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SEMESTER: ODD SEMESTER 5

COURSE: Advance DevOPs (ITL504)

DATE: 21-09-2022

EXPERIMENT 9

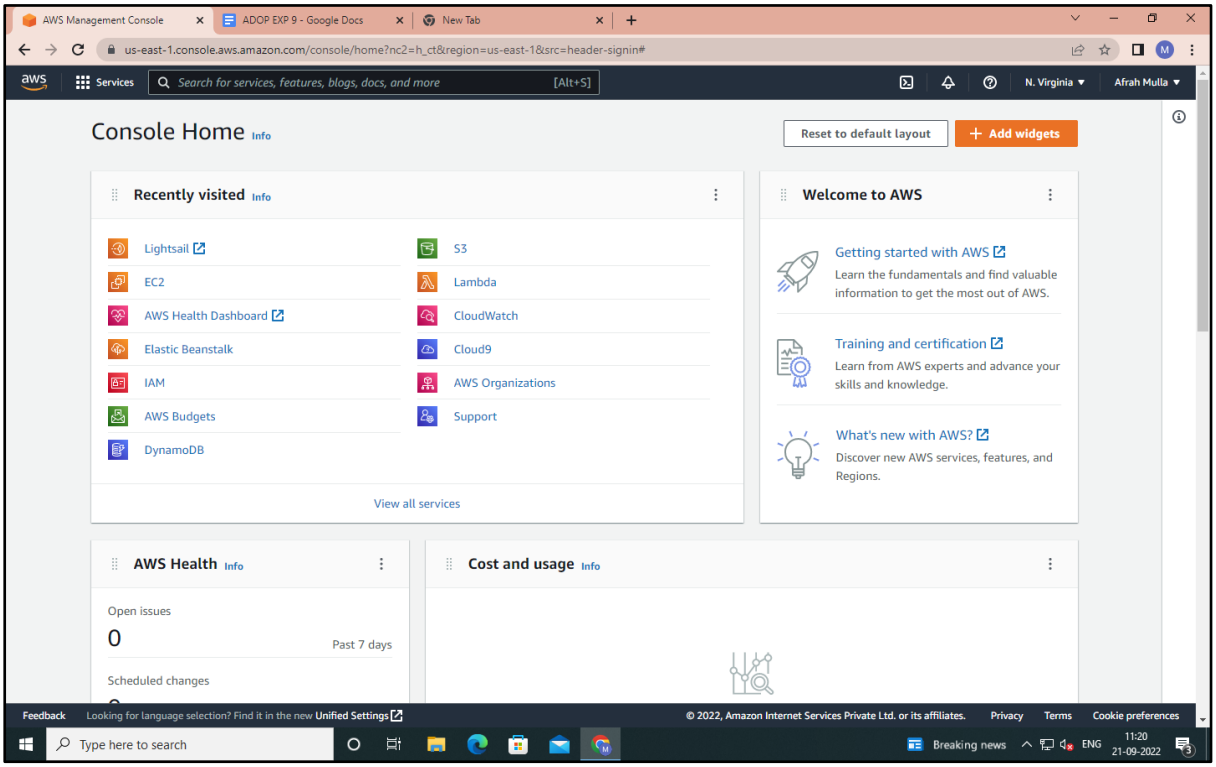
1. Install docker on AWS EC2 – Ubuntu by using curl

#curl -fsSL https://get.docker.com -o get-docker.sh

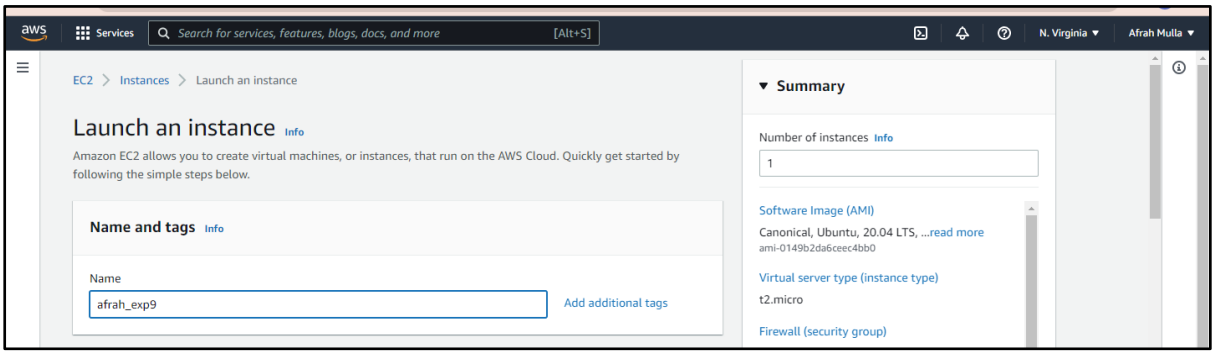
#sh get-docker.sh

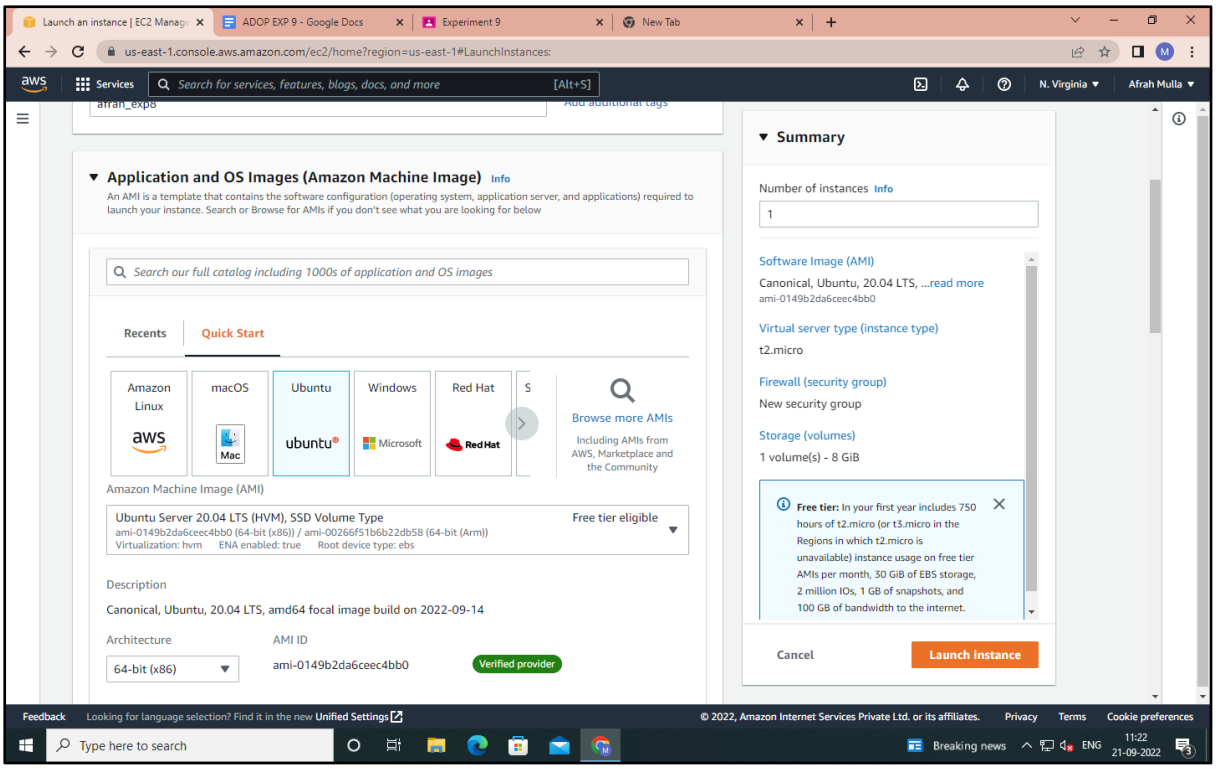
2. Run a Flask Application inside a Docker Container and explain the steps.

Step 1: AWS management console

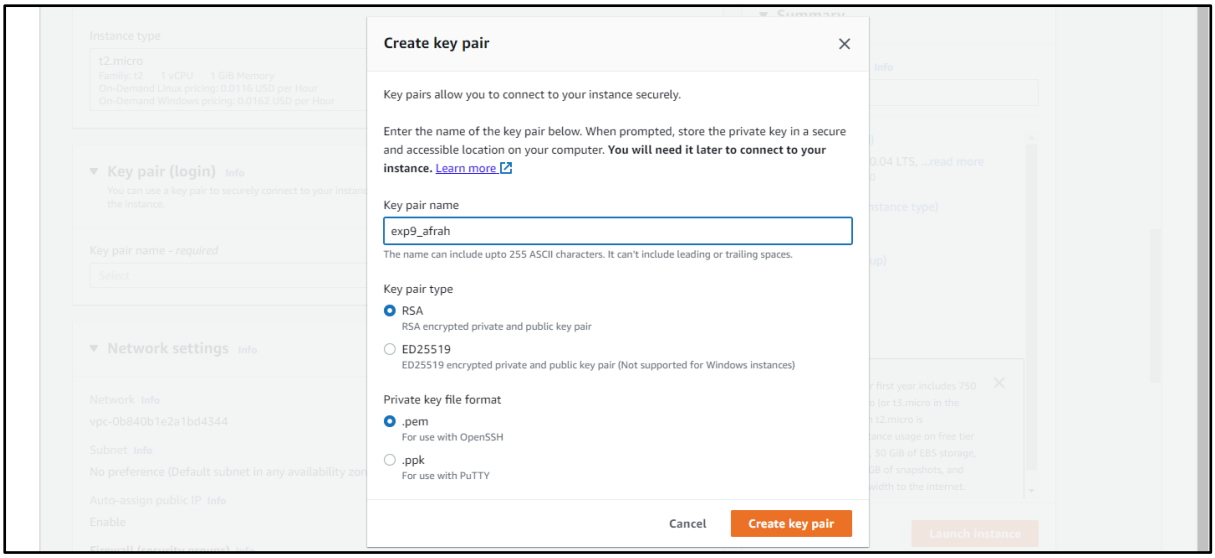


Step 2: Search for EC2 -> Select it -> Create an instance -> Name and Select Ubuntu instance with 20.04 LTS version





Step 3: Create a key pair. In the network settings allow the HTTPS and HTTP traffic



Launch an instance | EC2 Manag ADOP EXP 9 - Google Docs Experiment 9 New Tab

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:

aws Services Search for services, features, blogs, docs, and more [Alt+S] N. Virginia Afrah Mulla

Instance type Info

Instance type

t2.micro Free tier eligible
Family: t2 1 vCPU 1 GiB Memory
On-Demand Linux pricing: 0.0116 USD per Hour
On-Demand Windows pricing: 0.0162 USD per Hour

Compare instance types

Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

exp9_afrah

Create new key pair

Network settings Info Edit

Network Info

vpc-0b840b1e2a1bd4344

Subnet Info

Summary

Number of instances Info

1

Software Image (AMI)

Canonical, Ubuntu, 20.04 LTS, ...read more
ami-0149b2da6ceec4bb0

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier

Cancel Launch instance

Feedback Looking for language selection? Find it in the new Unified Settings © 2022, Amazon Internet Services Private Ltd. or its affiliates. Privacy Terms Cookie preferences

exp9_afrah.pem Show all

Type here to search Satisfactory air ENG 11:24 21-09-2022

Launch an instance | EC2 Manag ADOP EXP 9 - Google Docs Experiment 9 New Tab

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:

aws Services Search for services, features, blogs, docs, and more [Alt+S] N. Virginia Afrah Mulla

Network settings Info Edit

Network Info

vpc-0b840b1e2a1bd4344

Subnet Info

No preference (Default subnet in any availability zone)

Auto-assign public IP Info

Enable

Firewall (security groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group | Select existing security group

We'll create a new security group called '**launch-wizard-5**' with the following rules:

☑ Allow SSH traffic from
Helps you connect to your instance
Anywhere 0.0.0.0/0

☑ Allow HTTPs traffic from the internet
To set up an endpoint, for example when creating a web server

☑ Allow HTTP traffic from the internet
To set up an endpoint, for example when creating a web server

⚠ Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Summary

Number of instances Info

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Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel Launch instance

Feedback Looking for language selection? Find it in the new Unified Settings © 2022, Amazon Internet Services Private Ltd. or its affiliates. Privacy Terms Cookie preferences

Type here to search Satisfactory air ENG 11:24 21-09-2022

aws Services Search for services, features, blogs, docs, and more [Alt+S] N. Virginia Afrah Mulla

New EC2 Experience
Tell us what you think

EC2 Dashboard
EC2 Global View
Events
Tags
Limits

Instances (1/1) Info

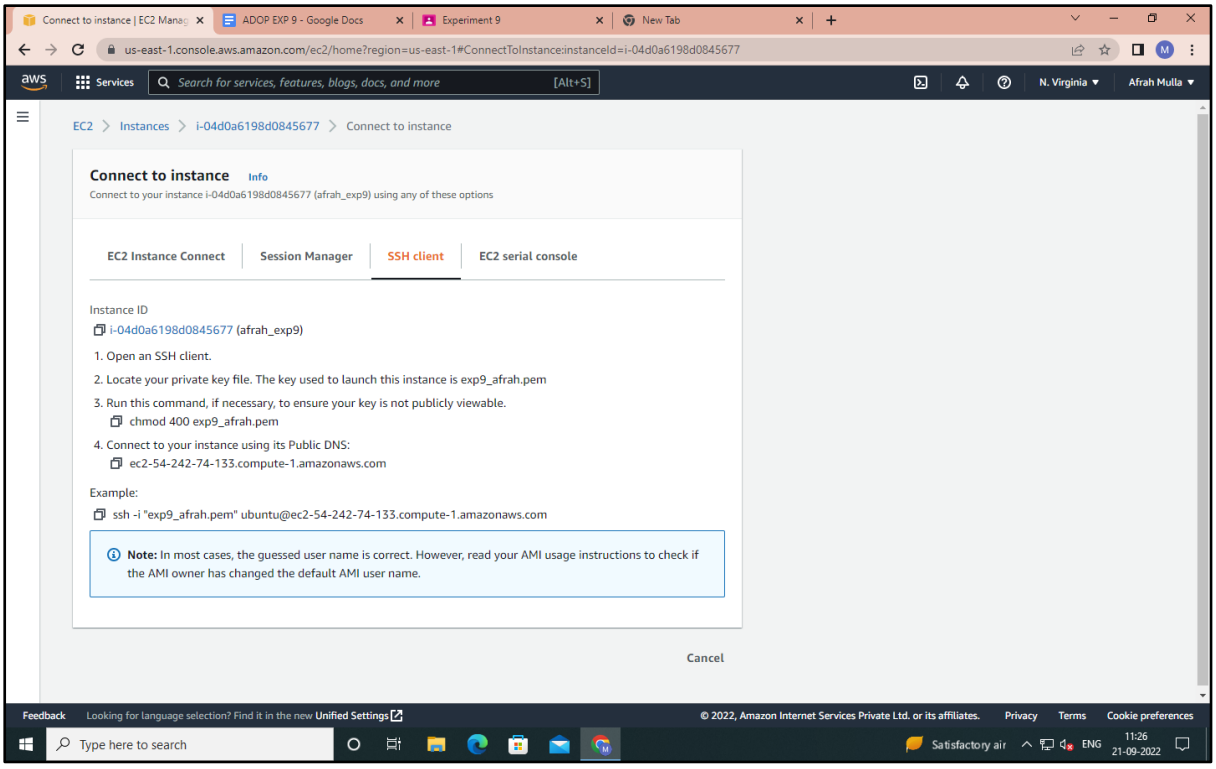
Connect | Instance state | Actions | Launch instances

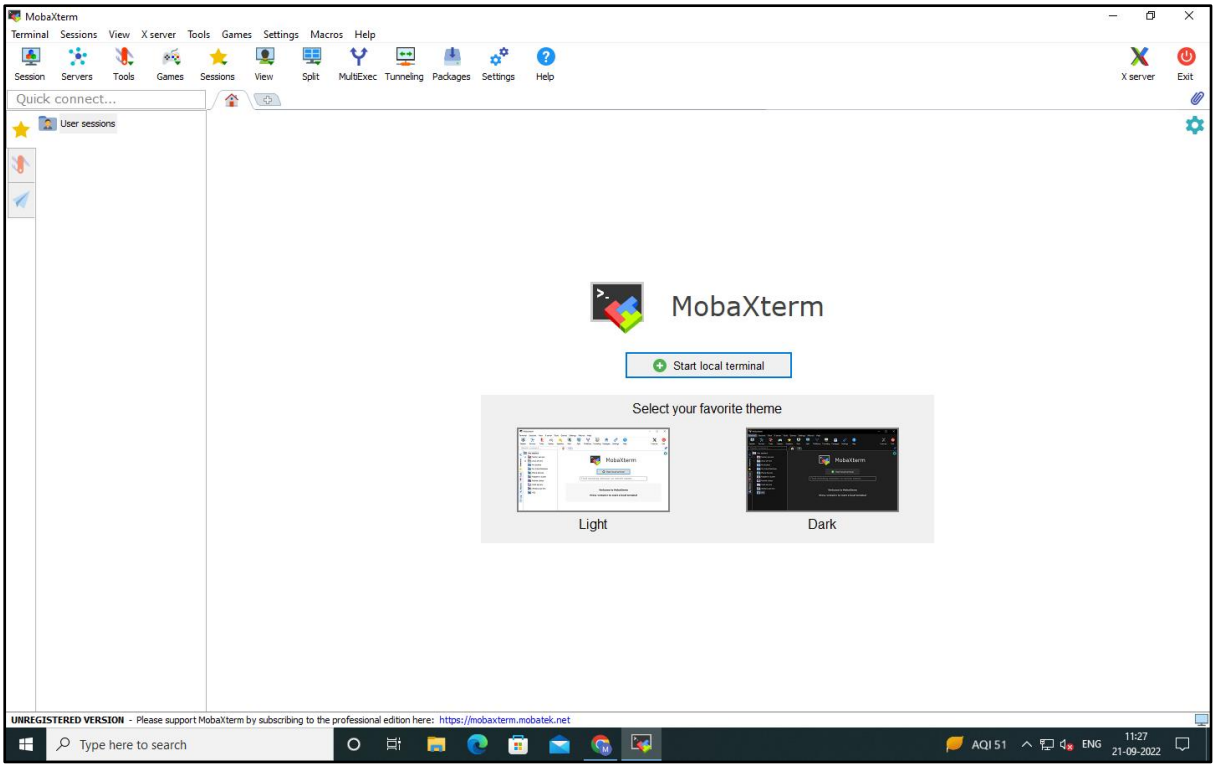
Find instance by attribute or tag (case-sensitive)

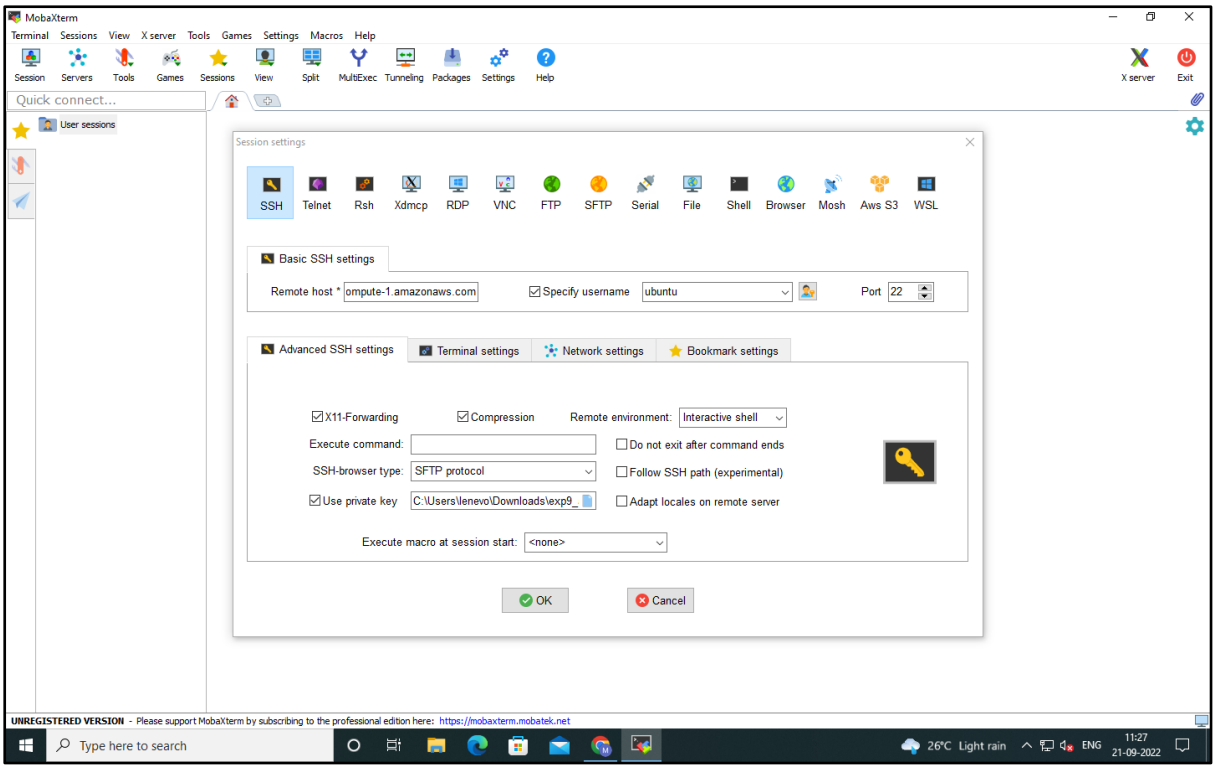
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
afrah_exp9	i-04d0a6198d0845677	Running	t2.micro	Initializing	No alarms	us-east-1a

Step 4: Launch MobaXterm -> Select SSH session -> Copy the public DNS of your instance and paste it into the remote host and enter the username

Use the downloaded key pair as the private key



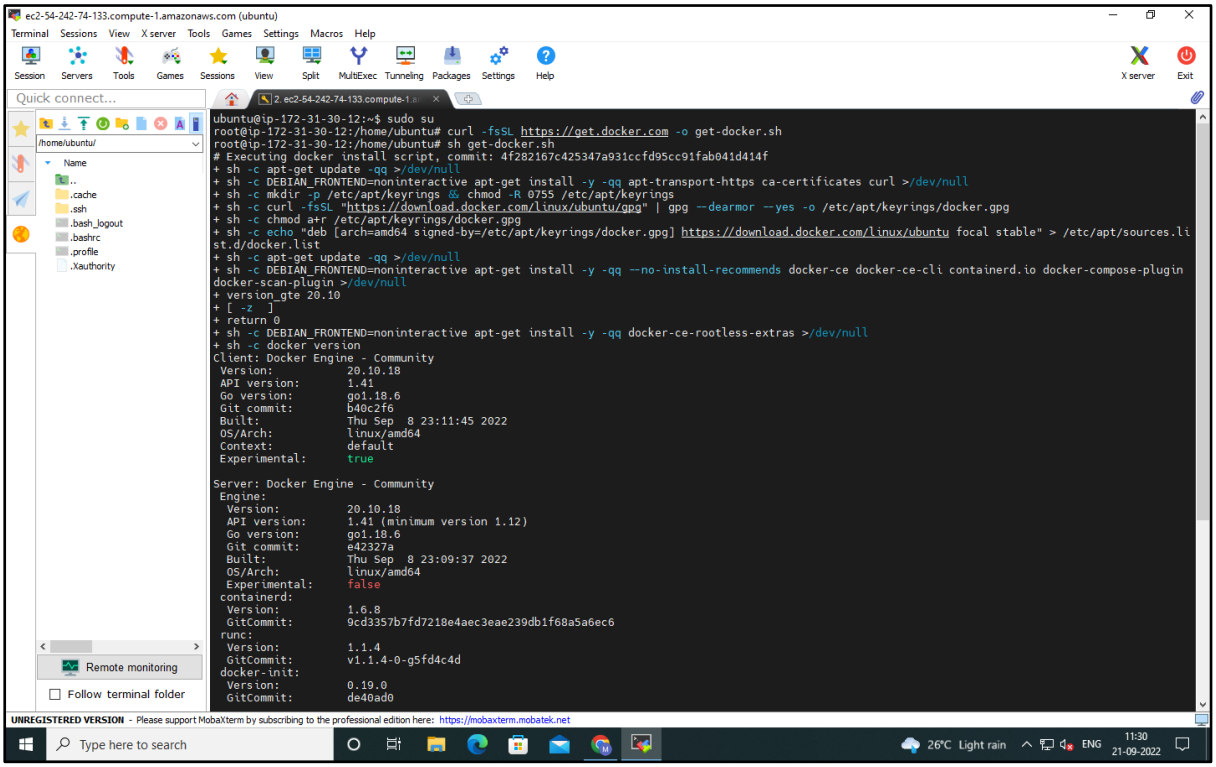


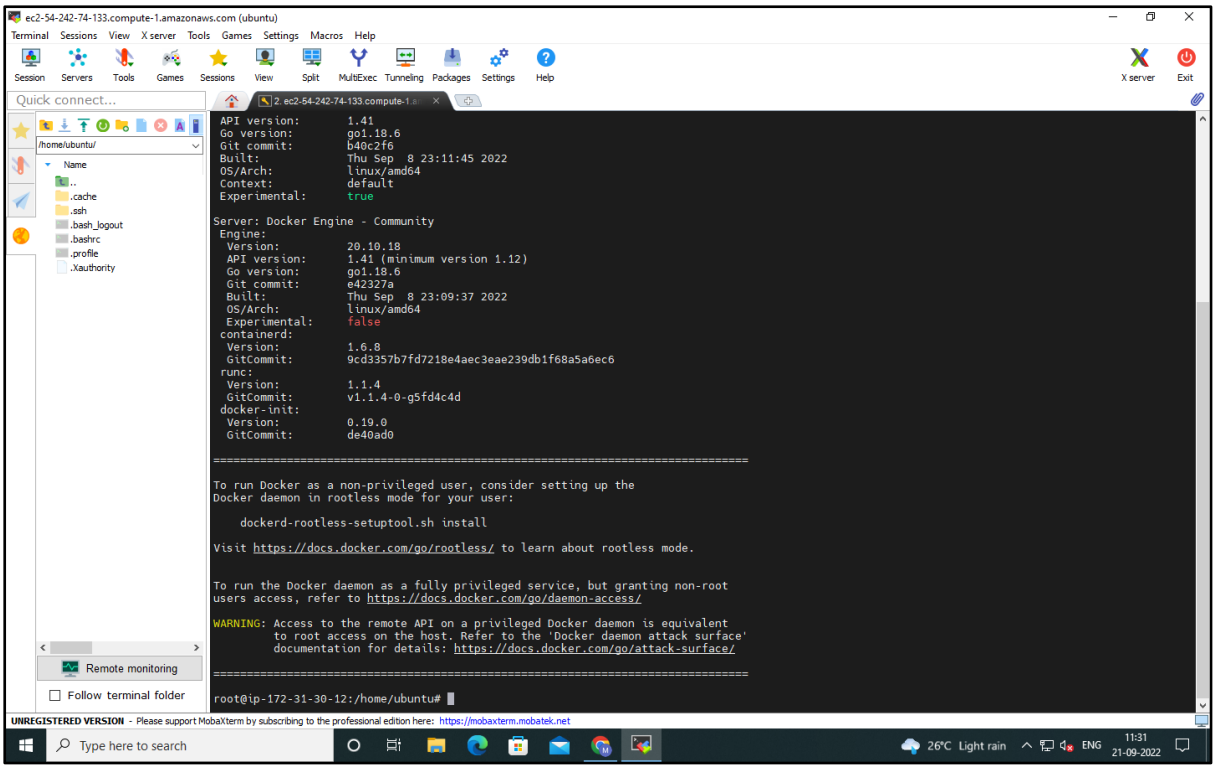


Step 5: Run the command ‘sudo su’ to gain root user access. Then enter commands:

curl -fsSL https://get.docker.com -o get-docker.sh

sh get-docker.sh





Step 6: Make a new directory using command

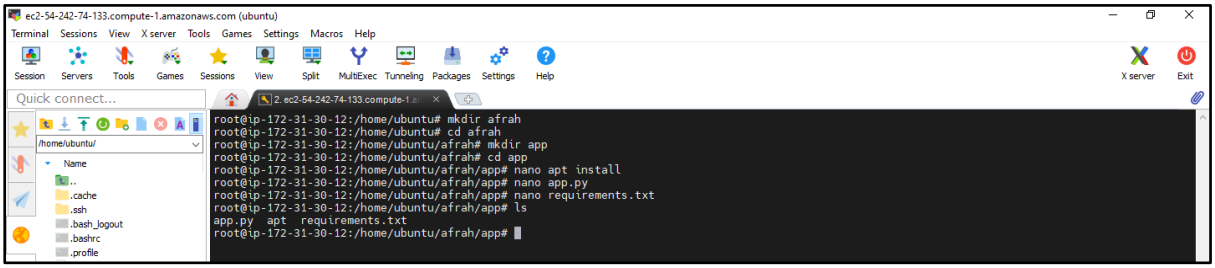
mkdir ‘directory name’

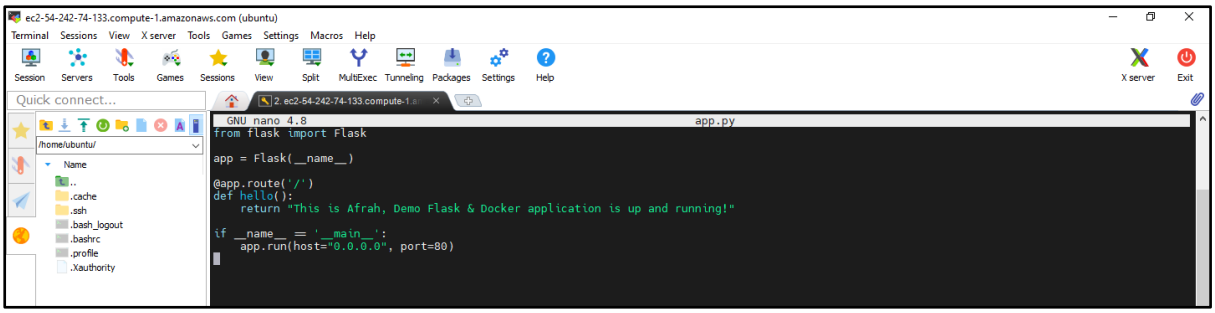
and go into that directory using

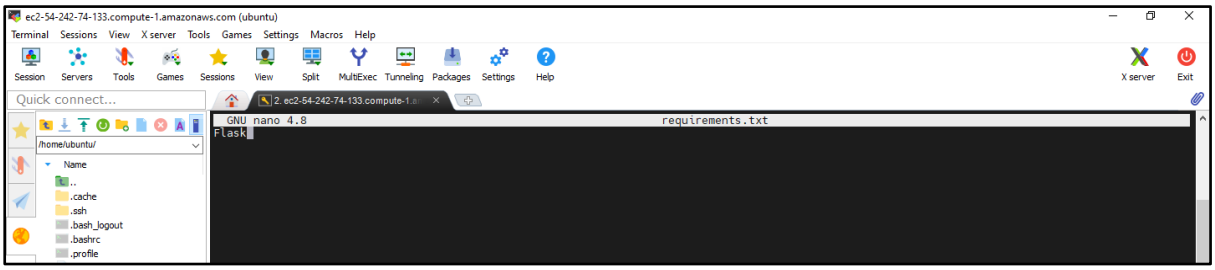
cd ‘directory name’

Create another director named app inside previously created directory and then go into app directory using the cd command.

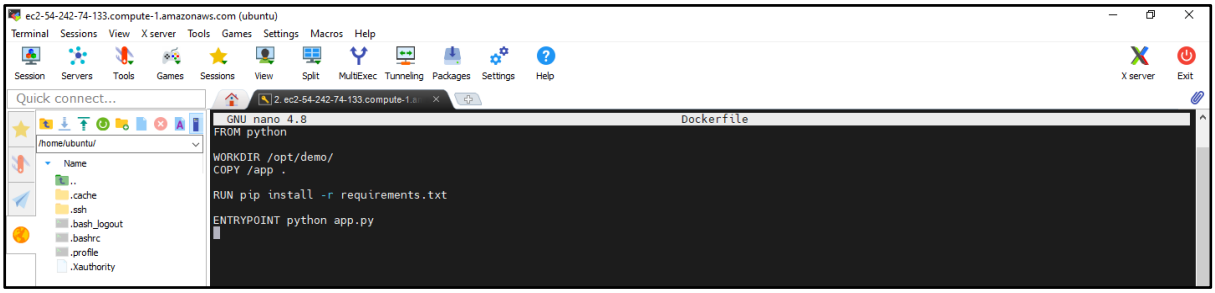
Using the nano editor, create 2 files named app.py and requirements.txt and add the required codes in them. Then use the ‘ls’ command to list the files inside directory





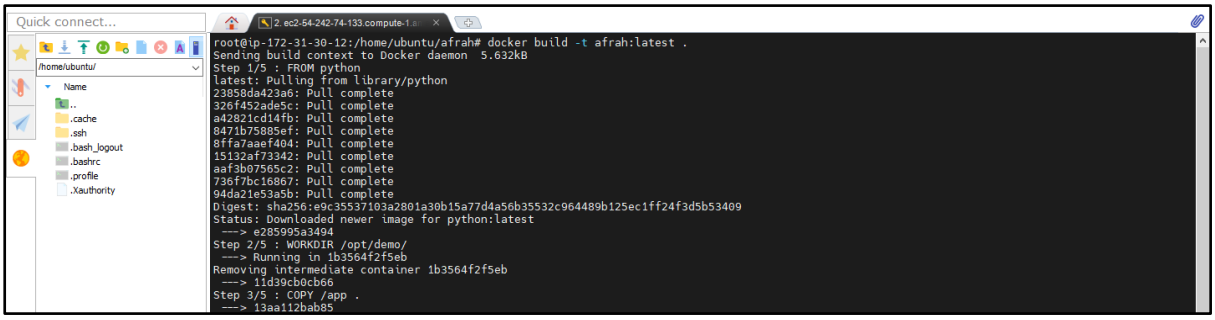


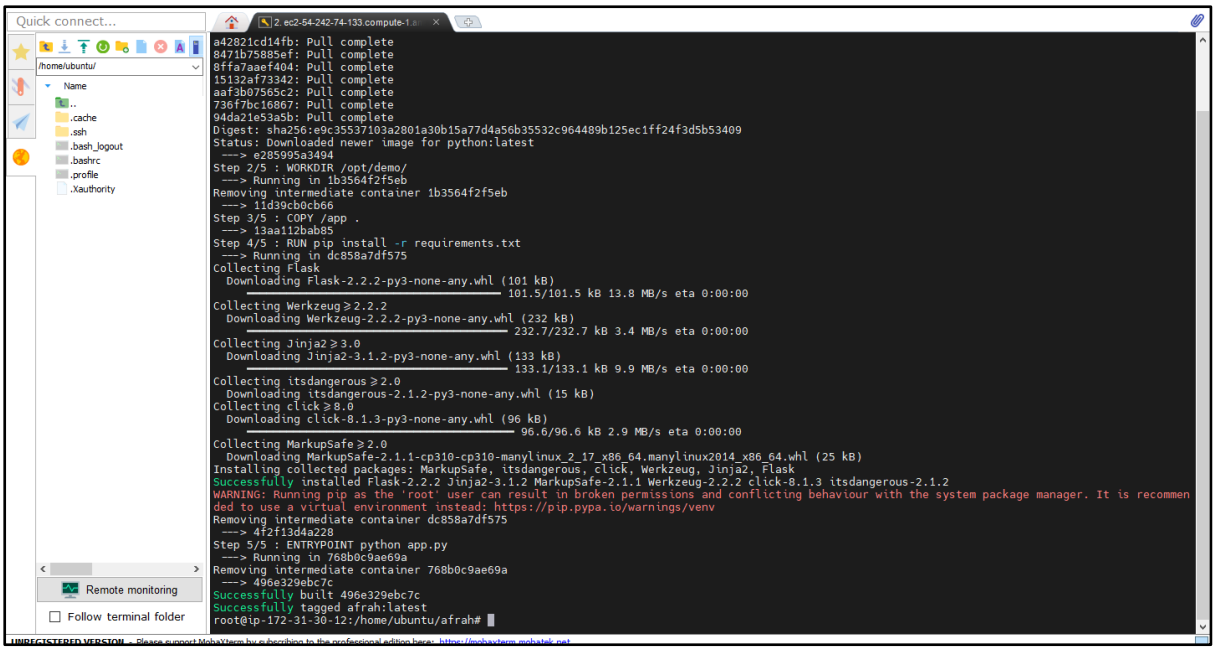
Step 7: Use command: ‘cd ..’ to come back to the home directory. Create Dockerfile in home directory using nano editor. Add the required code in the Dockerfile



Step 8: Execute the command: ‘docker build -t (directory name):latest .’

This will build an image but it will then tag the resulting image. The repository name will be ‘afrah’ and the tag will be latest

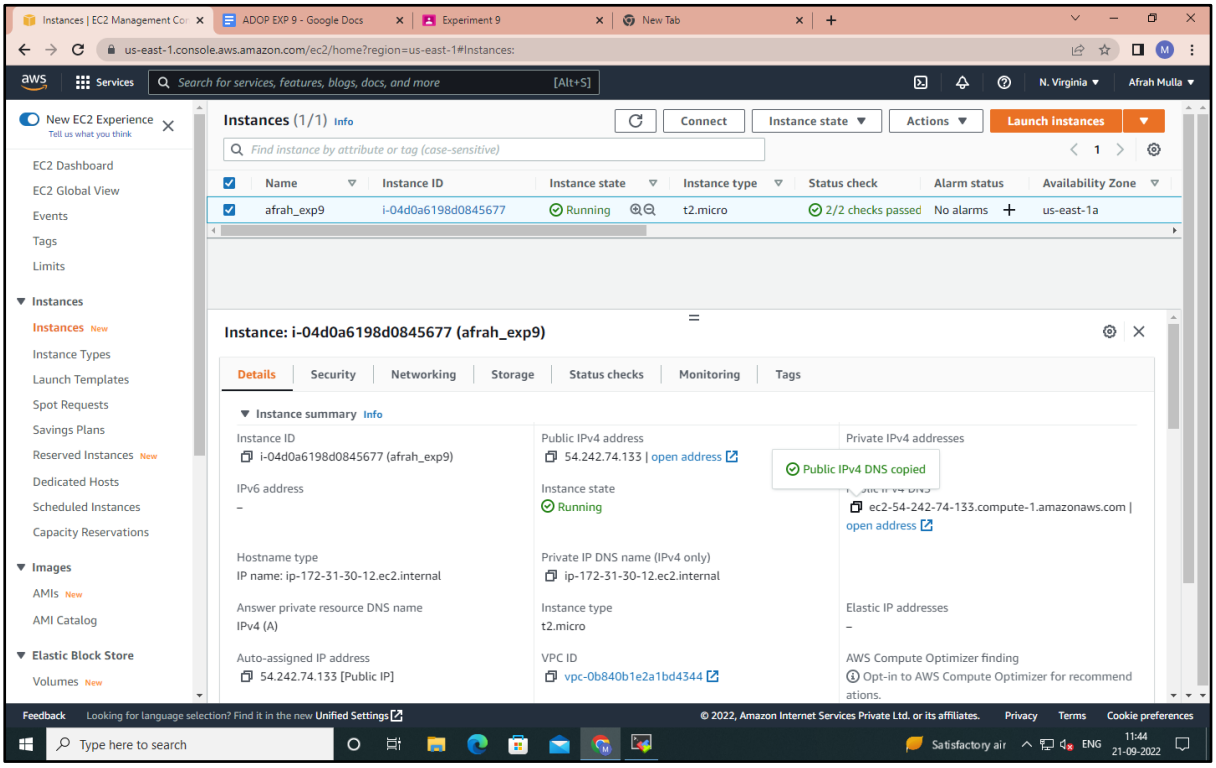


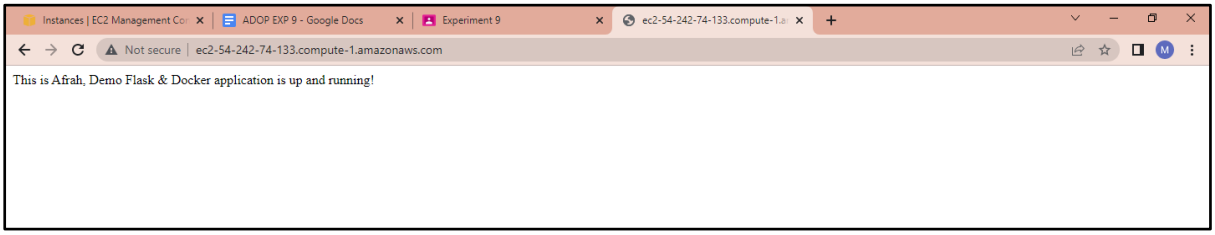


Step 9: Run command

docker run –d -p 80:80 (name of directory)

Now, to launch the web server, copy the IPv4 address from the EC2 instance details and paste it into a web browser. The web browser will display it





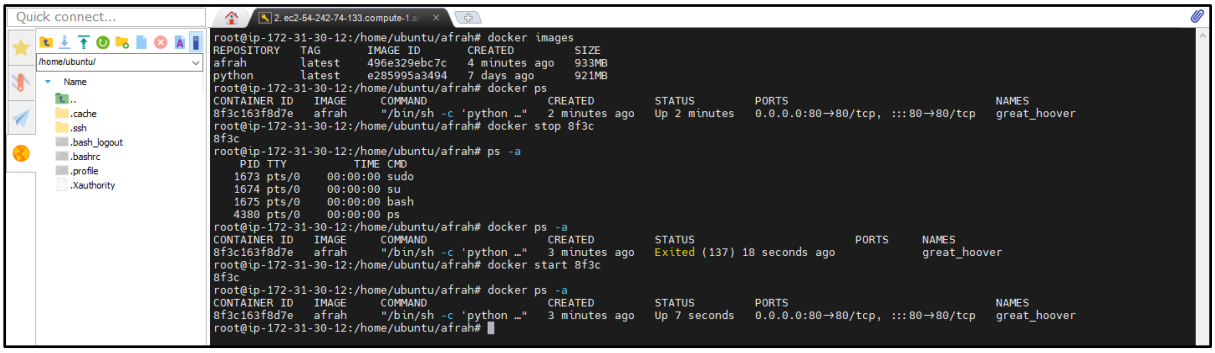
Step 10: Execute command ‘docker images’ to see installed images

Then execute ‘docker ps’ to list the running containers

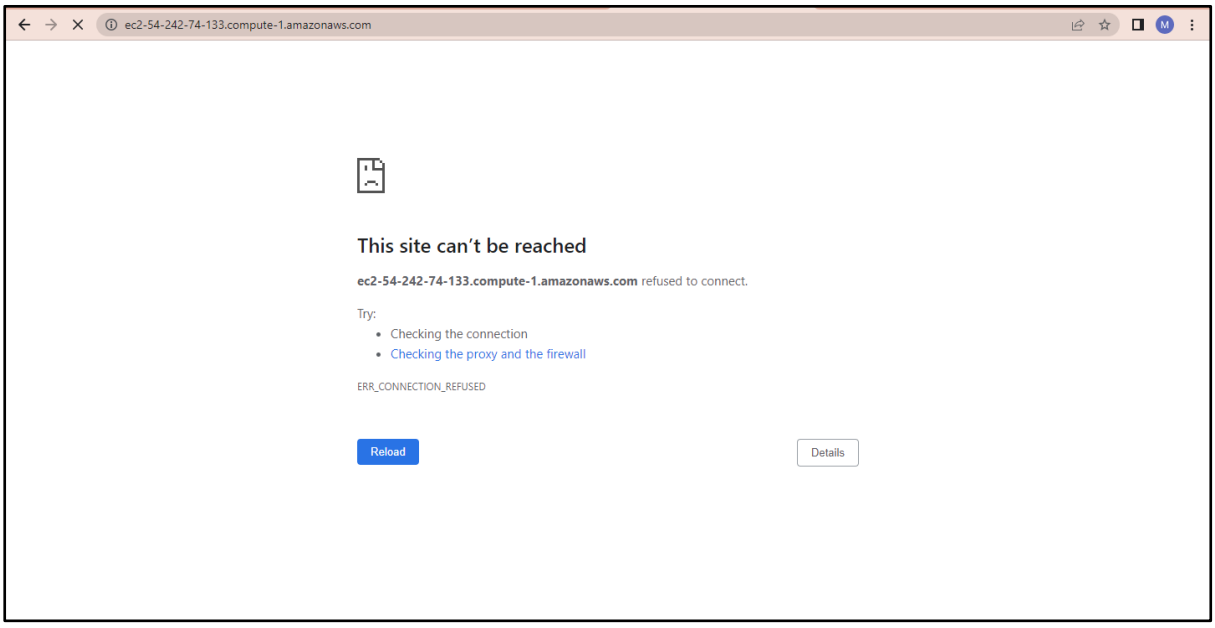
To stop a running container use command ‘docker stop (container id)’

To restart an exited container use command ‘docker start (container id)’

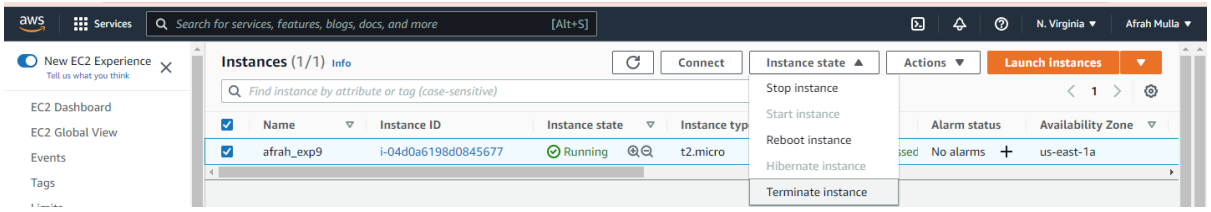
Execute ‘docker ps -a’ to list all running and exited containers.

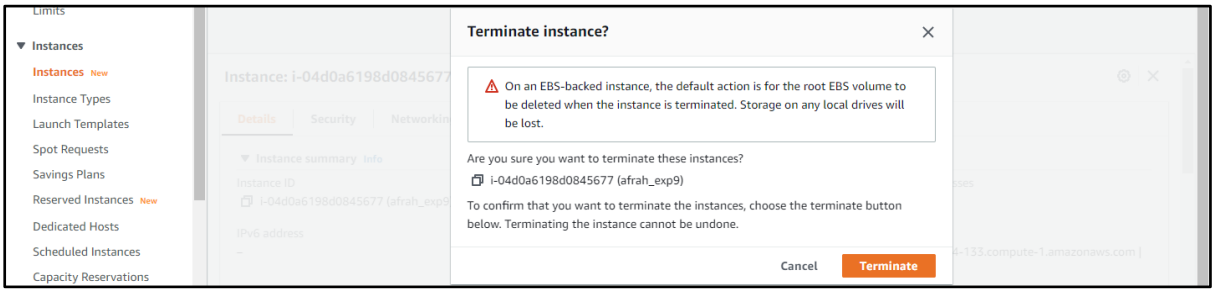


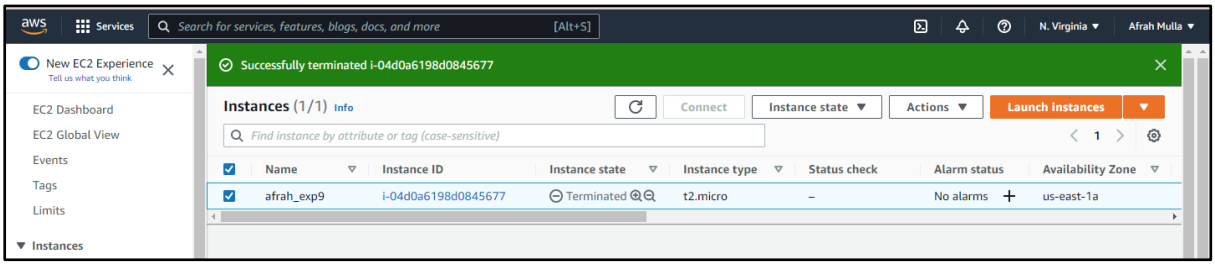
When the container is not running, the web browser will not display anything



Step 11: Lastly, quit MobaXterm and delete your instance.







3. What is Dockerfile? Explain all lines of your Dockerfile.

Docker can build images automatically by reading the instructions from a Dockerfile. A Dockerfile is a text document that contains all the commands a user could call on the command line to assemble an image. Using docker build users can create an automated build that executes several command-line instructions in succession.

<u>Explanation of code:</u>

- **FROM python** – It specifies the base image.
- **WORKDIR /opt/demo** – It sets the working directory for all the subsequent instructions to be followed.
- **COPY /app .** – It copies all the files from 'app' directory to the current directory.
- **RUN pip install -r requirements.txt** – It will install all the dependencies from requirements.txt file.
- **ENTRYPOINT python app.py** – It will run app.py in our container.