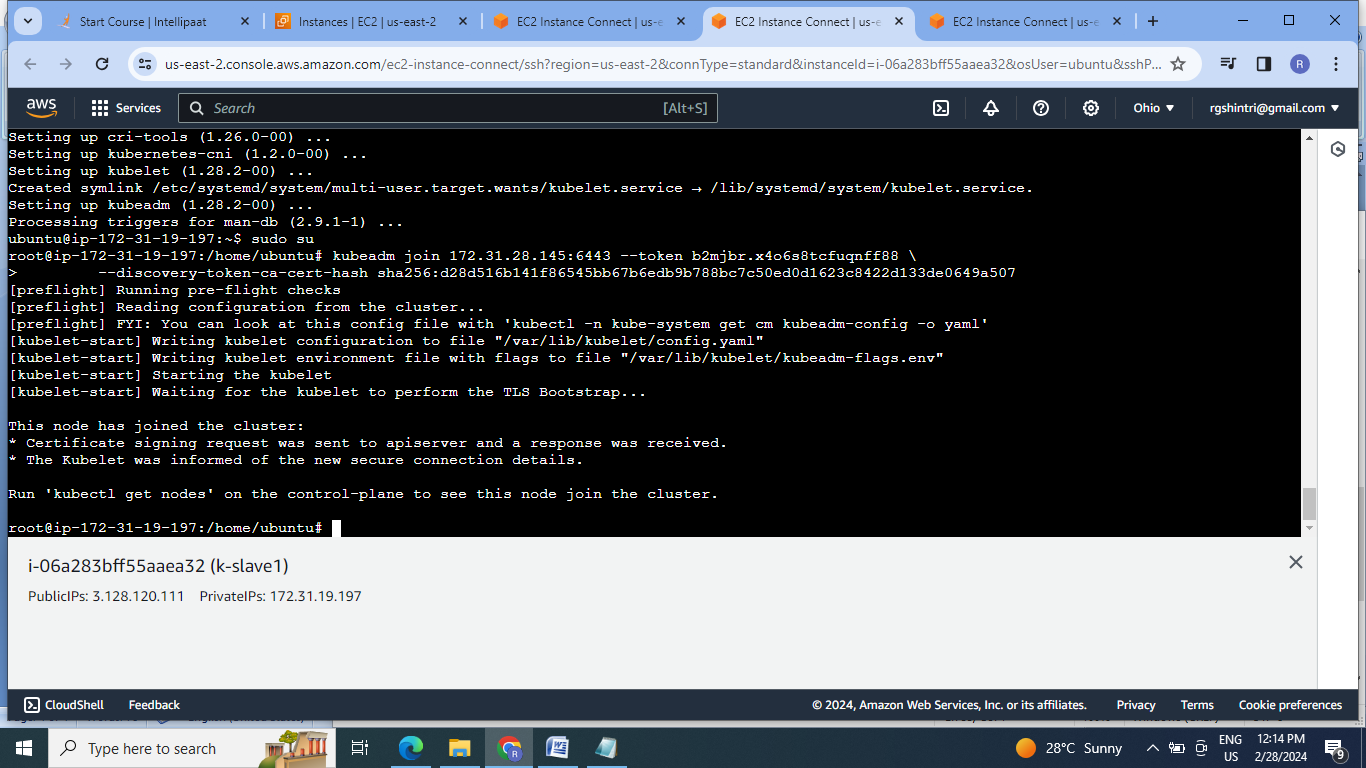


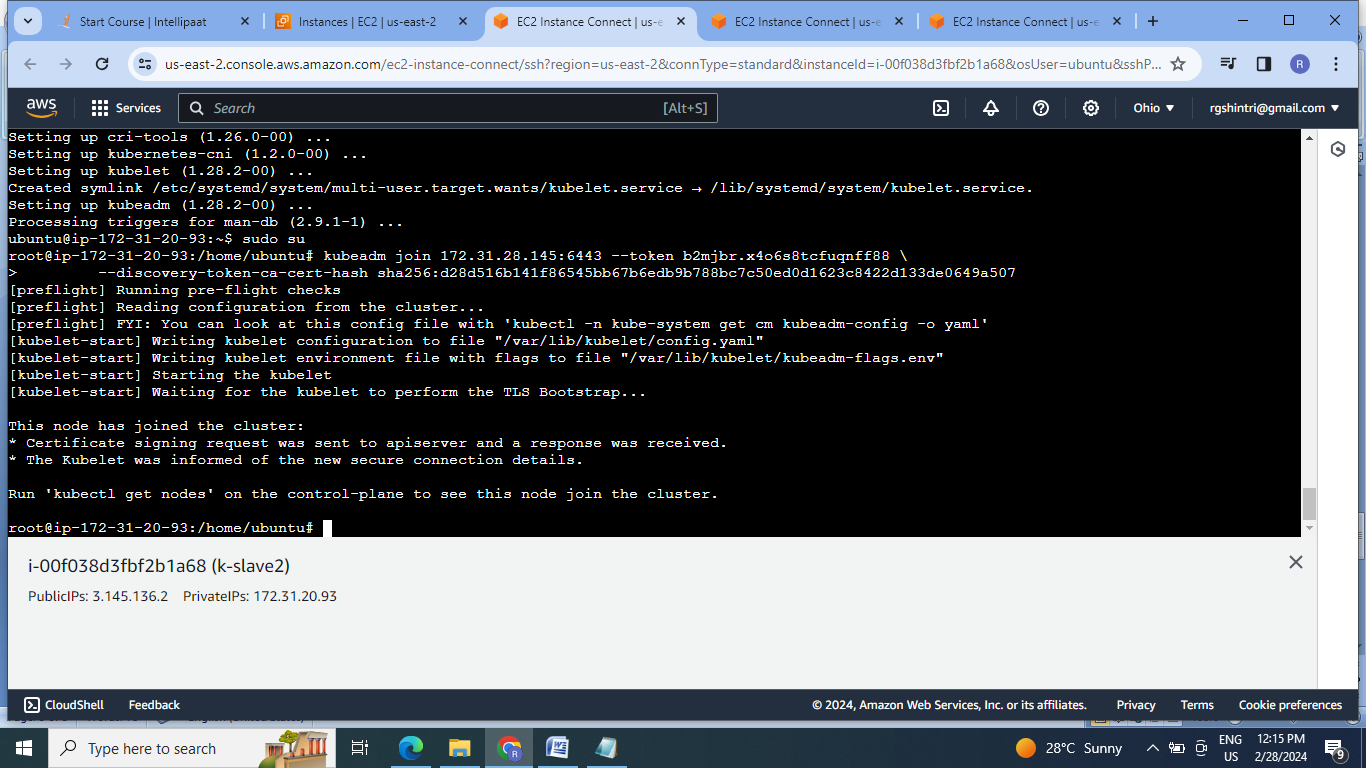




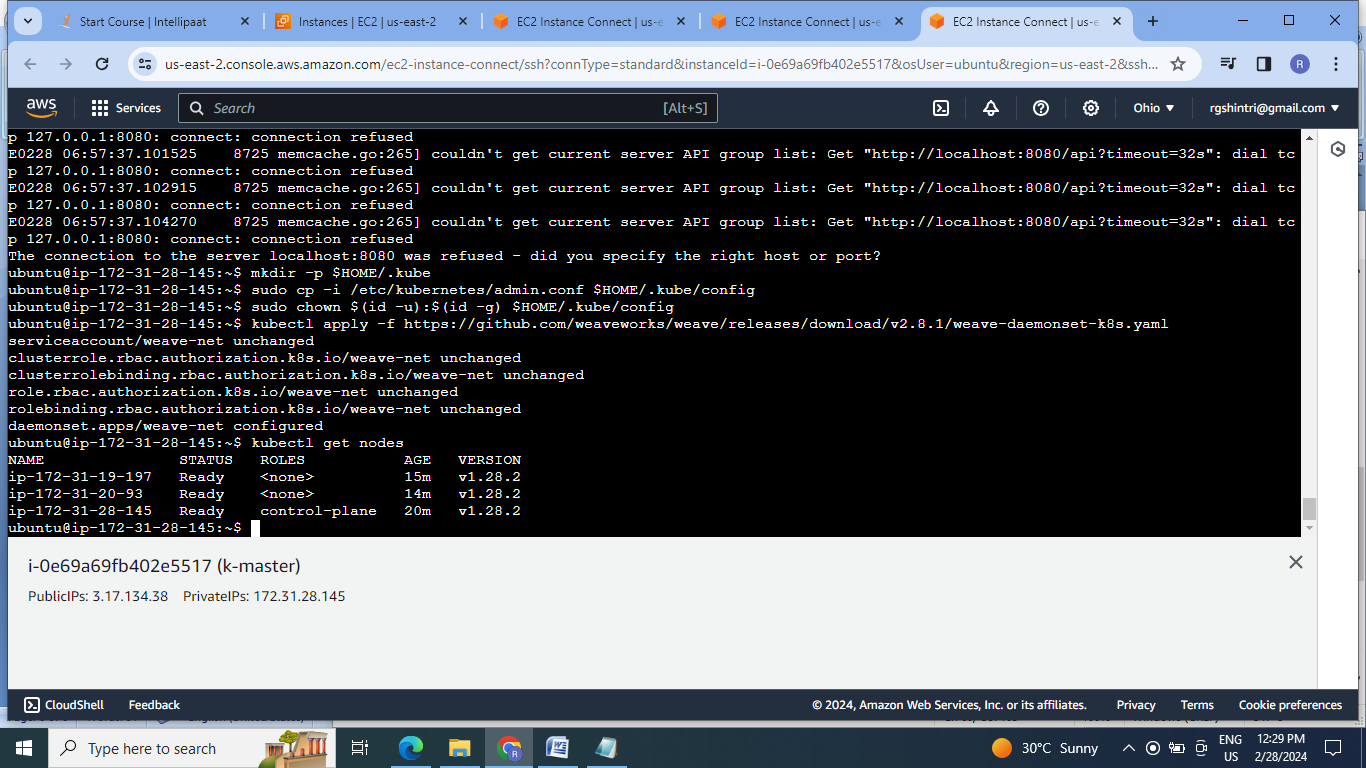
3.Generate the token at master & paste it on both the slaves for making master-slave cluster:



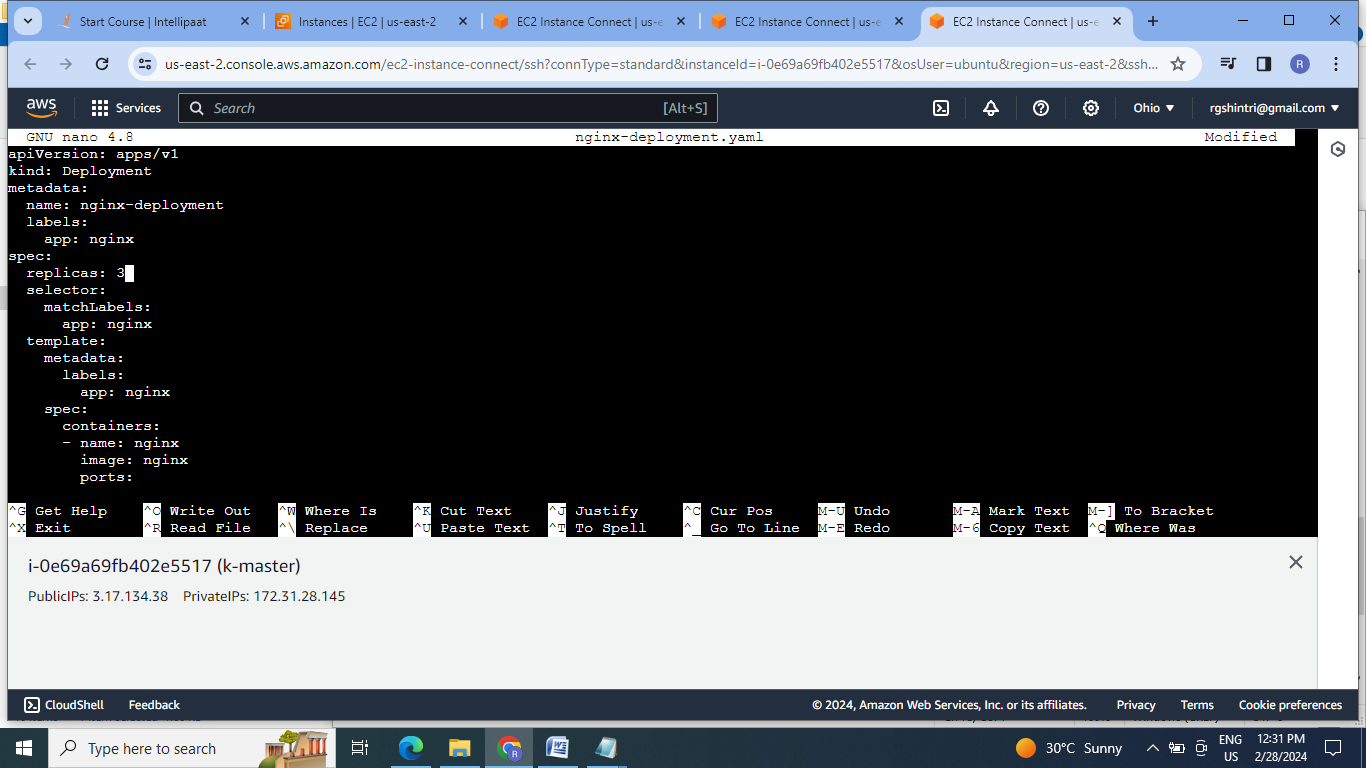


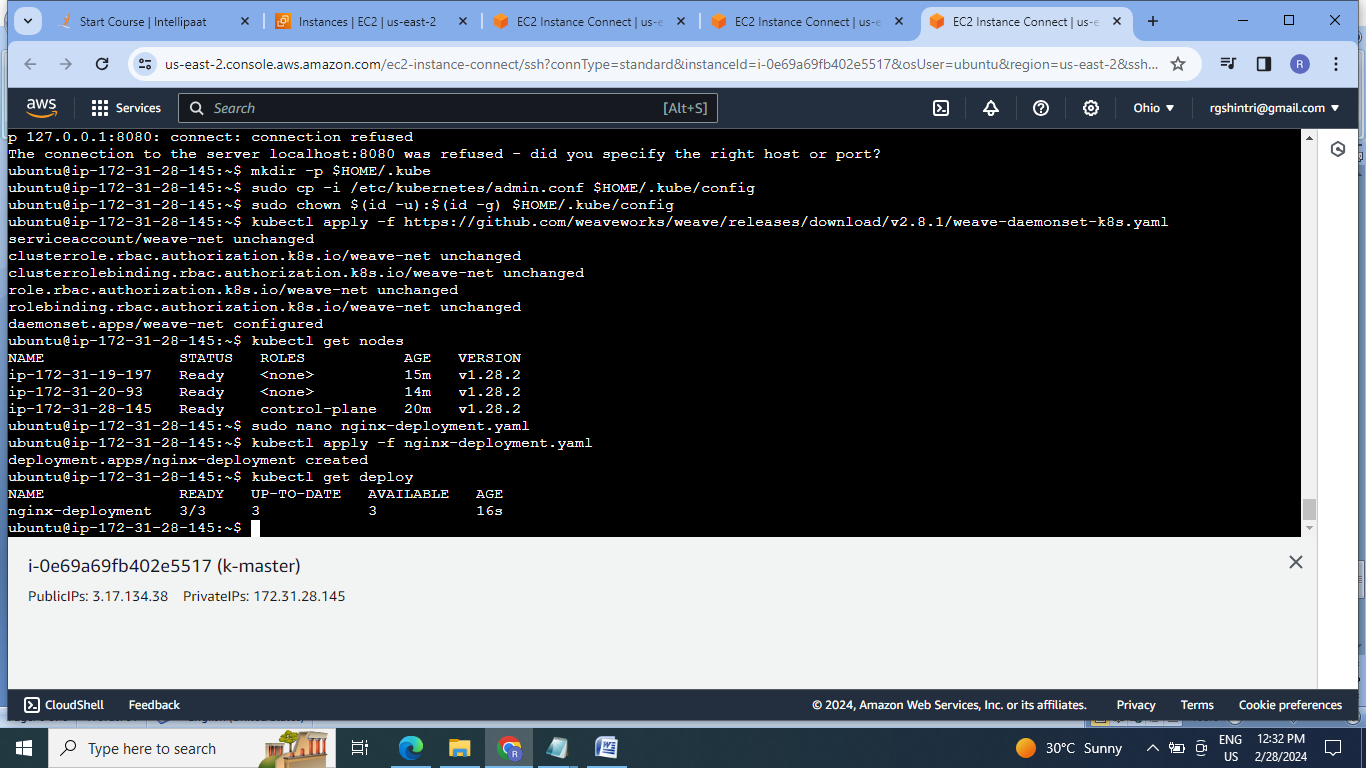


4. Check for cluster formation:



5. Create a nginx deployment of 3 replicas.





**B]Assignment 2:**

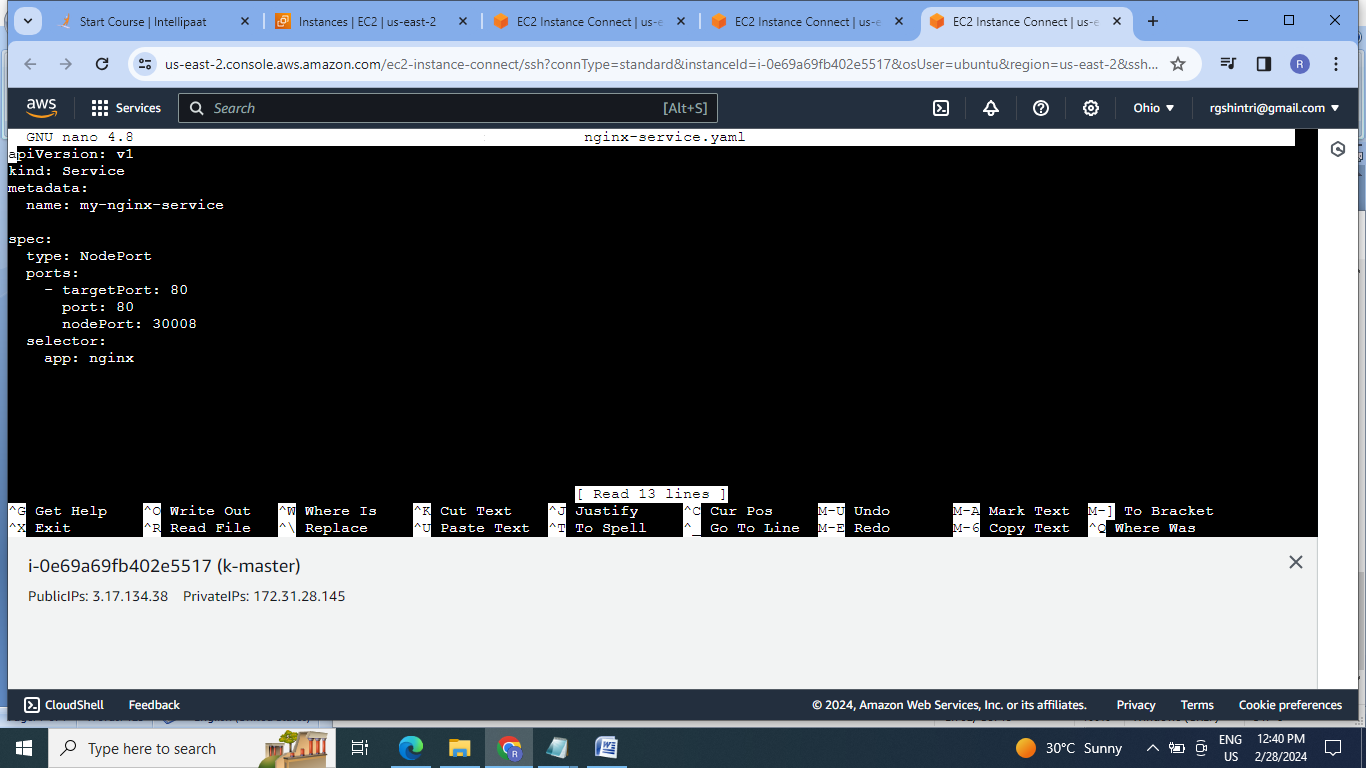
● Use the previous deployment

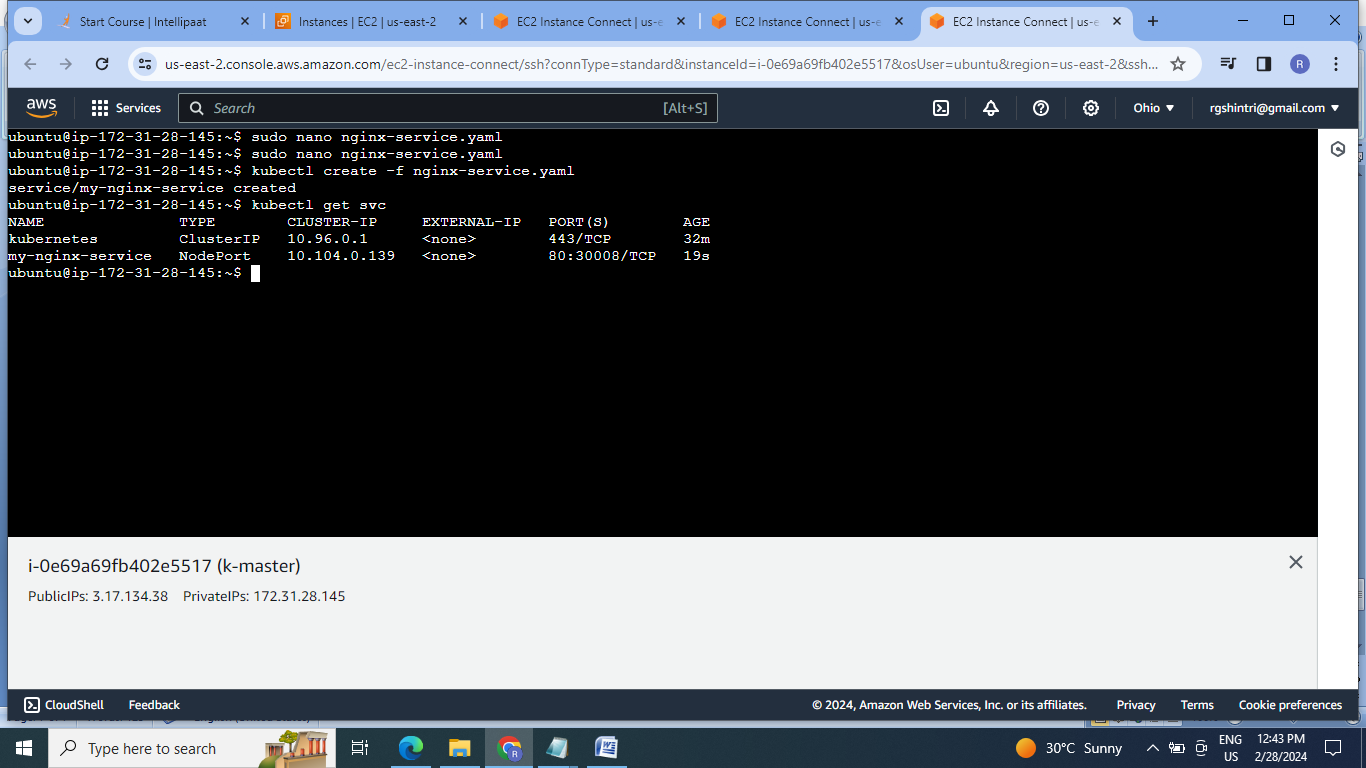
● Create a service of type NodePort for nginx deployment

● Check the nodeport service on a browser to verify

Steps:

1.Create service file & run it:



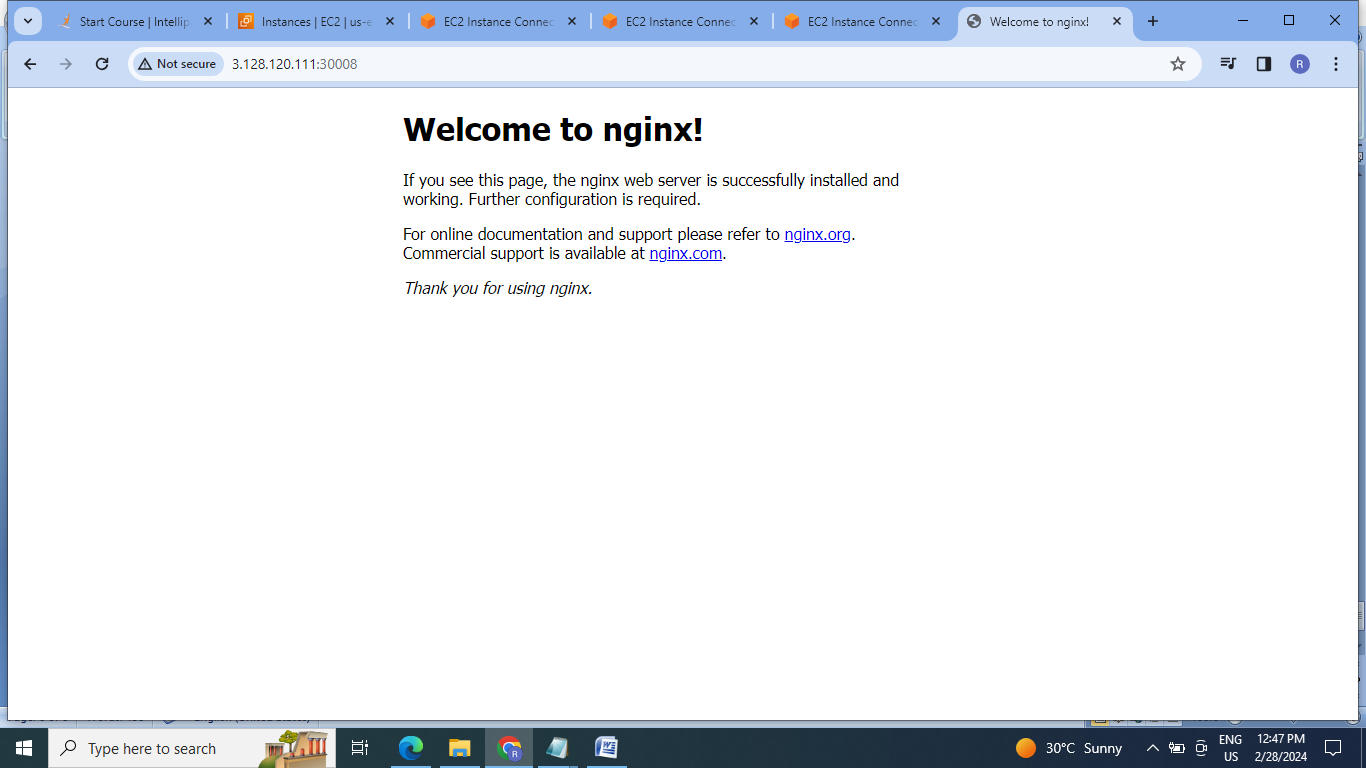


2.Check the nodeport service on a browser to verify:

At master:



At slave1:



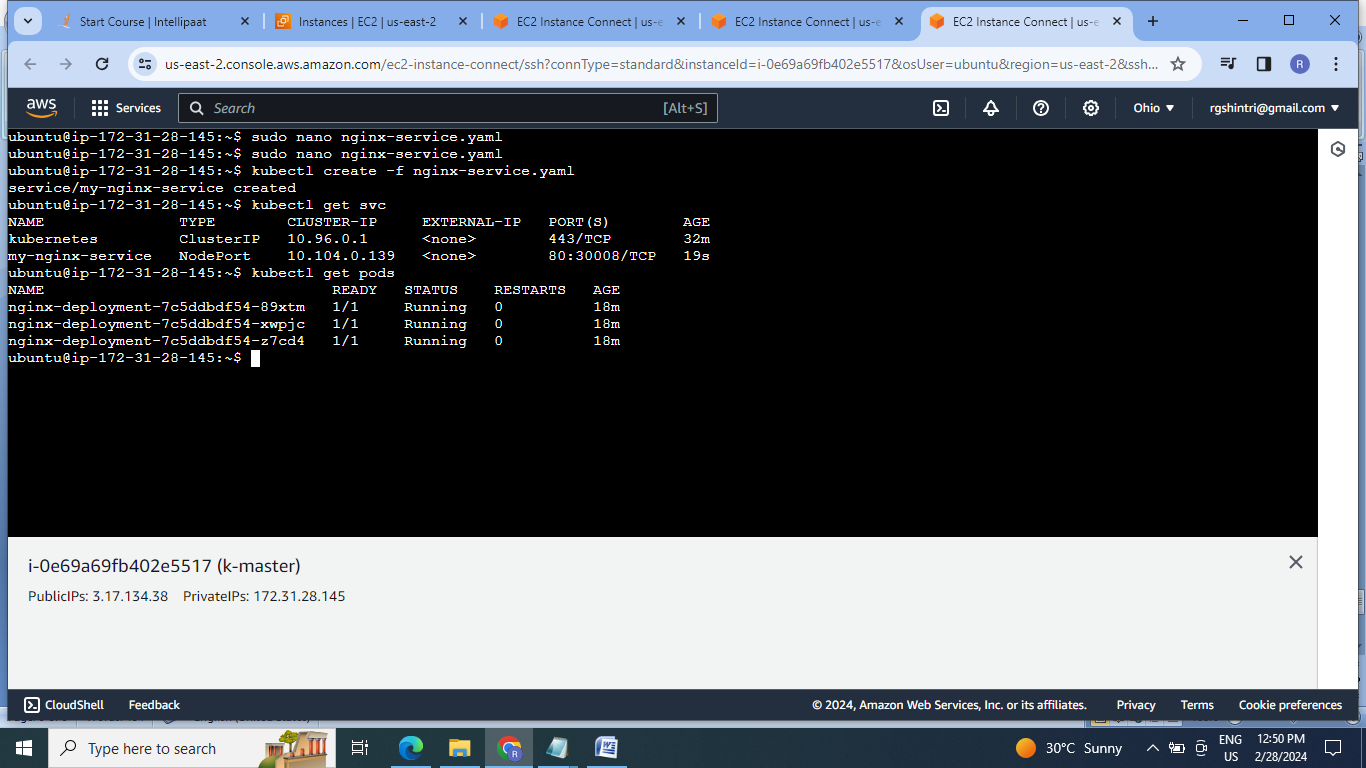
**C]Assignment 3:**

● Use the previous deployment

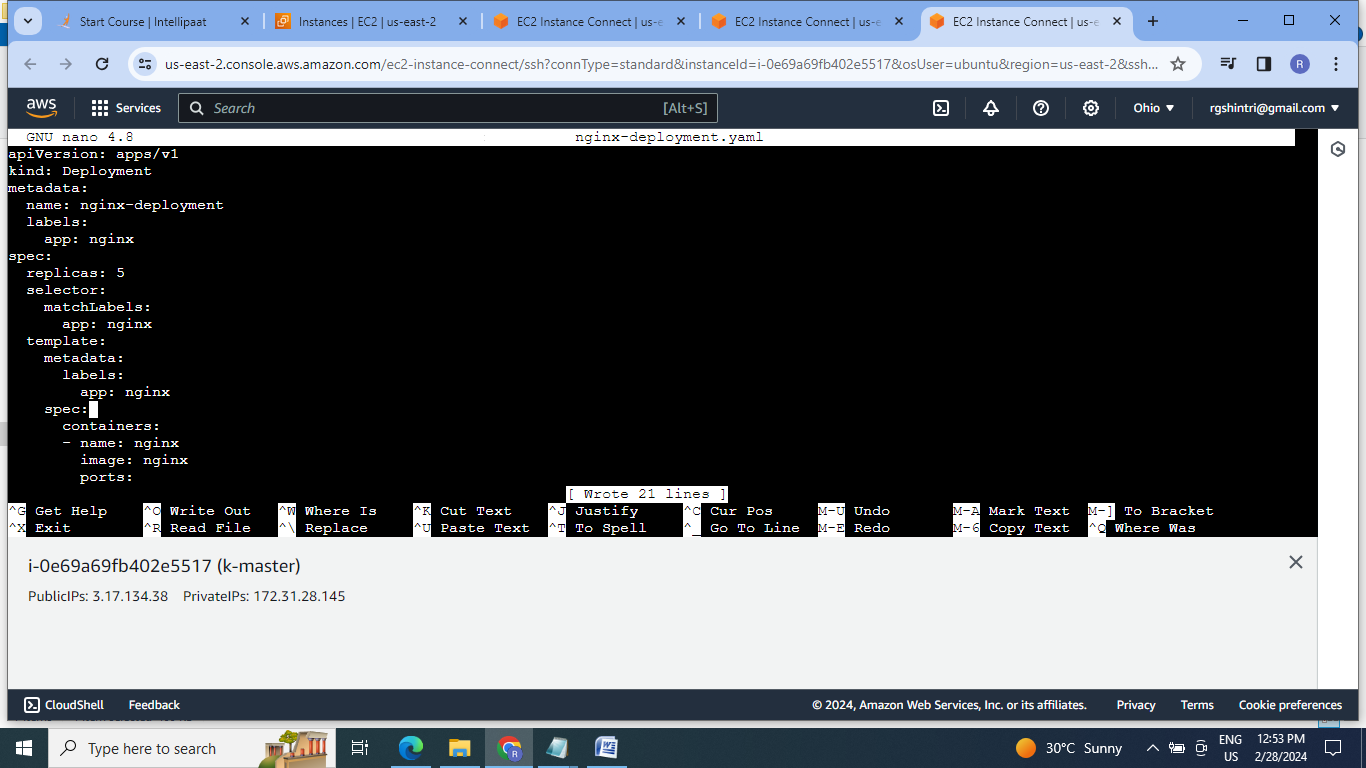
● Change the replicas to 5 for the deployment

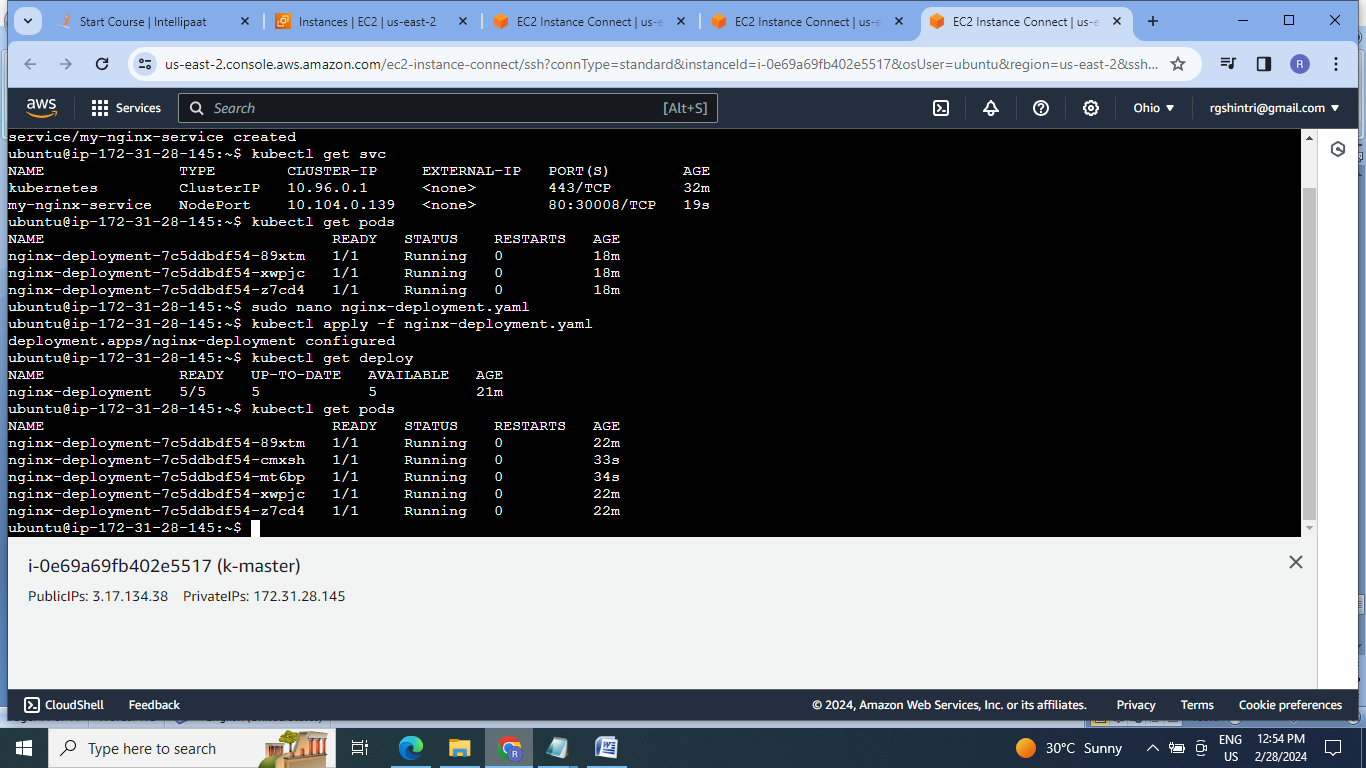
Steps:

1.Current replicas are 3:



2.Change the nginx-depolyment file for no.of replicas as 5 ,save & run the deployment:





**D] Assignment 4:**

● Use the previous deployment

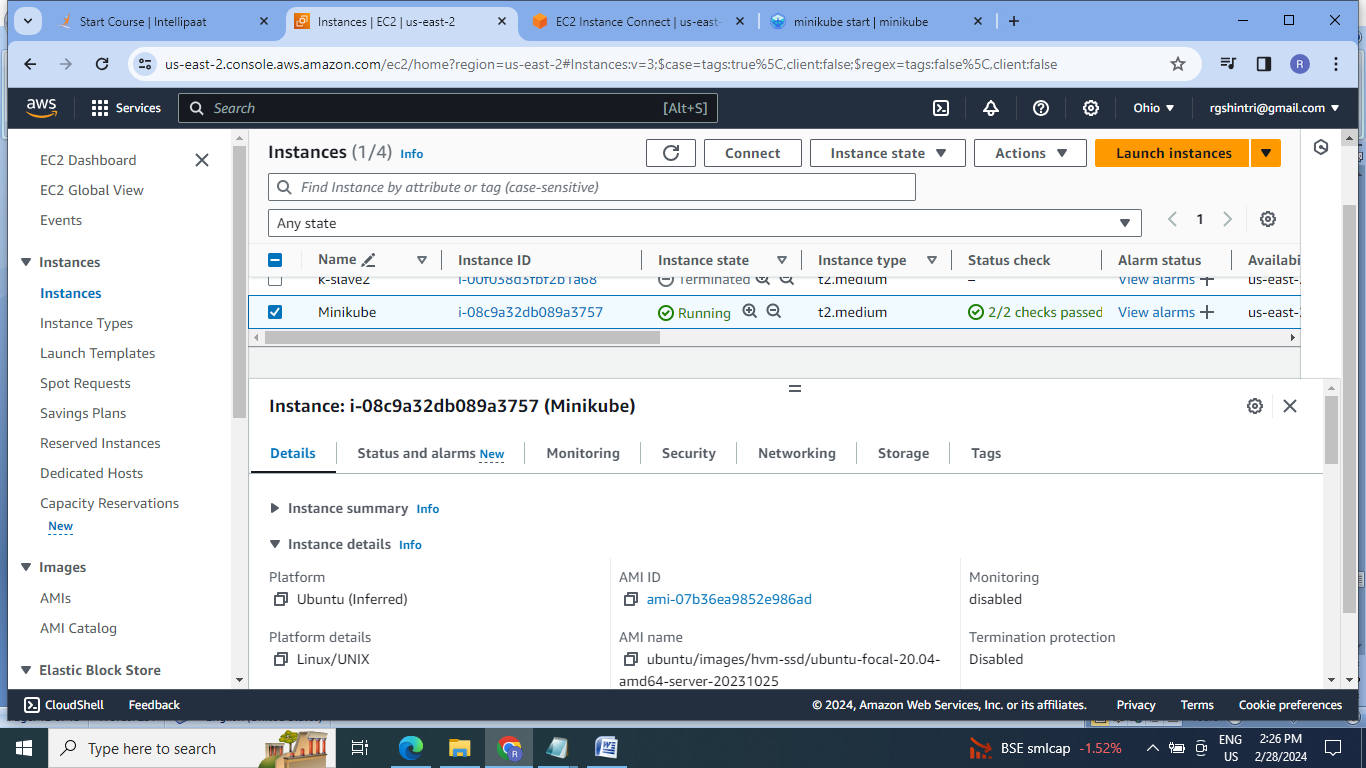
● Deploy an apache deployment of 3 replicas

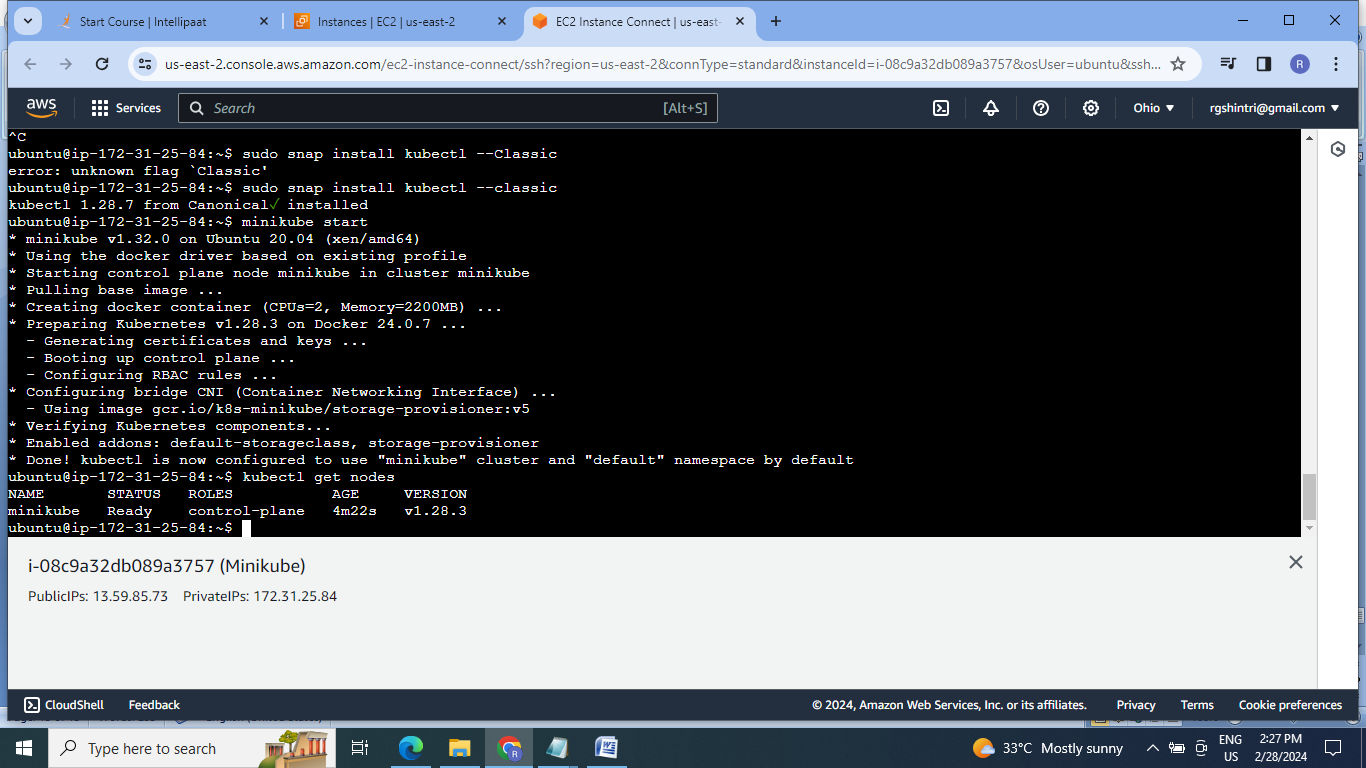
● Create an apache service of type clusterip

● Create an ingress service /apache to apache service /nginx to nginx service

Steps:

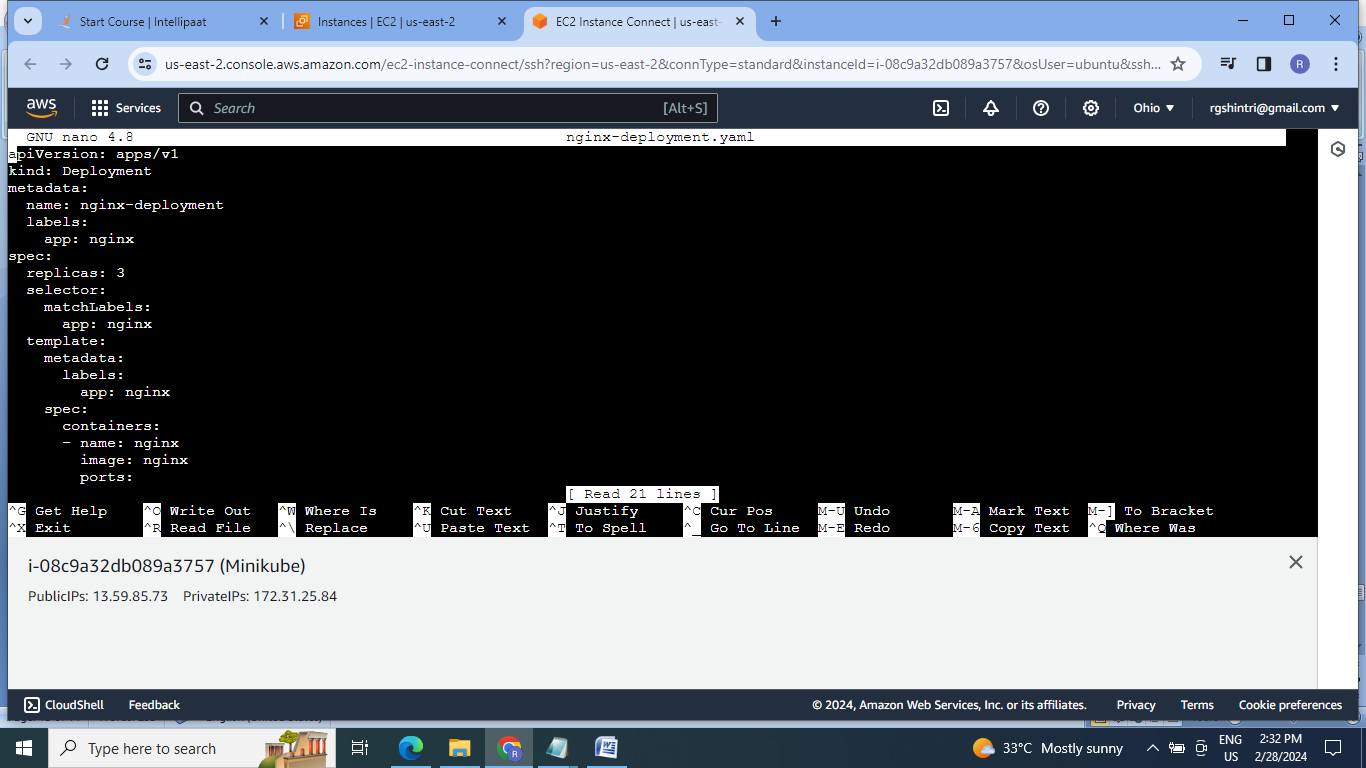
1.Create EC2 instance & Install MInikube .





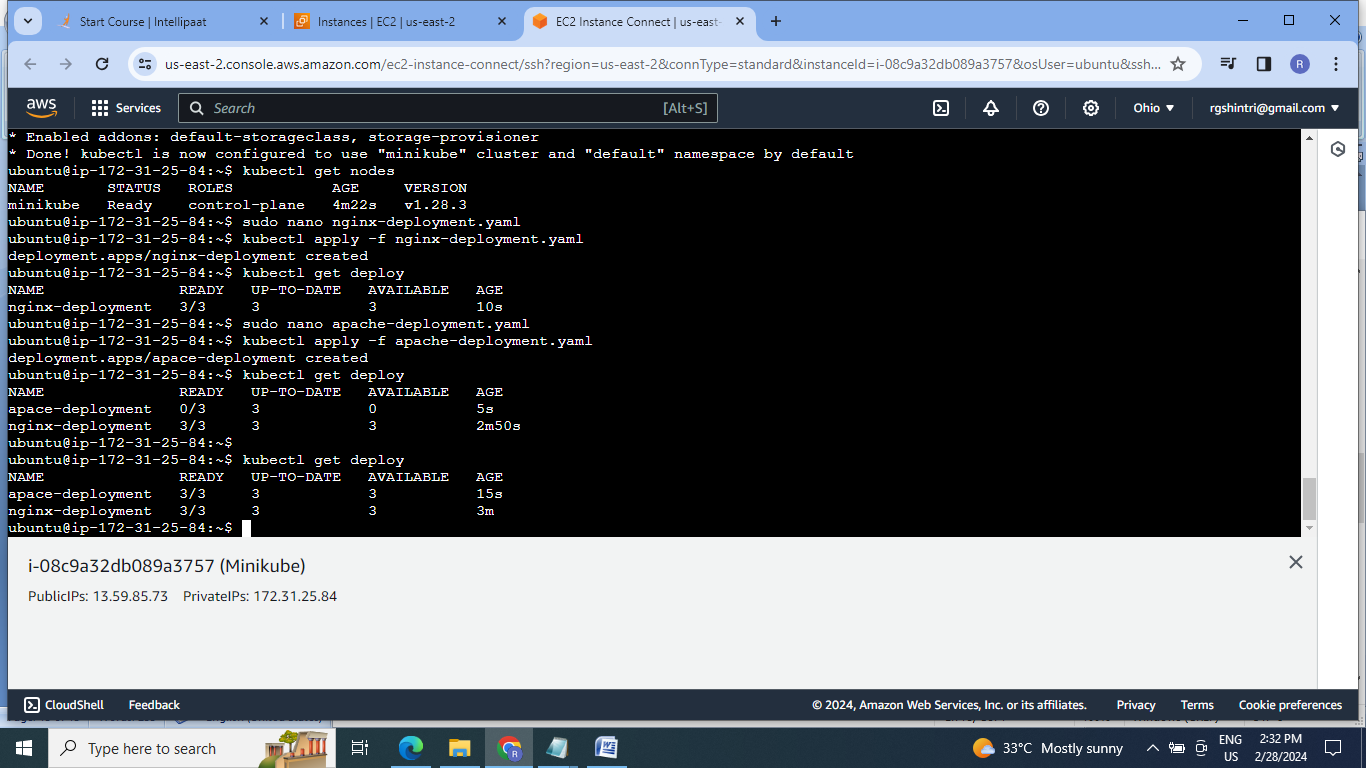
2.Create & deploy nginx deployment & apache deployment of 3 replicas:

Nginx deployment:

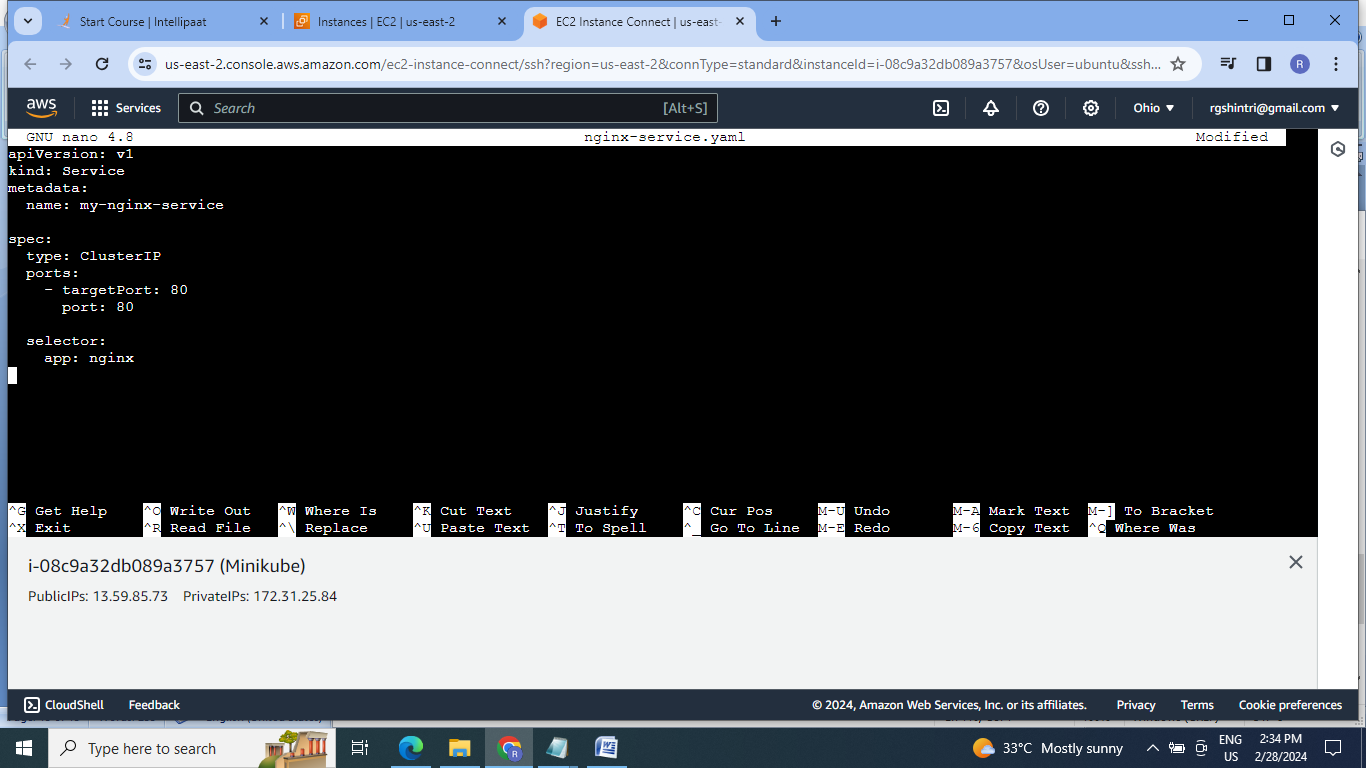


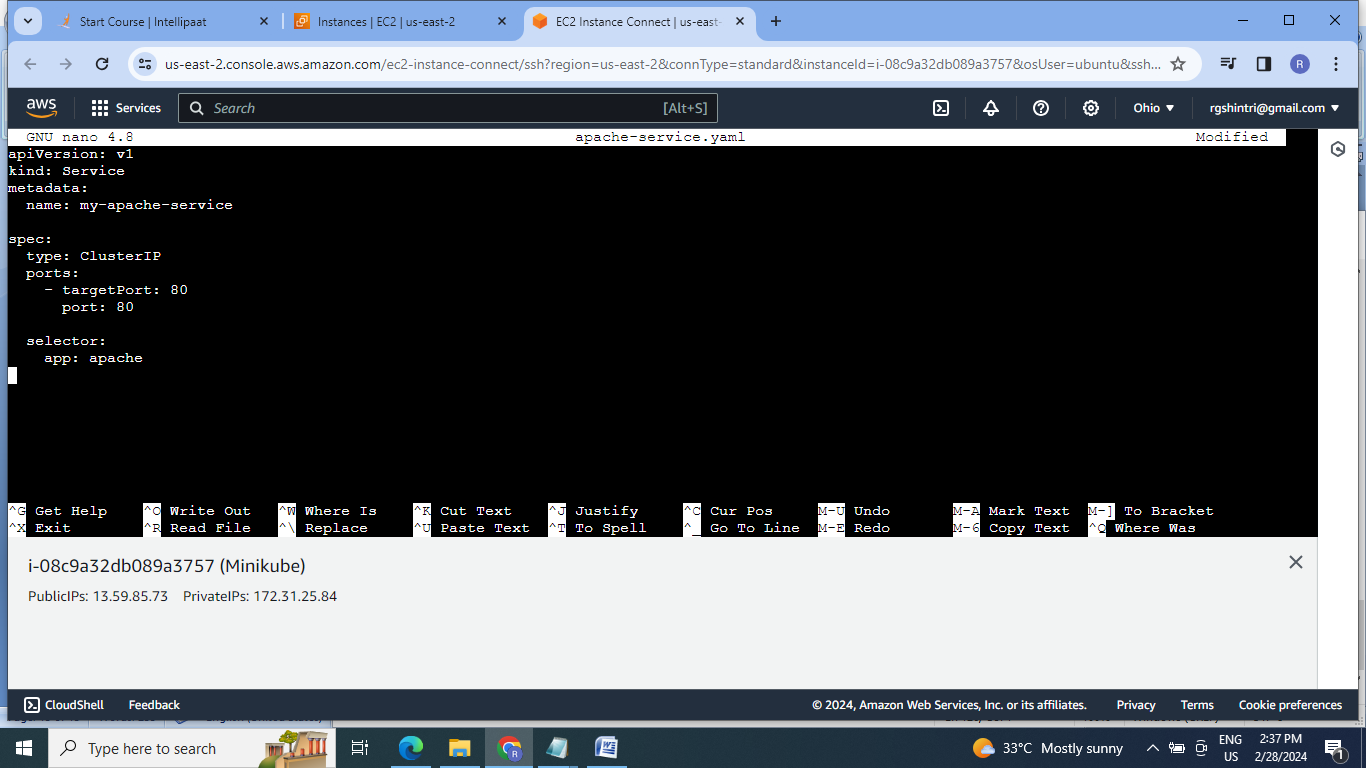
Apache deployment:

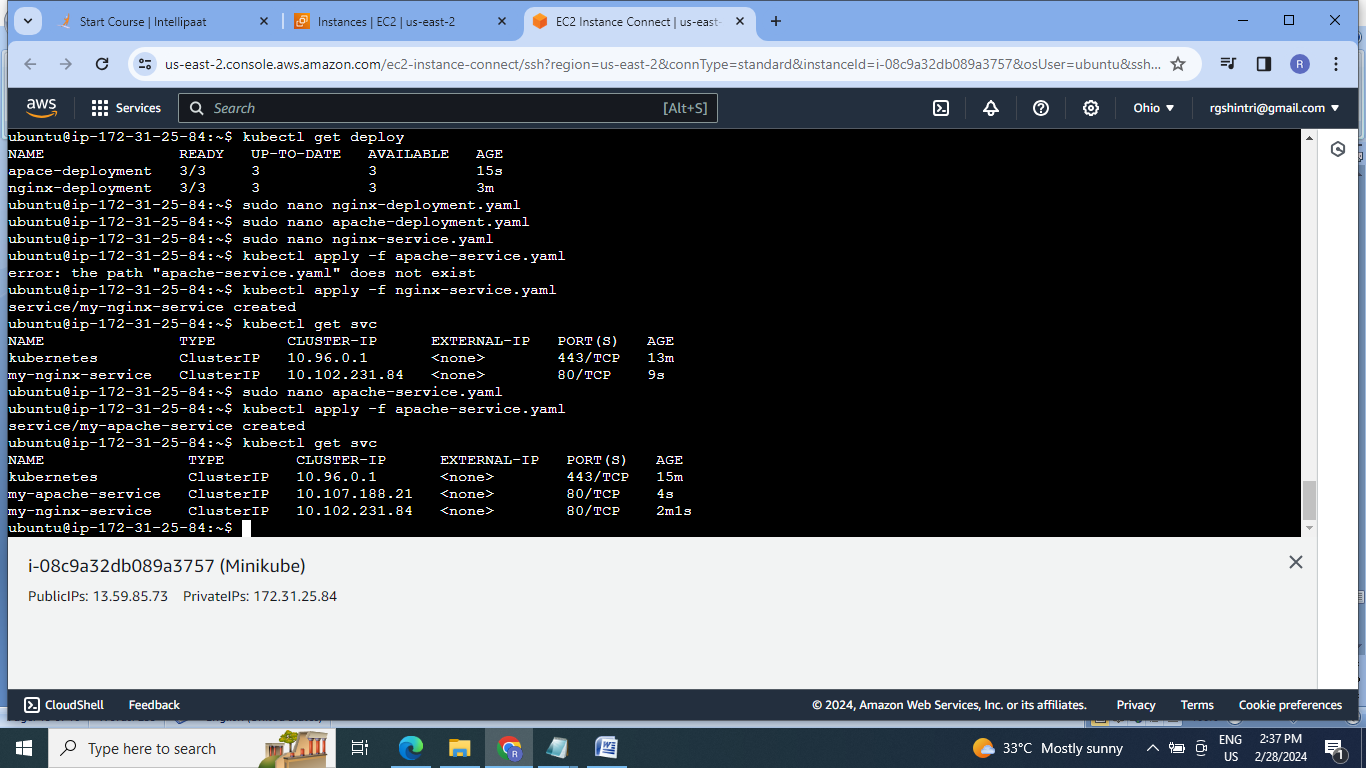




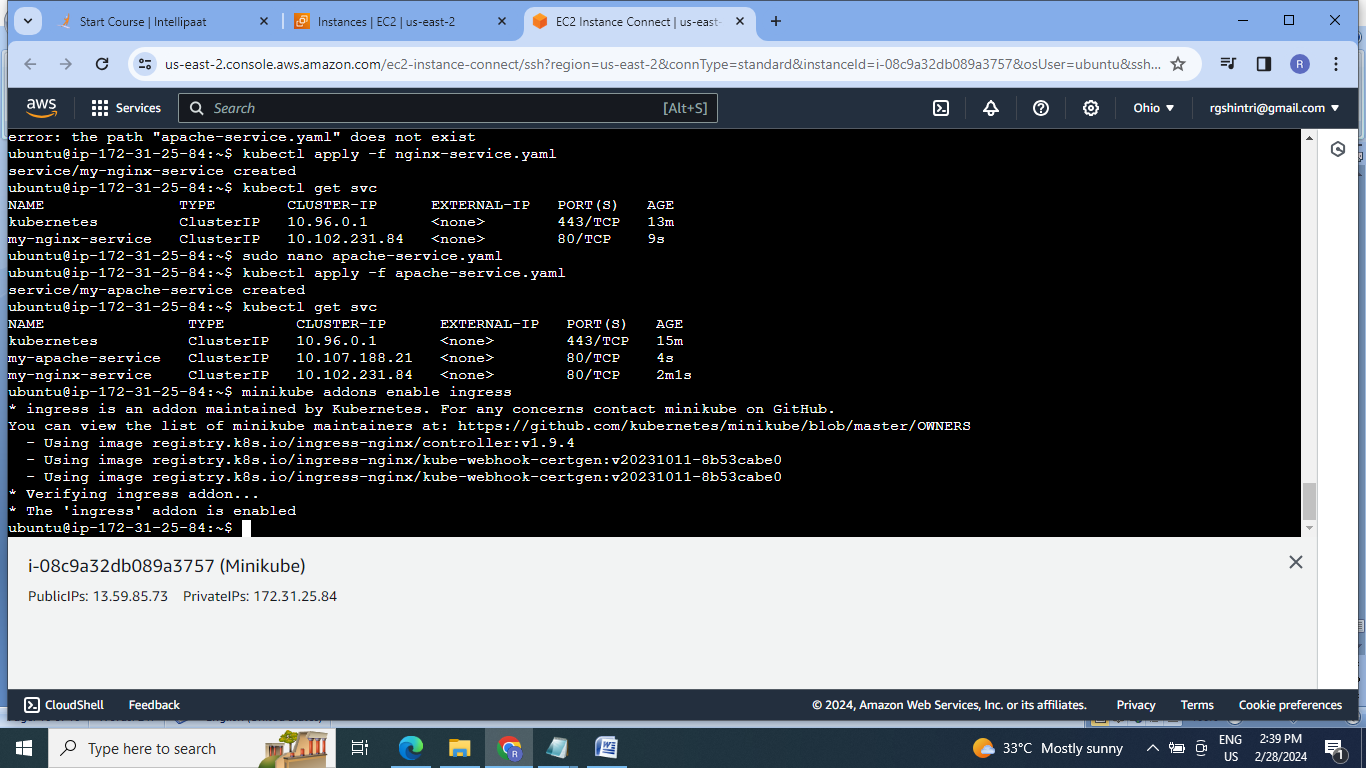
3..Create & deploy nginx service & apache service :



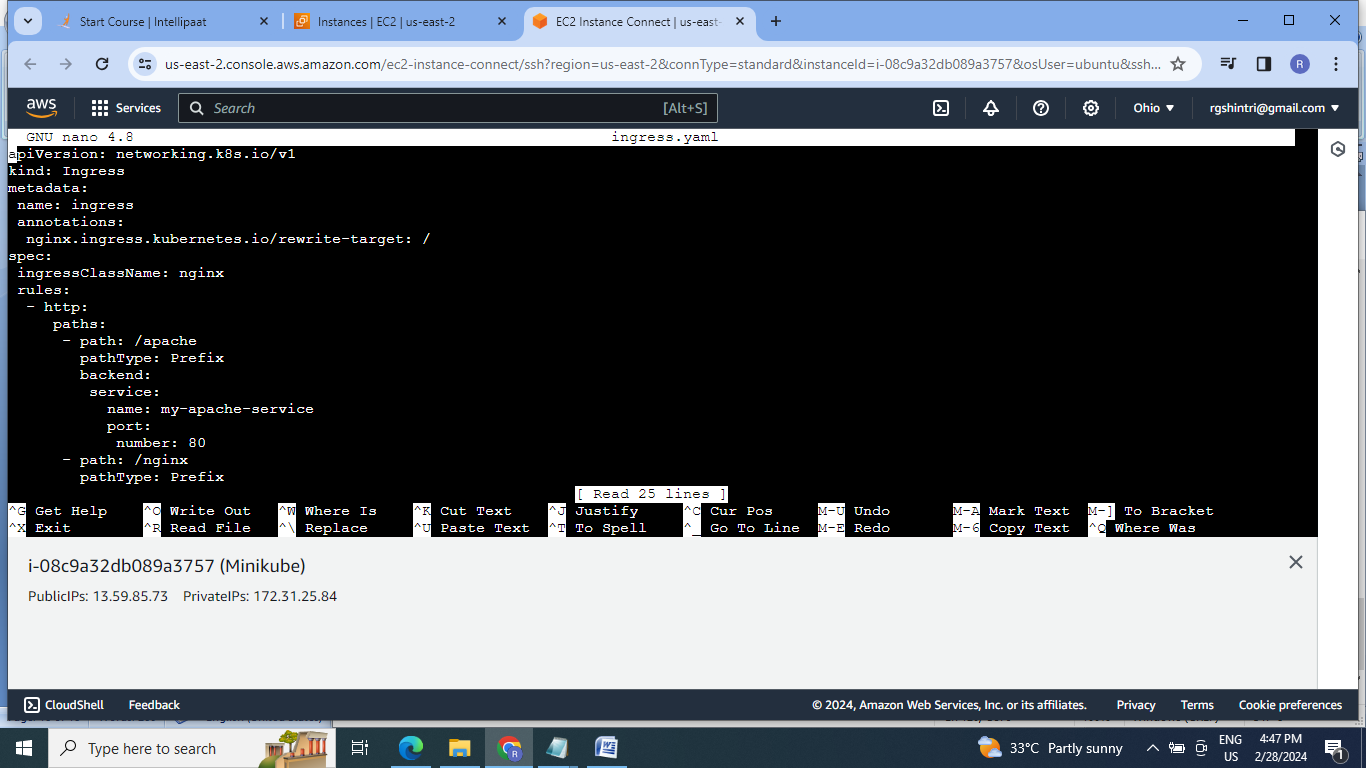




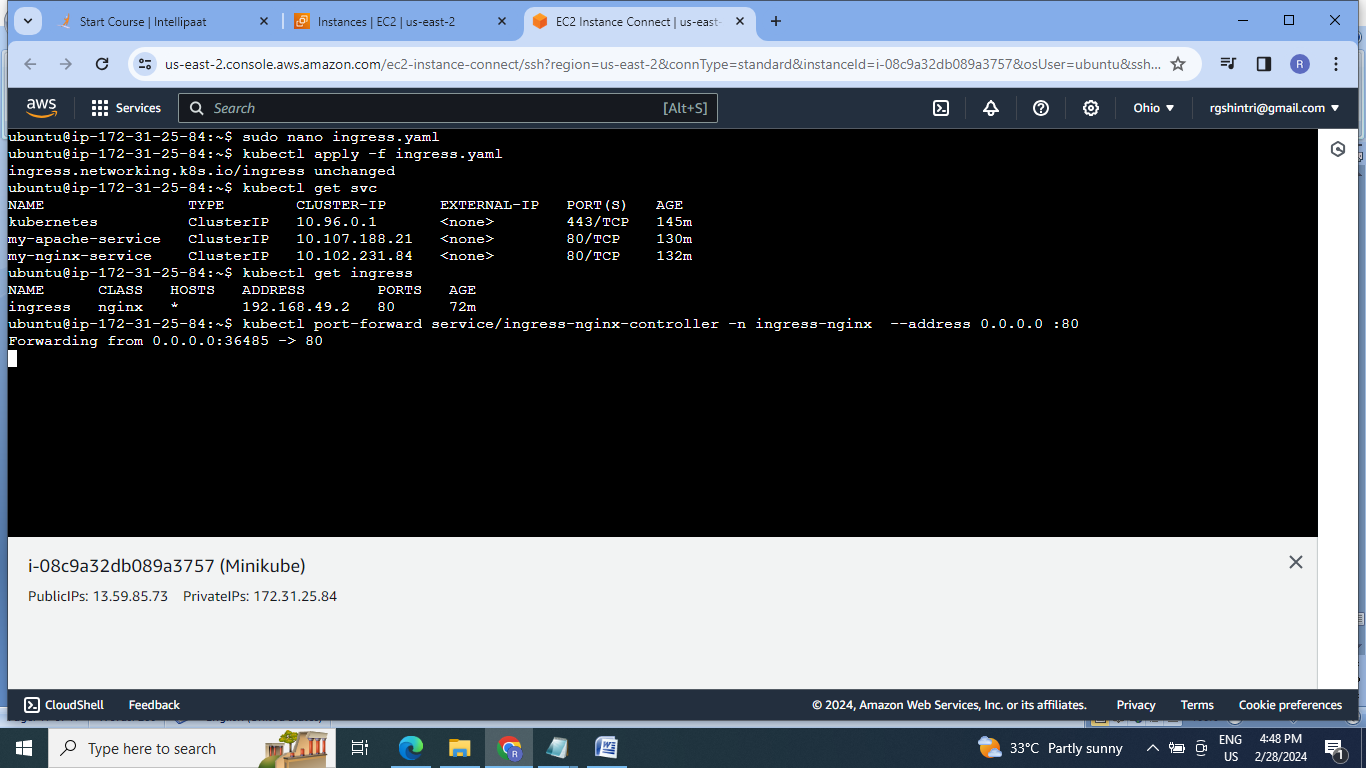
4. Enable ingress service :



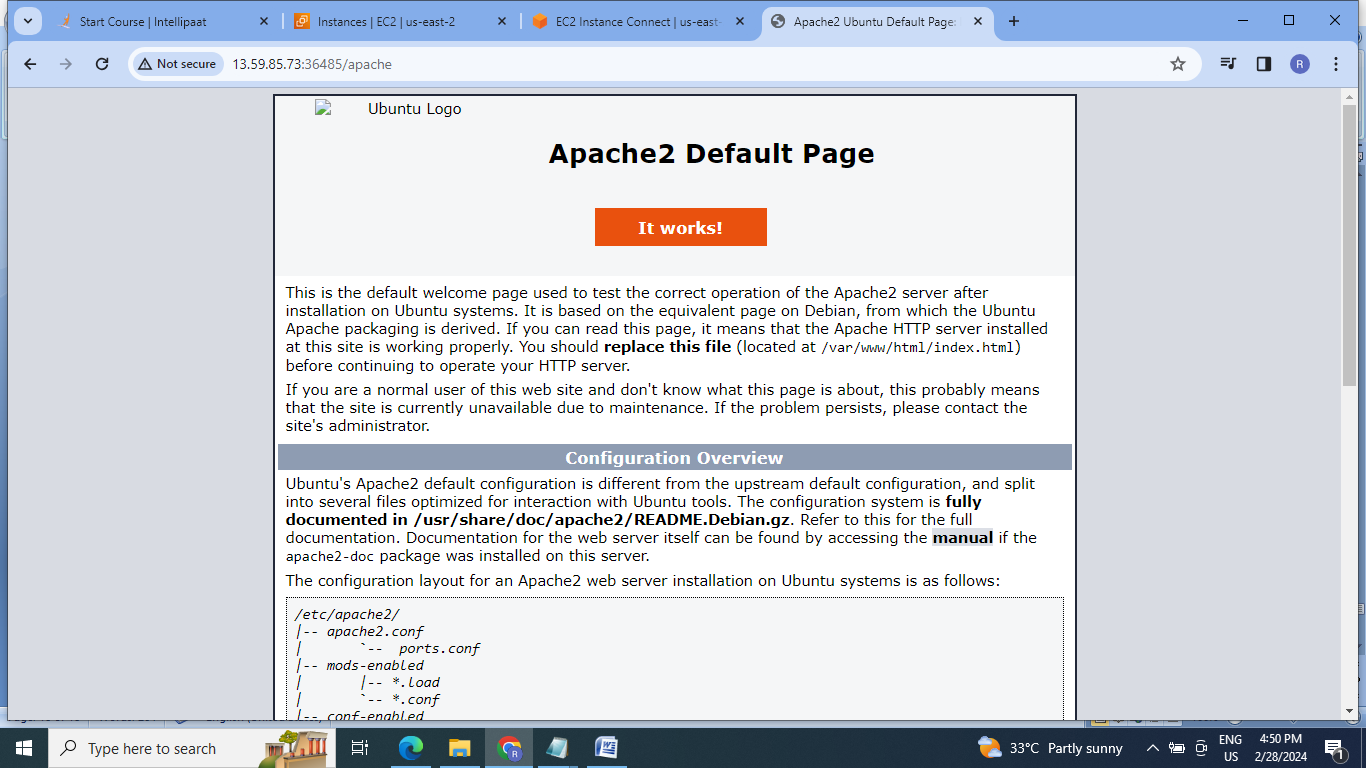
5.Create ingress service /apache to apache service /nginx to nginx service:

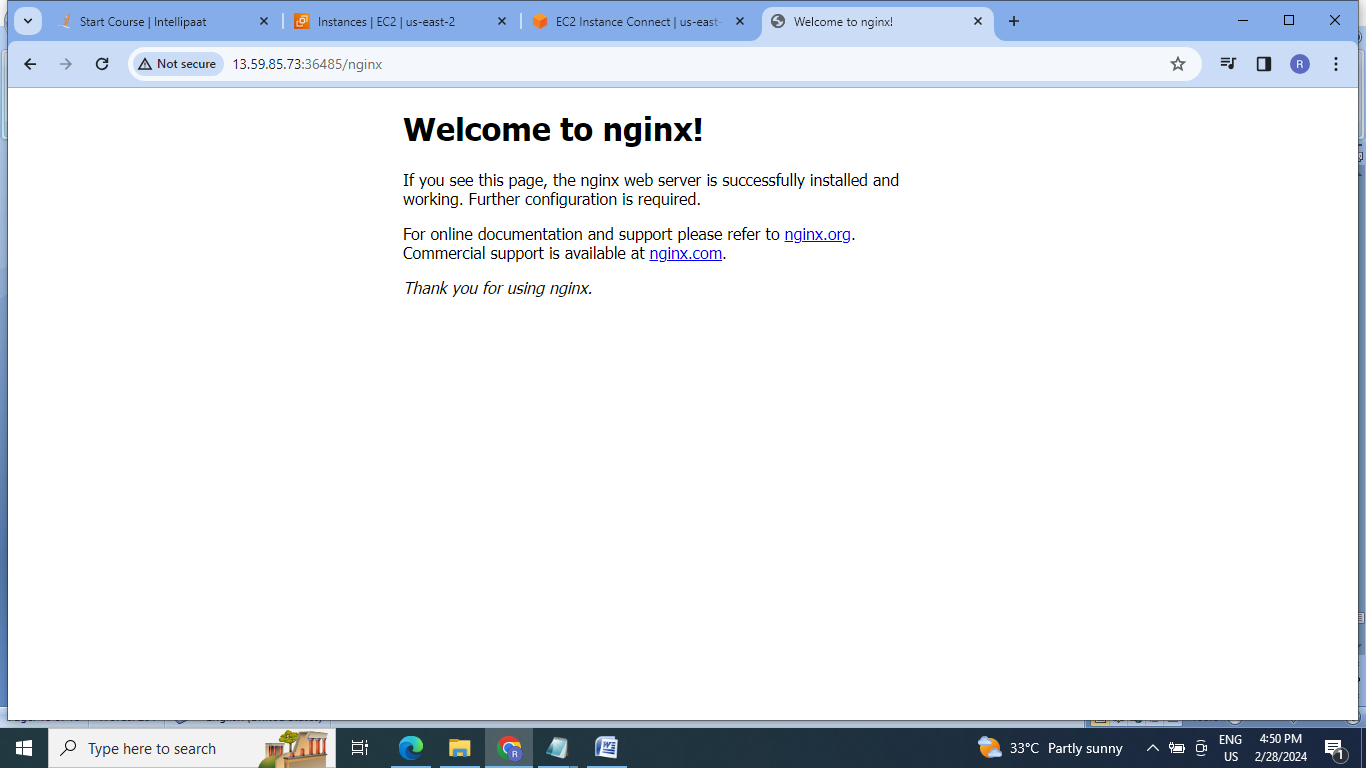


6.Create port forwarding:



7.Check for both services on browser:





**E]Assignment 5:**

1. Create a persistent volume

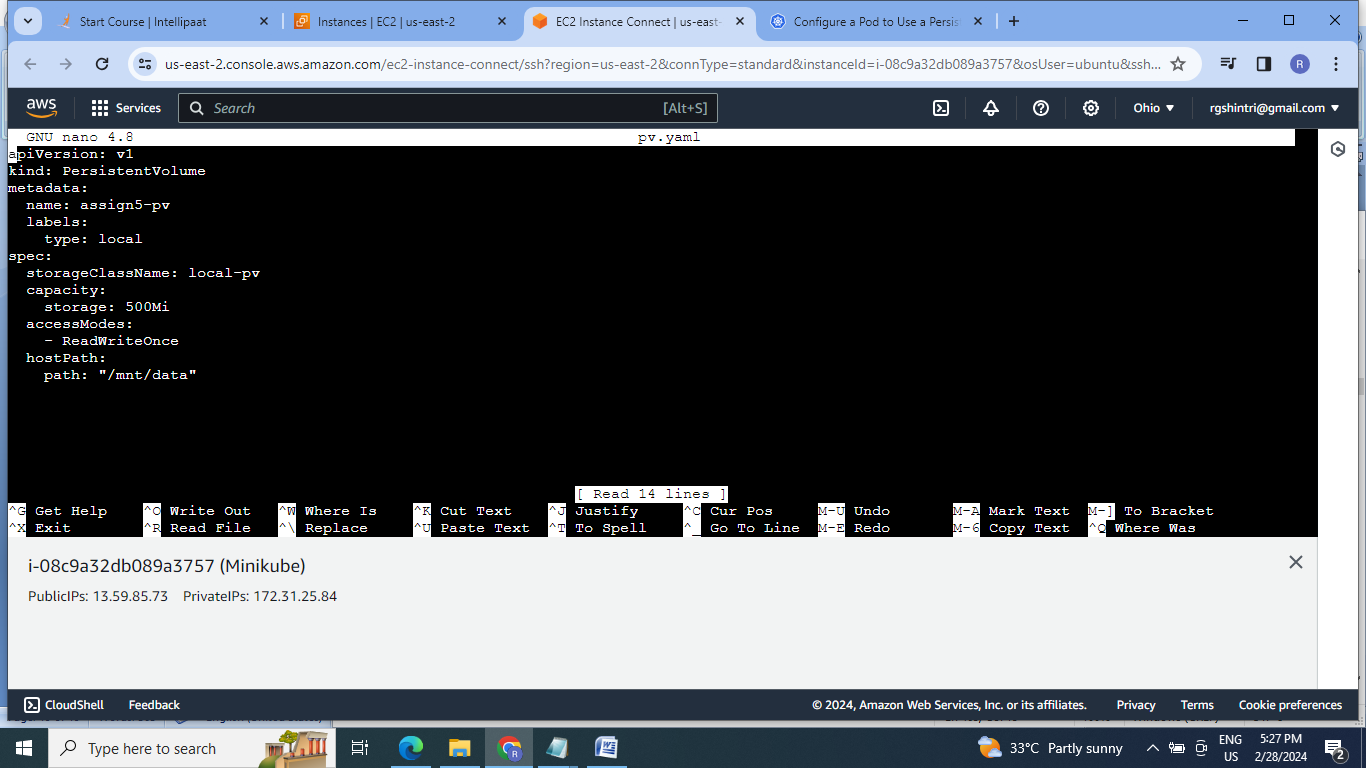
2. create a persistent volume claim

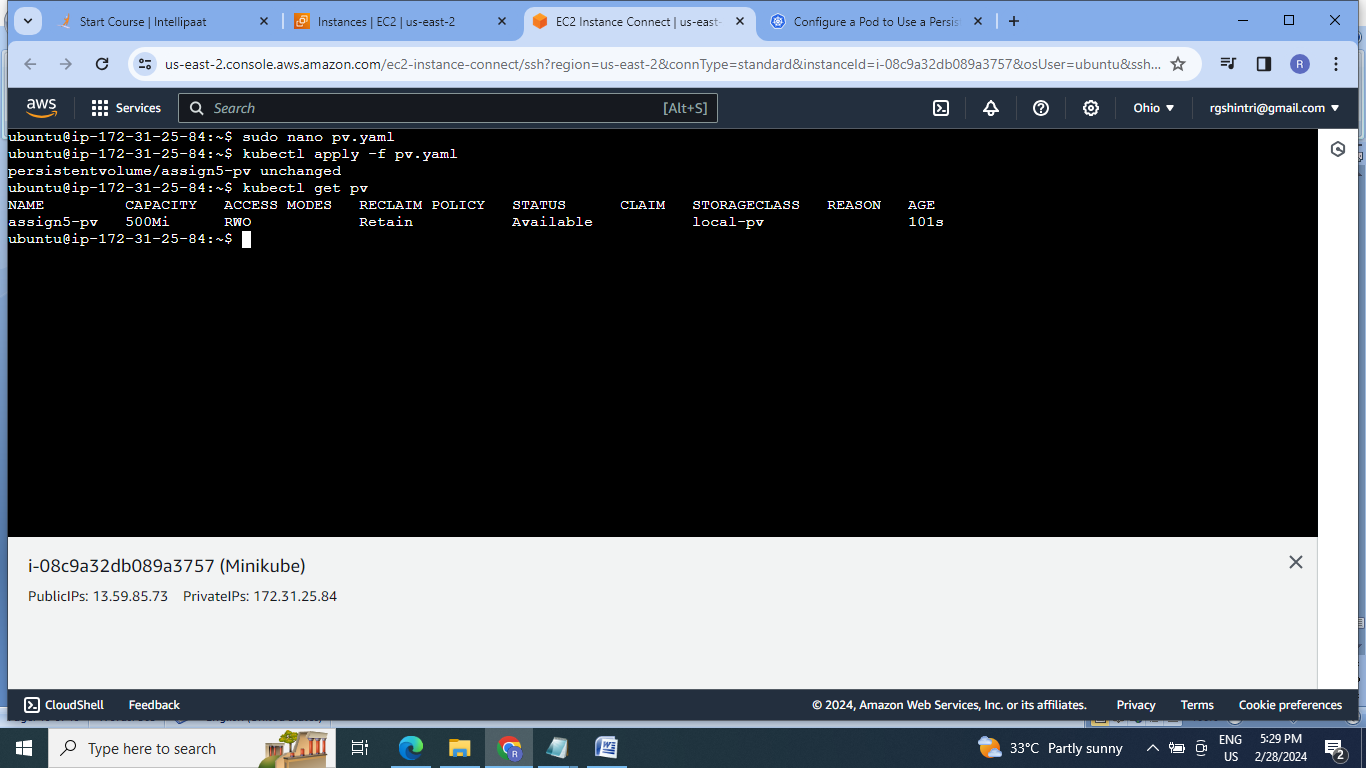
3. create a secret “xyzIsthebest”

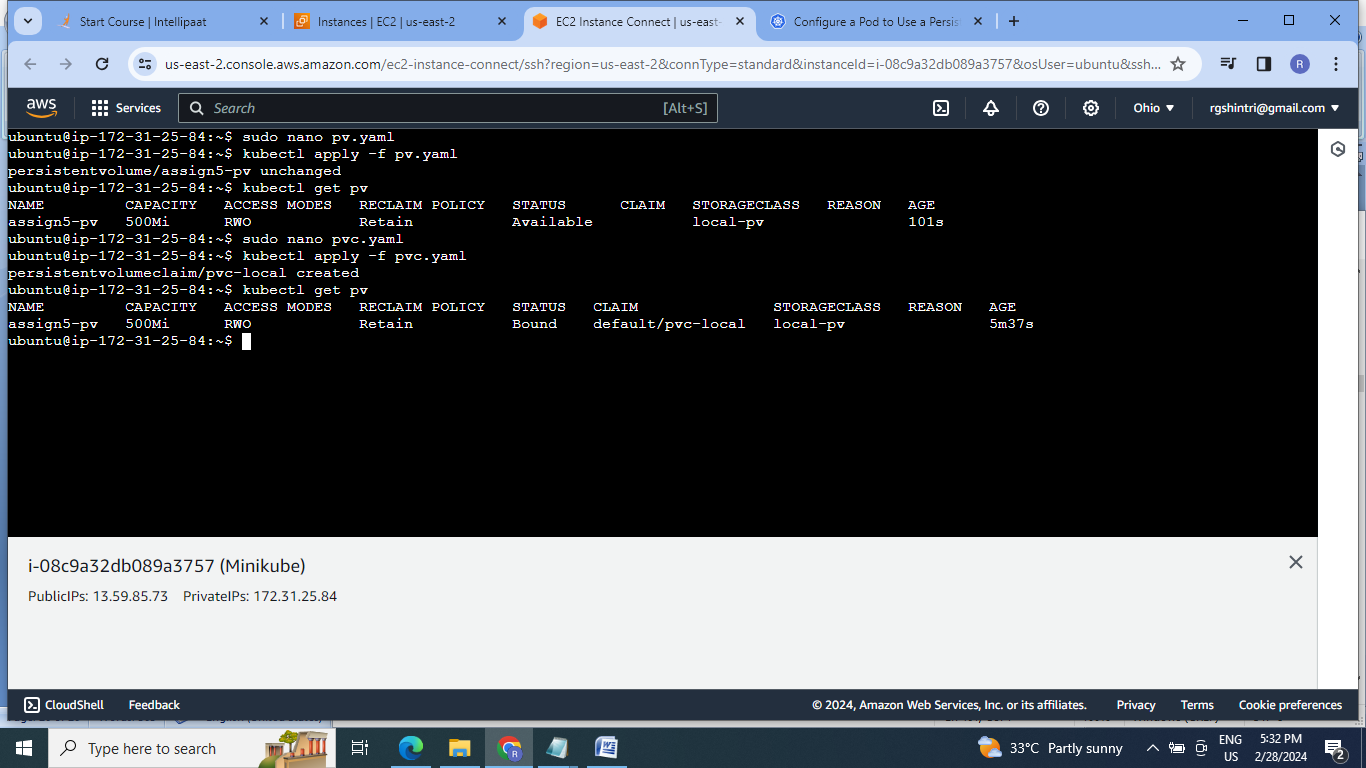
4. Taint one of the nodes of the cluster

Steps:

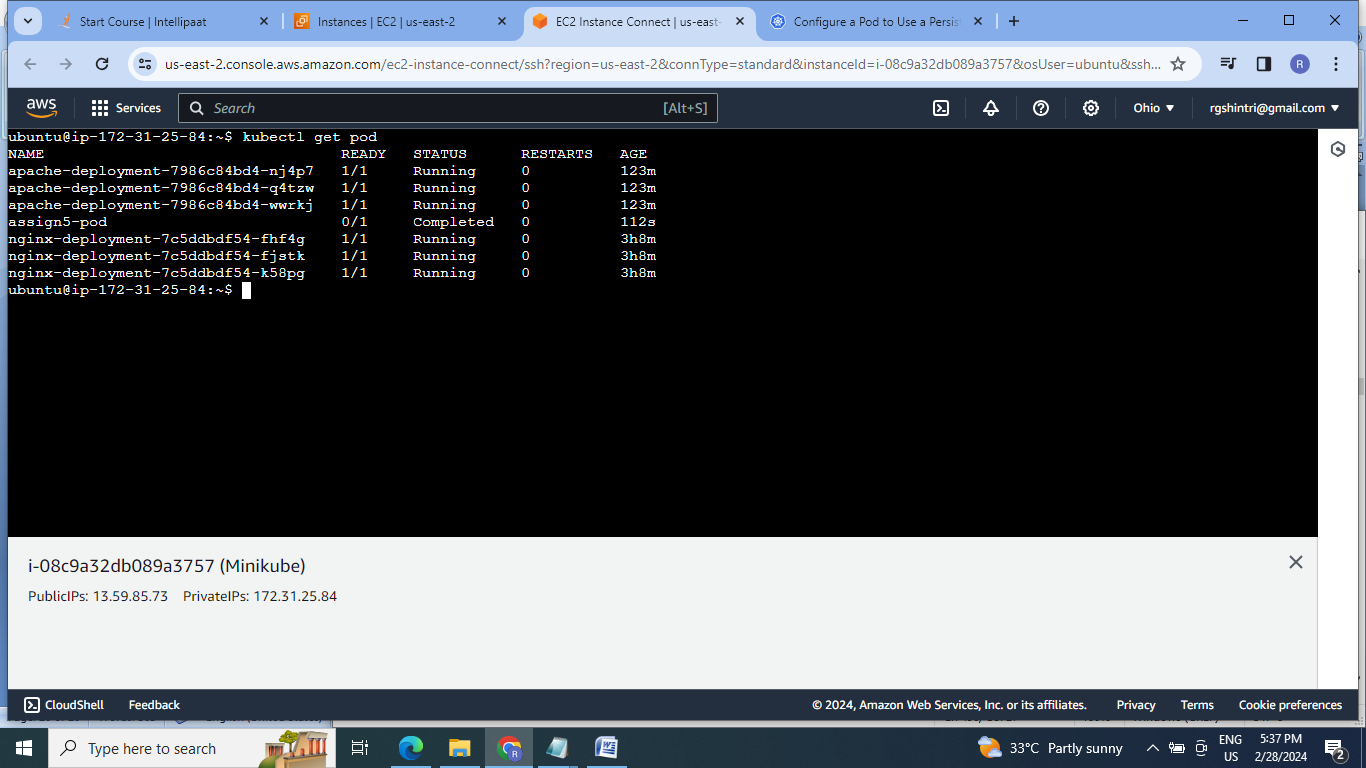
1.Create persistent volume yaml file & deploy it

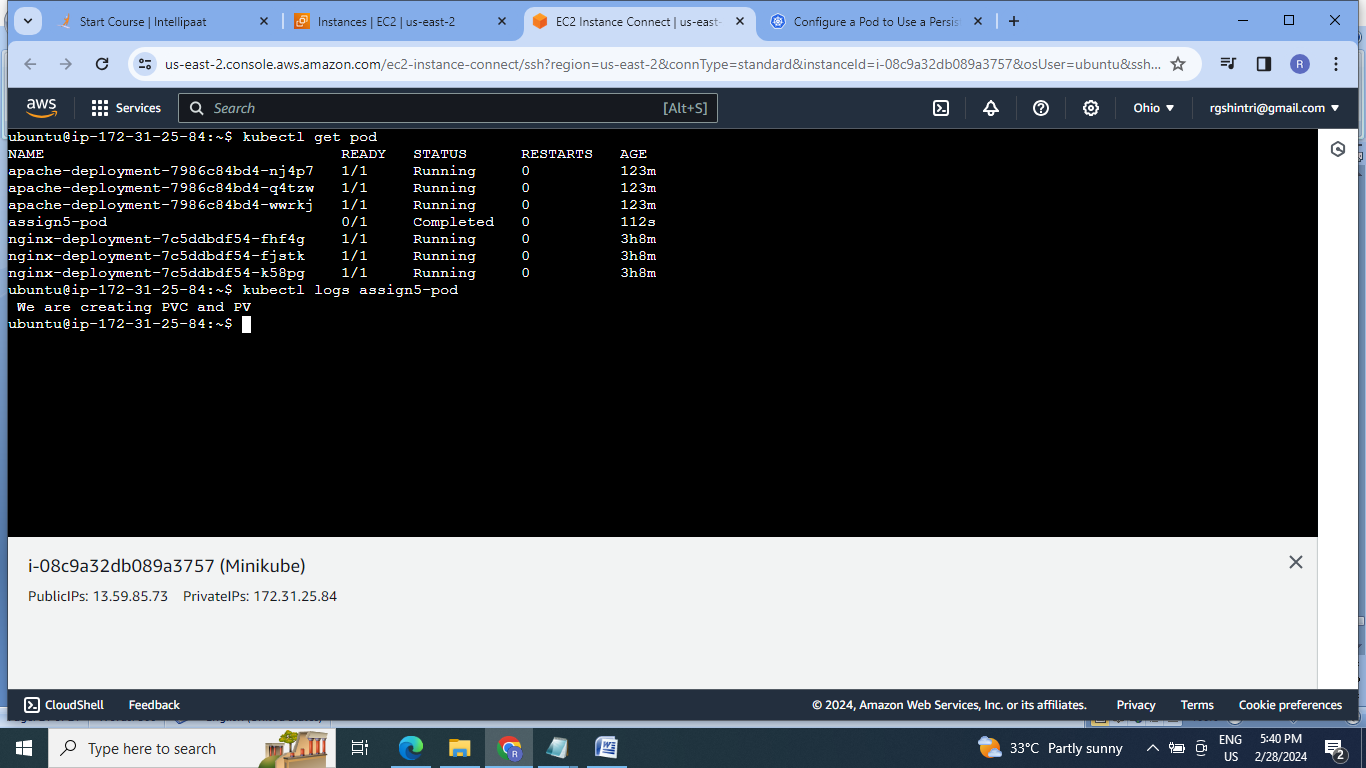




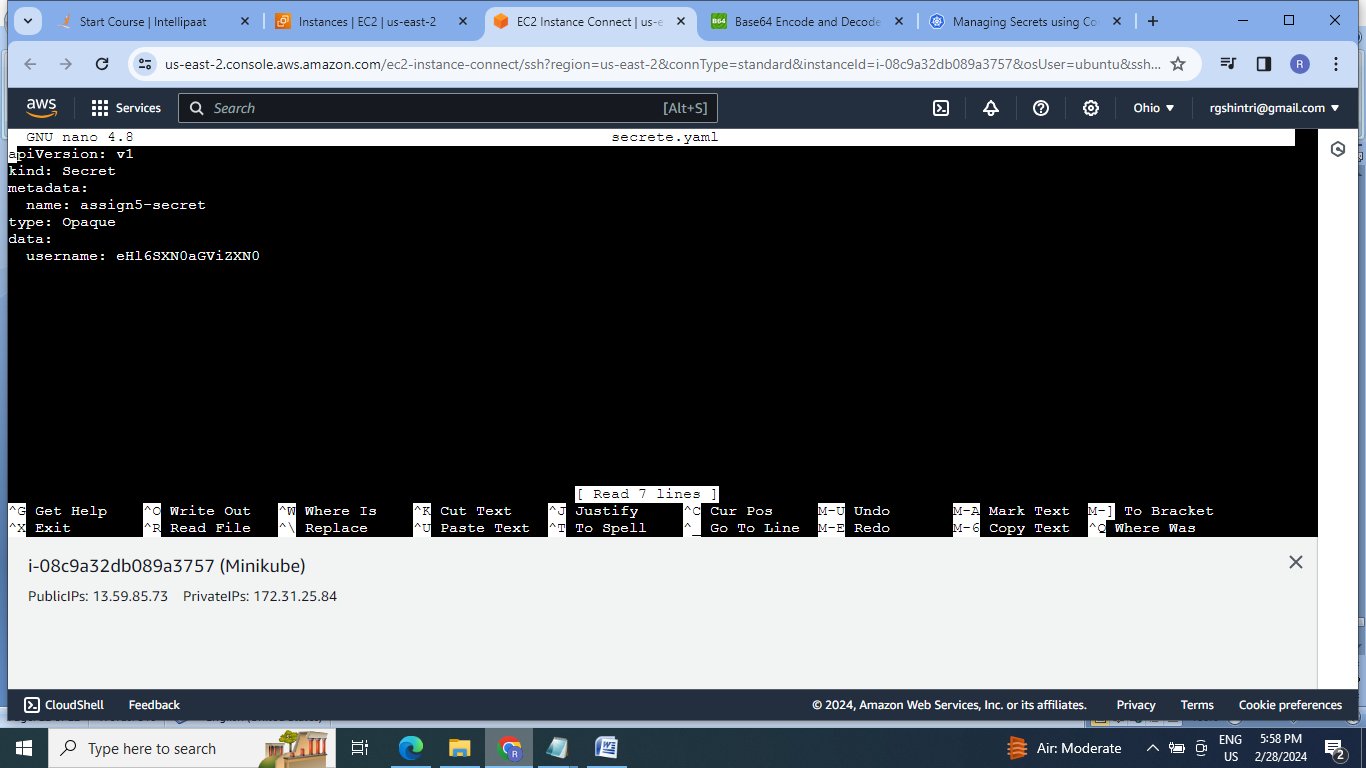


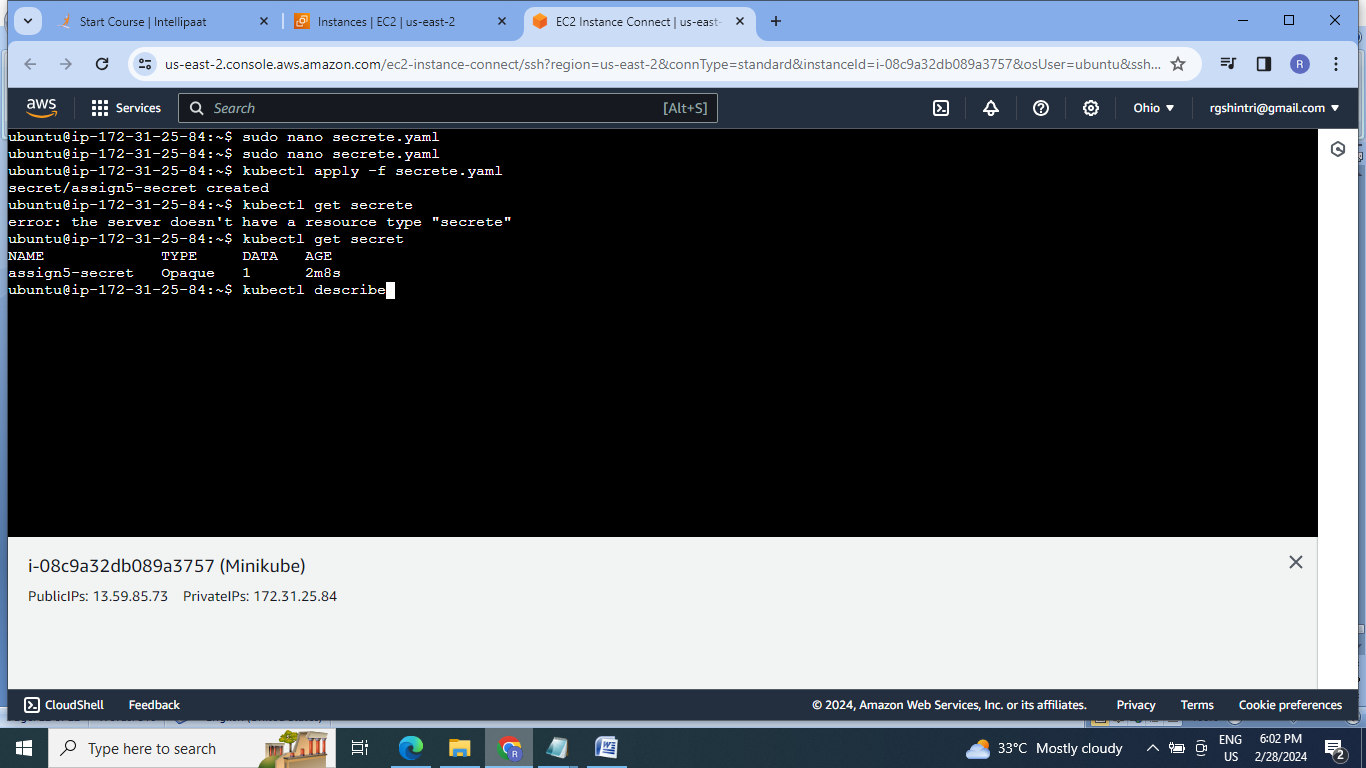
2.Create the pod:

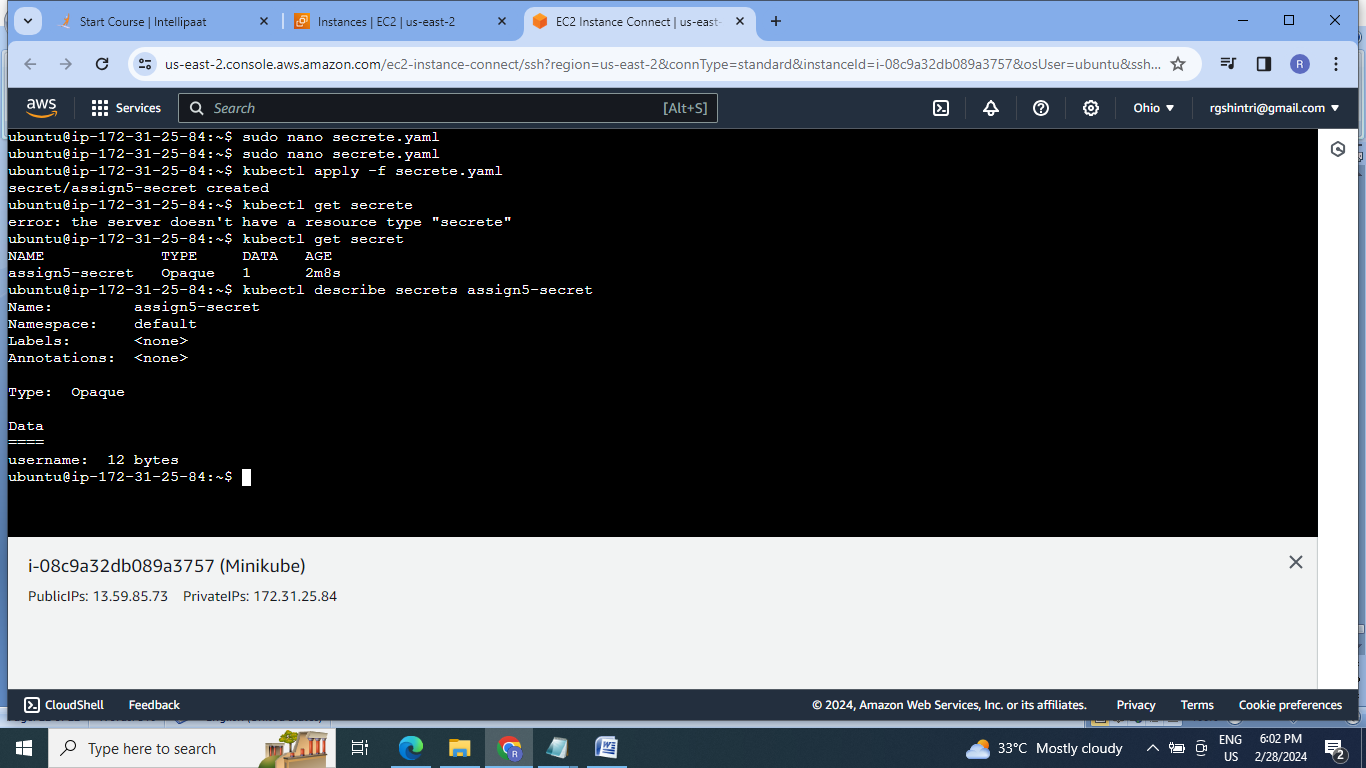




3.create a secret “xyzIsthebest”

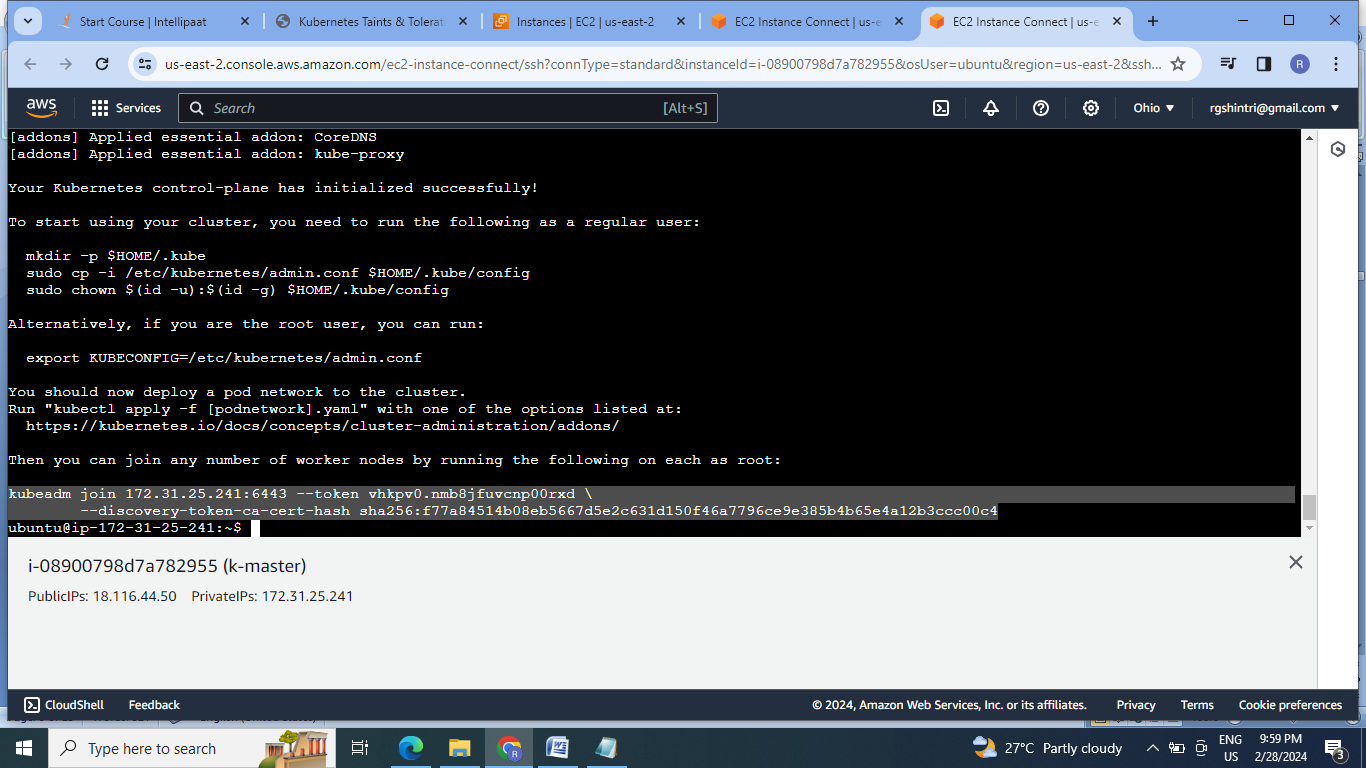


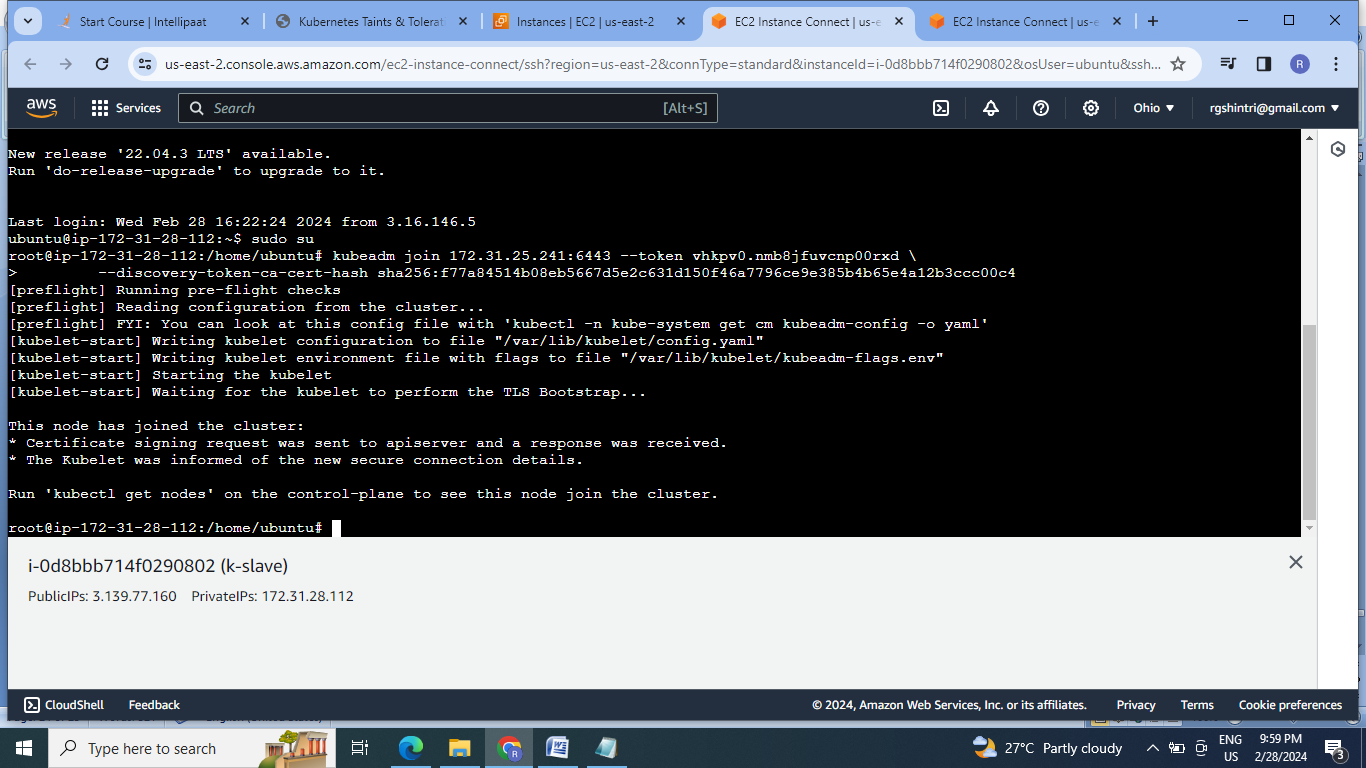


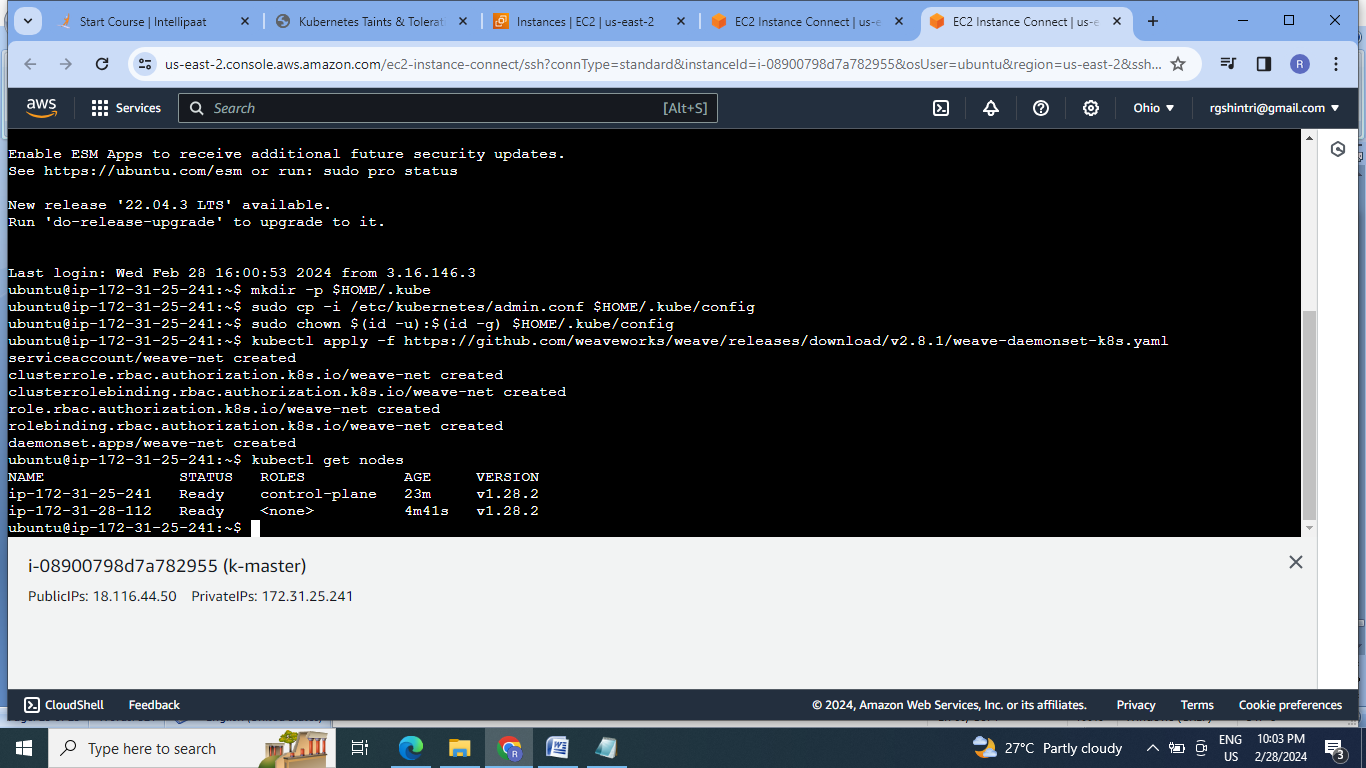


4.Taint one of the nodes of the cluster

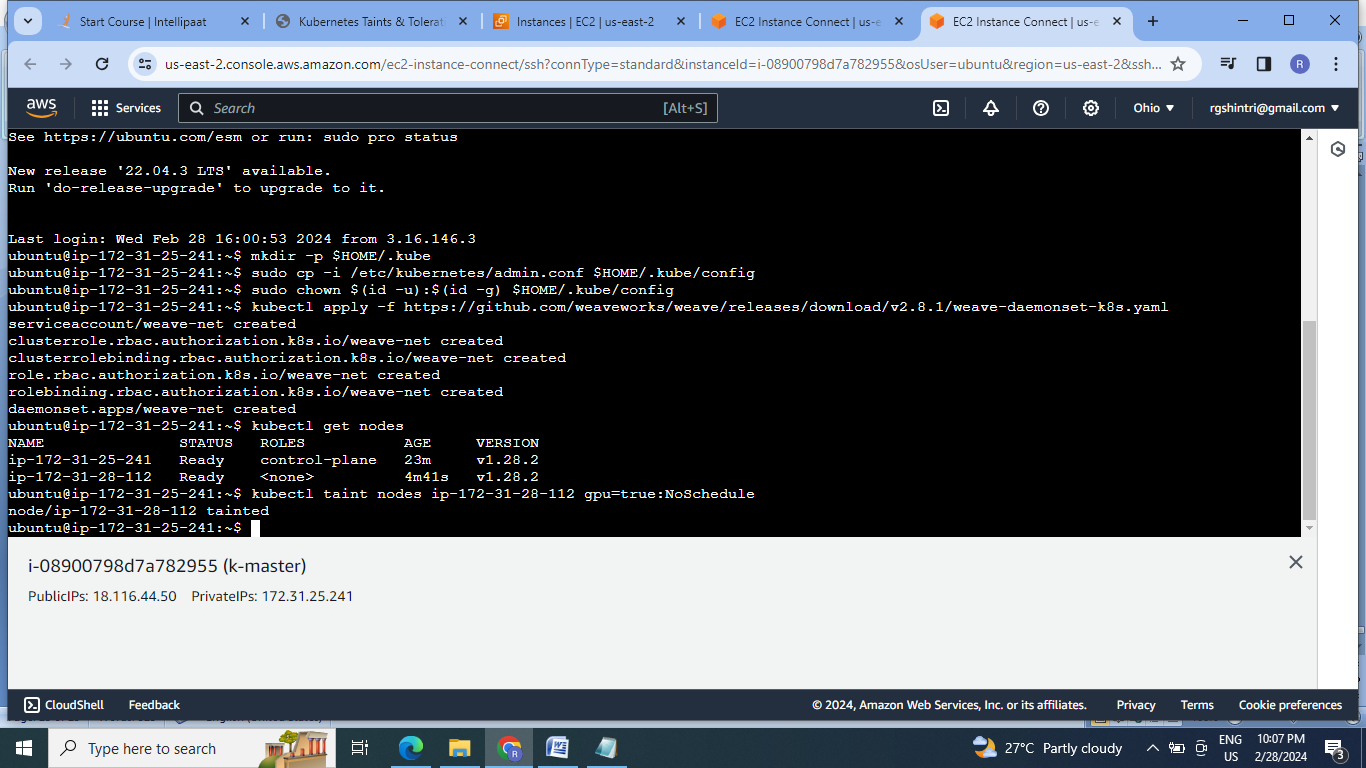
Create the cluster:

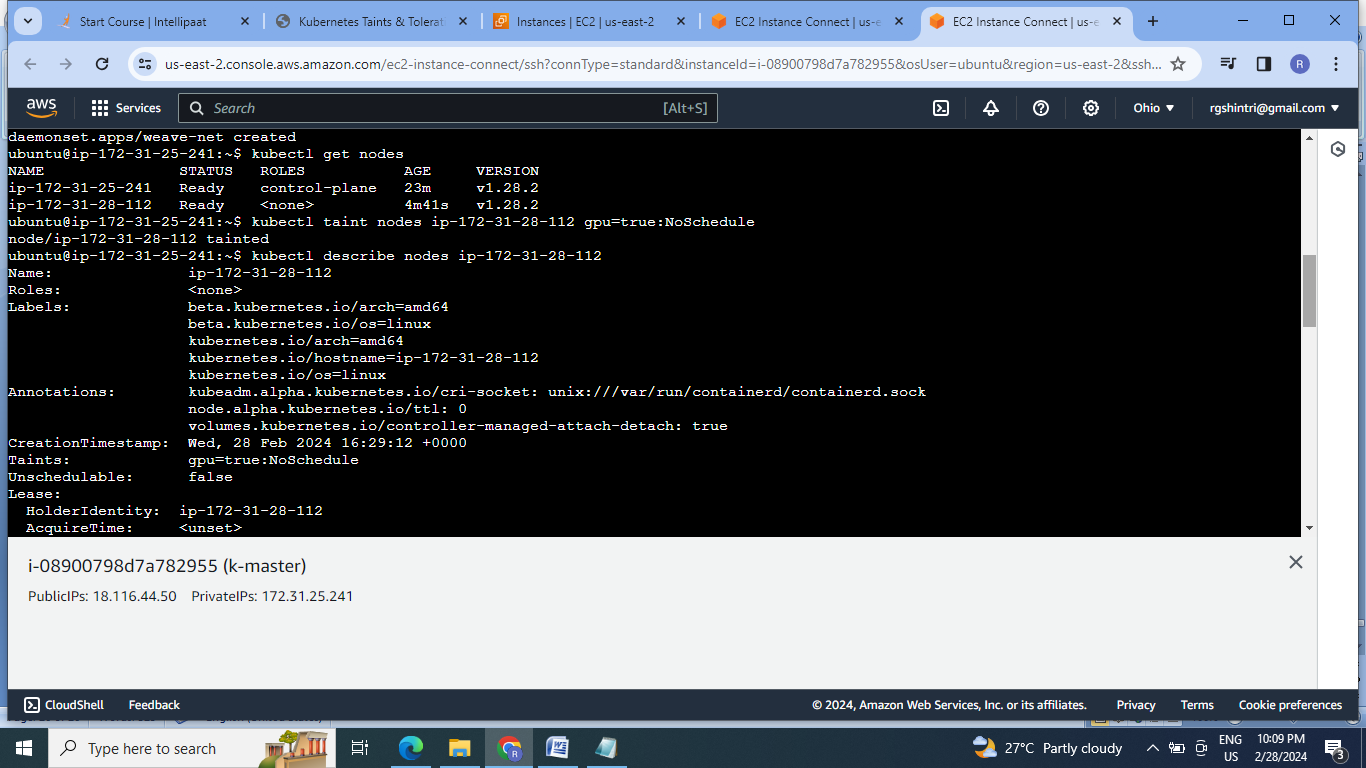






2. Taint the slave:





**Conclusion:** Kubernetes is the container orchestration tool that works on pods which is the cluster of containers. It has ability to auto scale & auto heal. This makes the k8s good platform to deploy the application.

