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Date:9/1/24

Prcatical 1:Infastructure as a service using AWS

Writeup:

- Cloud Computing Architecture: Cloud computing architecture refers to the structure and design of the components and systems that make up a cloud computing environment. It encompasses various layers and components that work together to provide cloud services. The architecture can be broadly categorized into the following layers:
  Cloud Service Models:

1. IaaS (Infrastructure as a Service): Virtualized computing resources (e.g., Amazon EC2).
2. PaaS (Platform as a Service): Development tools and runtime environment (e.g., Google App Engine).
3. SaaS (Software as a Service): Fully functional software over the internet (e.g., Microsoft 365).
    a. Cloud Deployment Models:
4. Public Cloud: Services available to the public over the internet (owned by a third-party provider).
5. Private Cloud: Resources exclusively used by a single organization.
6. Hybrid Cloud: Combination of public and private cloud resources.

- IaaS (Infrastructure as a Service):Infrastructure as a Service (IaaS) is one of the three main categories of cloud computing services, alongside Platform as a Service (PaaS) and Software as a Service (SaaS). IaaS provides virtualized computing resources over the internet, allowing users to rent infrastructure components such as virtual machines, storage, and networking

- AWS (Amazon Web Services):Amazon Web Services (AWS) is a comprehensive and widely used cloud computing platform provided by Amazon. It offers a broad set of services, including computing power, storage, databases, machine learning, analytics, networking, security, and more. AWS enables organizations to build, deploy, and scale applications and services in a highly flexible, cost-effective, and reliable manner.

- AWS Services:

1. Compute Services:
    - Amazon EC2 (Elastic Compute Cloud): Virtual servers in the cloud, allowing users to run applications.
    - AWS Lambda: Serverless computing service, enabling running code without provisioning or managing servers.
2. Storage Services:
    - Amazon S3 (Simple Storage Service): Scalable object storage for storing and retrieving data.
    - Amazon EBS (Elastic Block Store): Persistent block-level storage for use with EC2 instances.

- Amazon Glacier: Low-cost, secure storage for archiving data.

3. Internet of Things (IoT):
    - AWS IoT Core: Managed cloud service for connecting devices to the cloud.
    - Amazon FreeRTOS: Operating system for microcontrollers.
4. Application Integration:
    - Amazon SNS (Simple Notification Service): Fully managed messaging service.
    - Amazon SQS: Managed message queuing service.
5. Security:
    - AWS Identity and Access Management (IAM): Manages user identities and access to AWS resources.

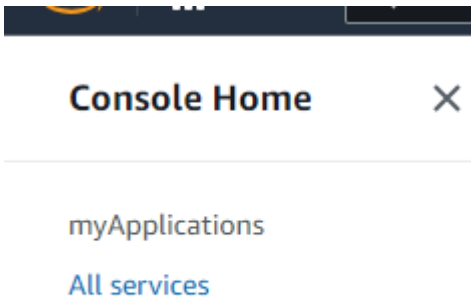
EC2: Amazon EC2 (Elastic Compute Cloud) is a central component of Amazon Web Services (AWS) and provides resizable compute capacity in the cloud. EC2 enables users to run virtual servers, known as instances, to host applications and services. EC2 instances can be configured with various computing resources, allowing users to scale their applications up or down based on demand. Here are key features and concepts related to Amazon EC2:

1. Instances:
    - Instance Types: EC2 instances come in various types optimized for different use cases, such as compute-optimized, memory-optimized, storage-optimized, and GPU instances.
2. Instance States:
    - Running: The instance is actively running and incurring charges.
    - Stopped: The instance is stopped, and users do not incur charges for compute resources. However, storage charges may apply.
3. Key Pairs:
    - SSH Access: EC2 instances are accessed using key pairs. Users must provide the private key when connecting to instances.

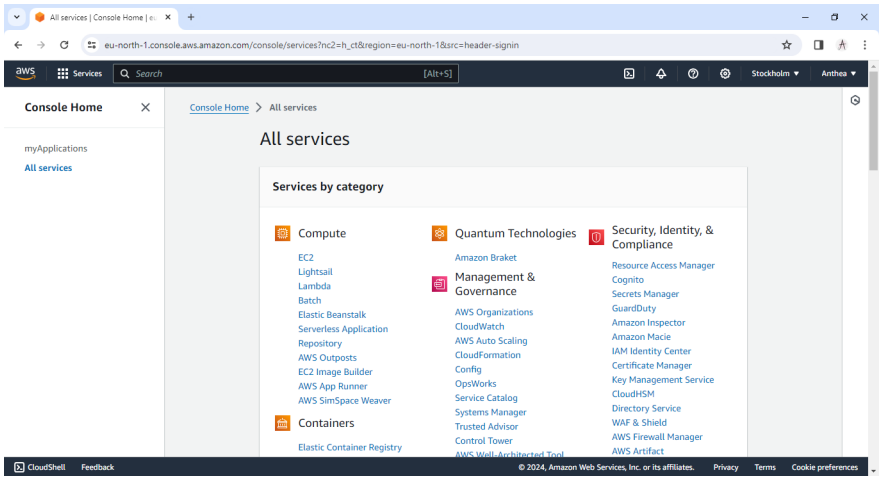
Question 1:

STEPS:

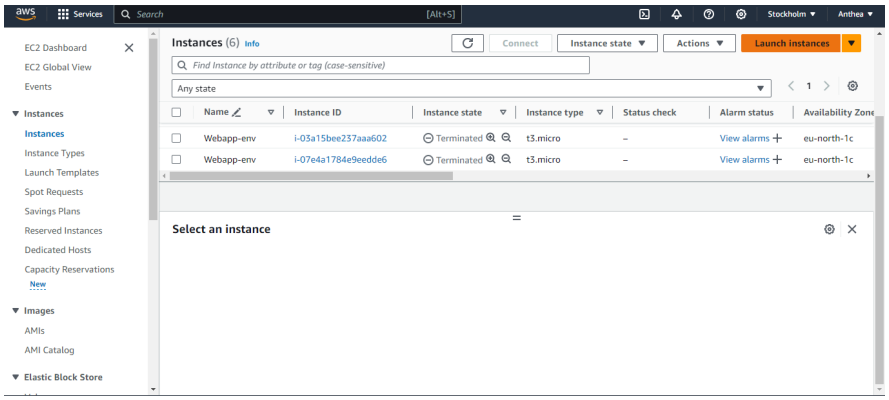
1) Sign into your AWS account
2) Select all services



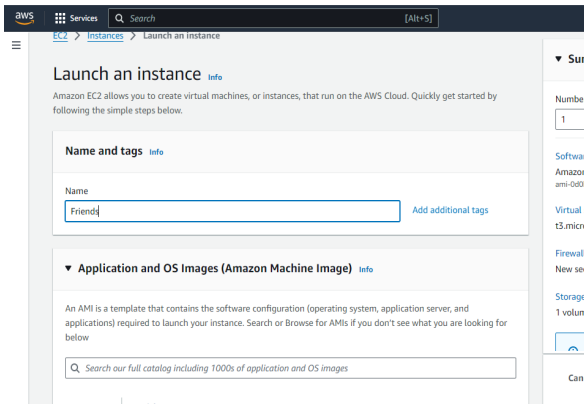
3) Select EC2

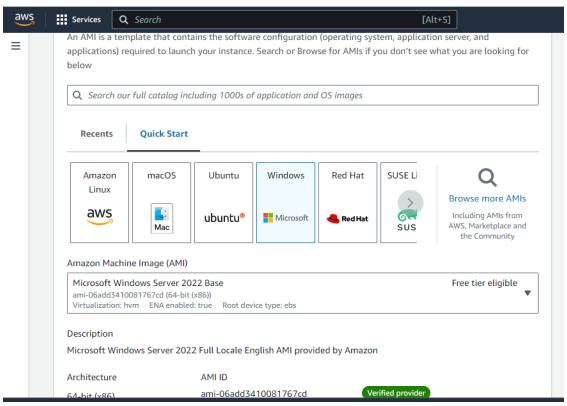


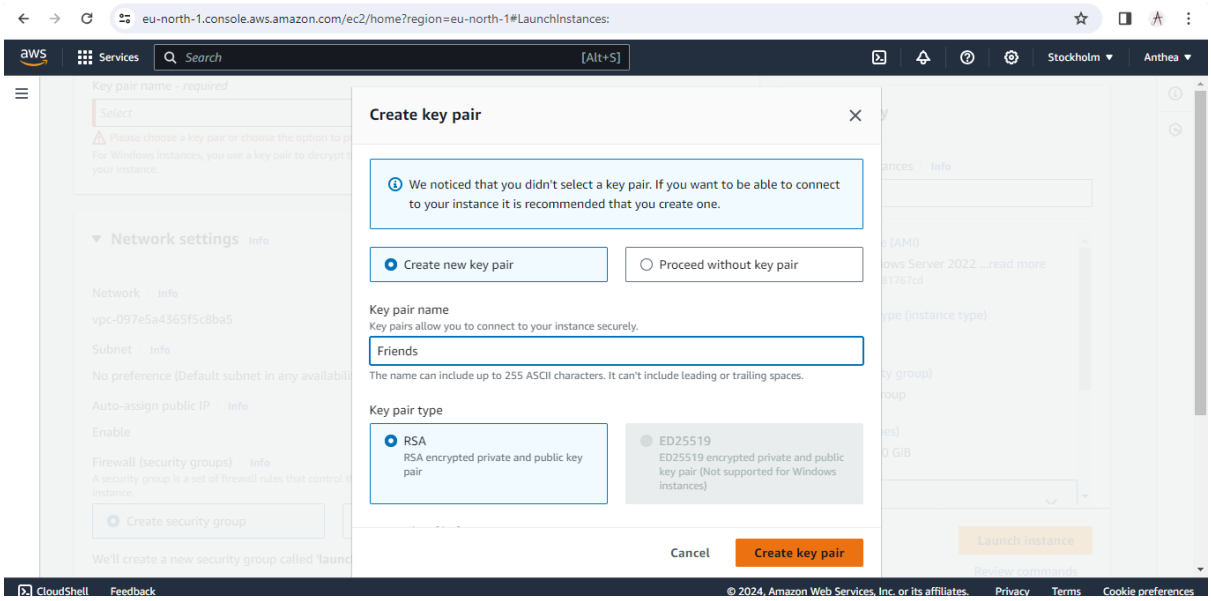
4) Launch a Instance



5) Write name, Select windows and create a key value pair

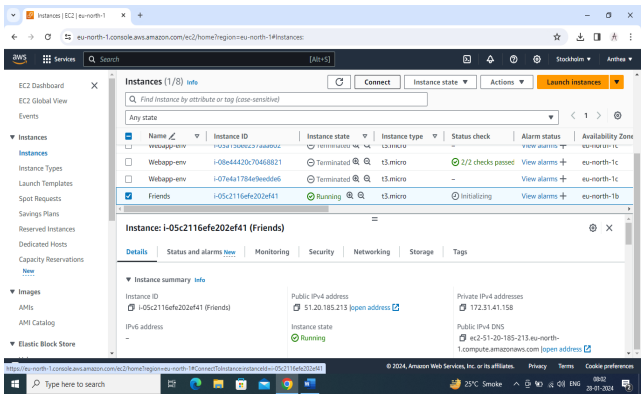


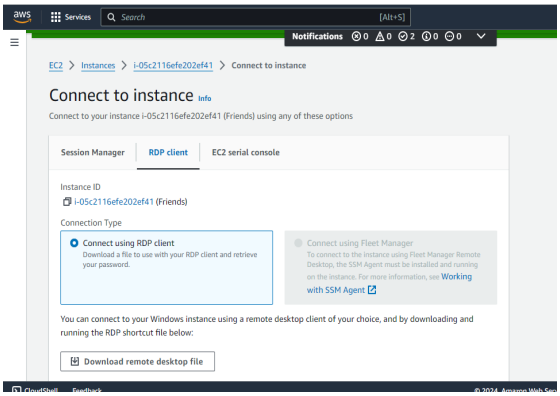




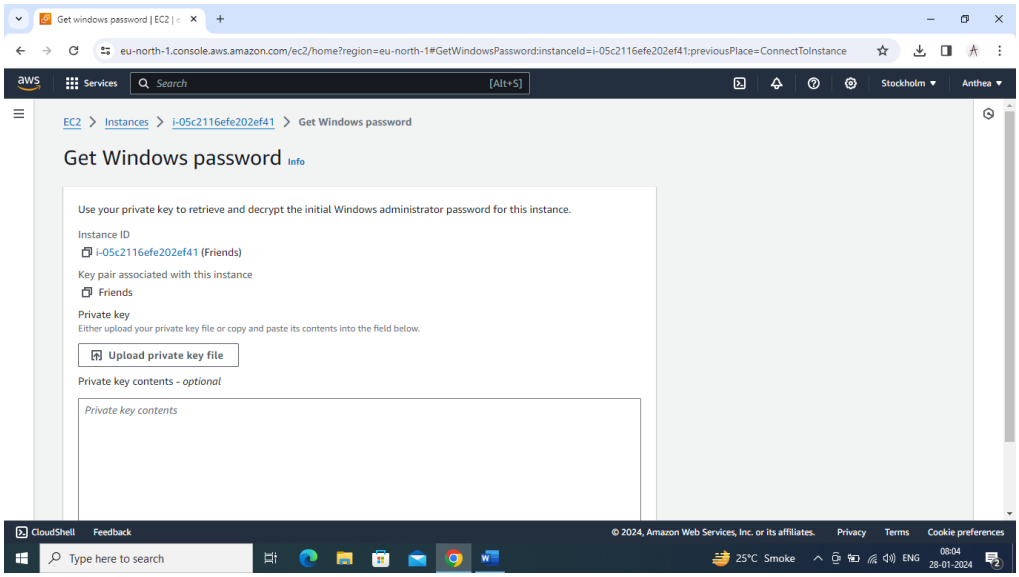
6) Launch the instance

7) Go back to instances and refresh, it will initialize and then start running
8) Select the instance and click on connect, for connecting to RDP file

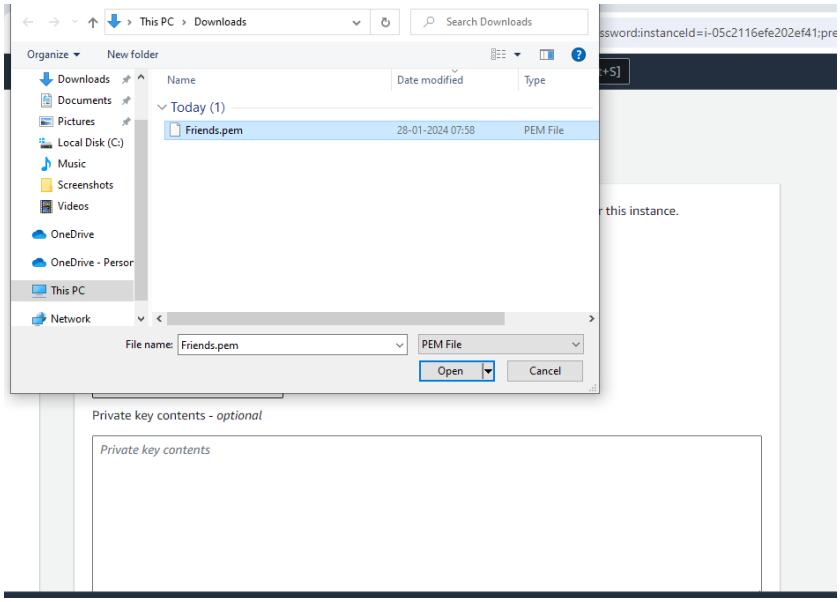




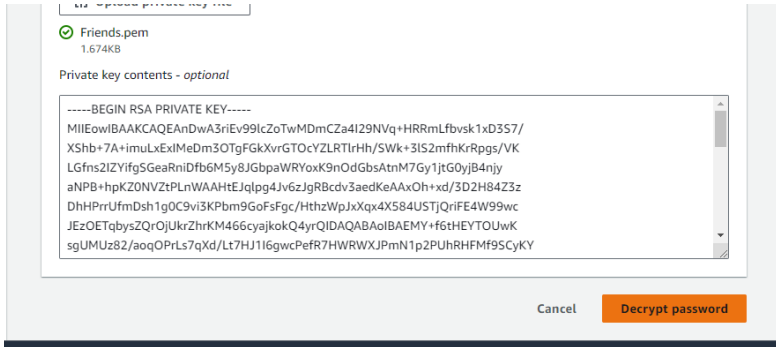
9) Click on get password
10) Upload key value file



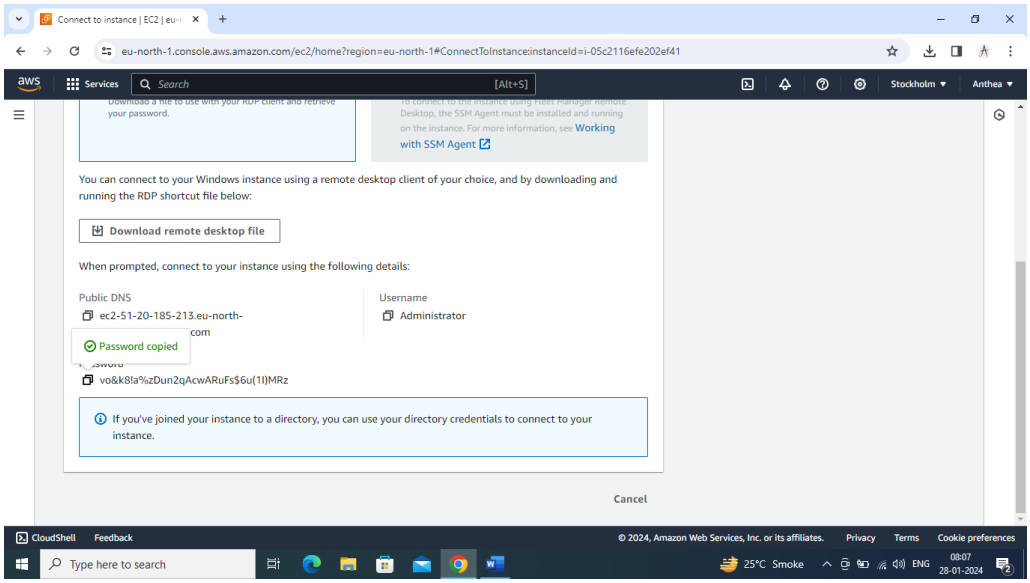
11) Upload the friends.pem file which was downloaded before



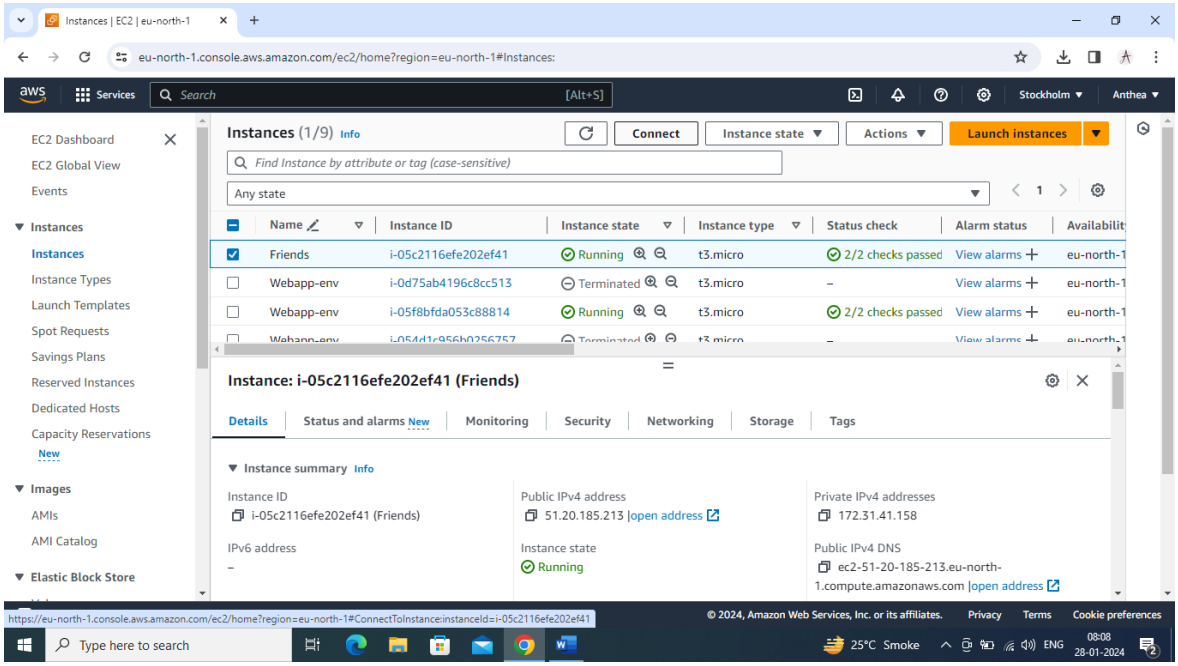
12) Decrypt password

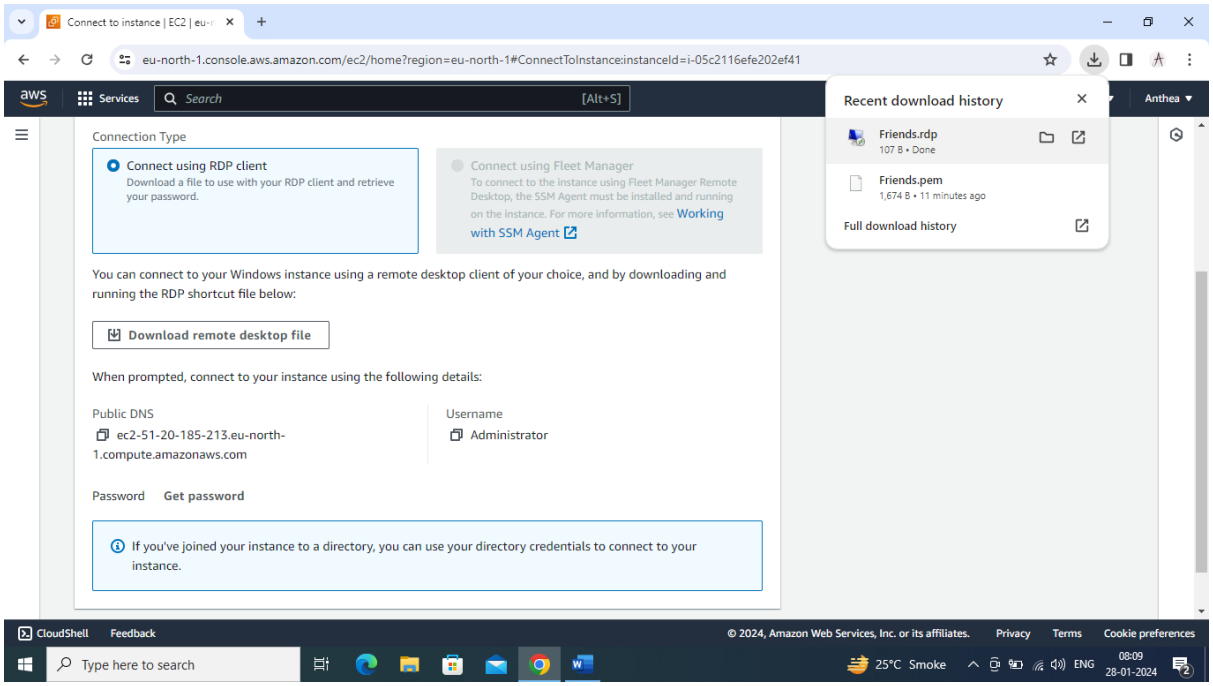


13) Save the password - vo&k8!a%zDun2qAcwARuFs$6u(1I)MRz

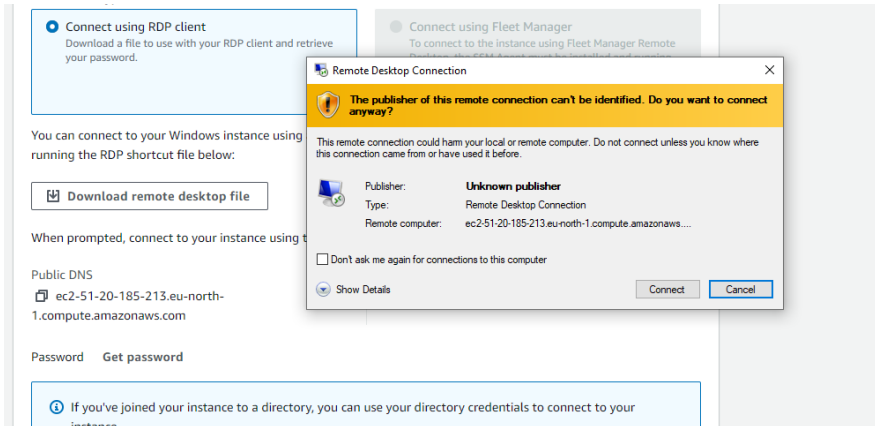


14) Go back to instances ,connect and download the RDP file

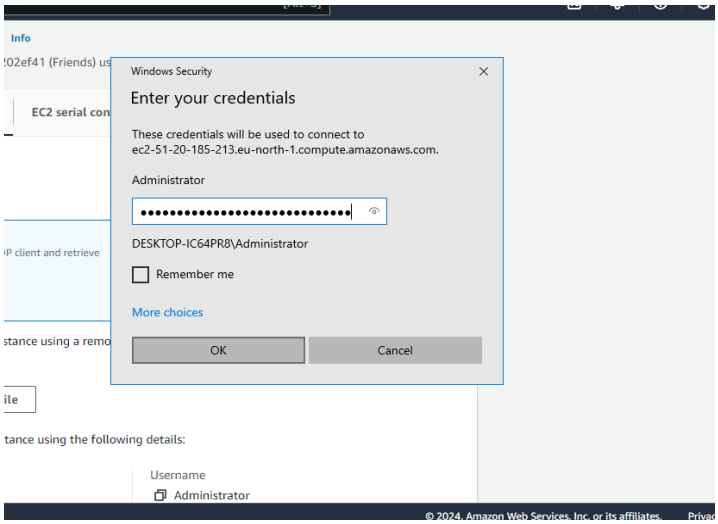




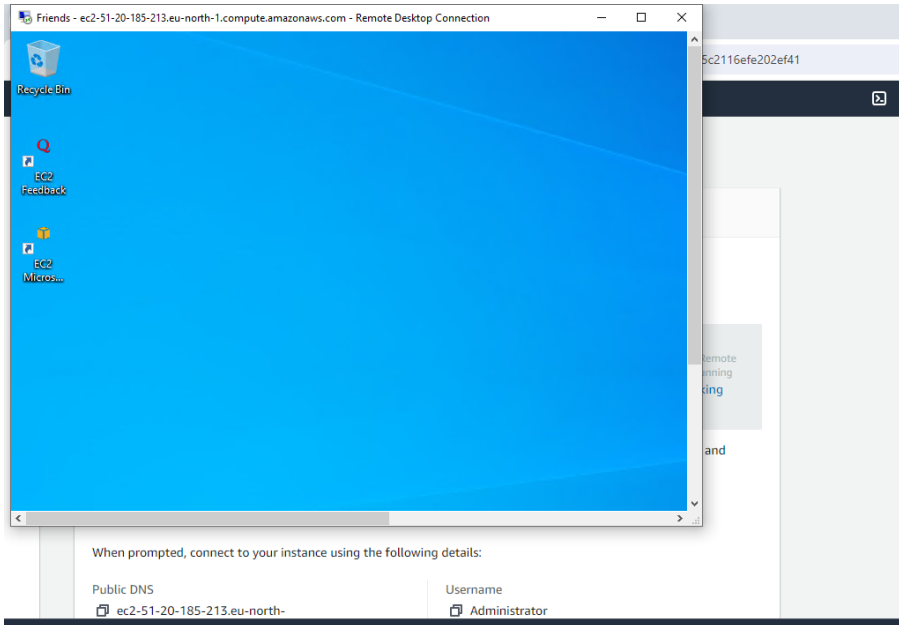
15) Open the downloaded RDP file



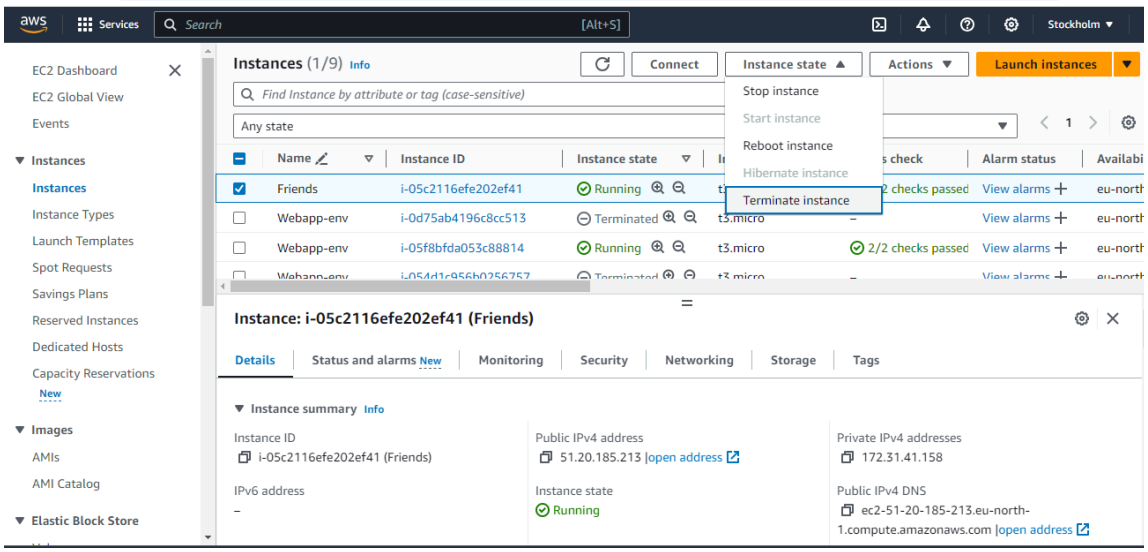
16) Connect rdp
17) vo&k8!a%zDun2qAcwARuFs$6u(1I)MRz
18) Enter your creds



19)

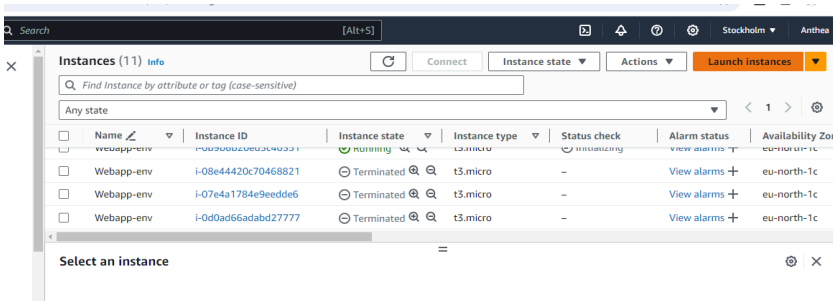


20) Close RDP
21) Go back to instances > terminate the instance

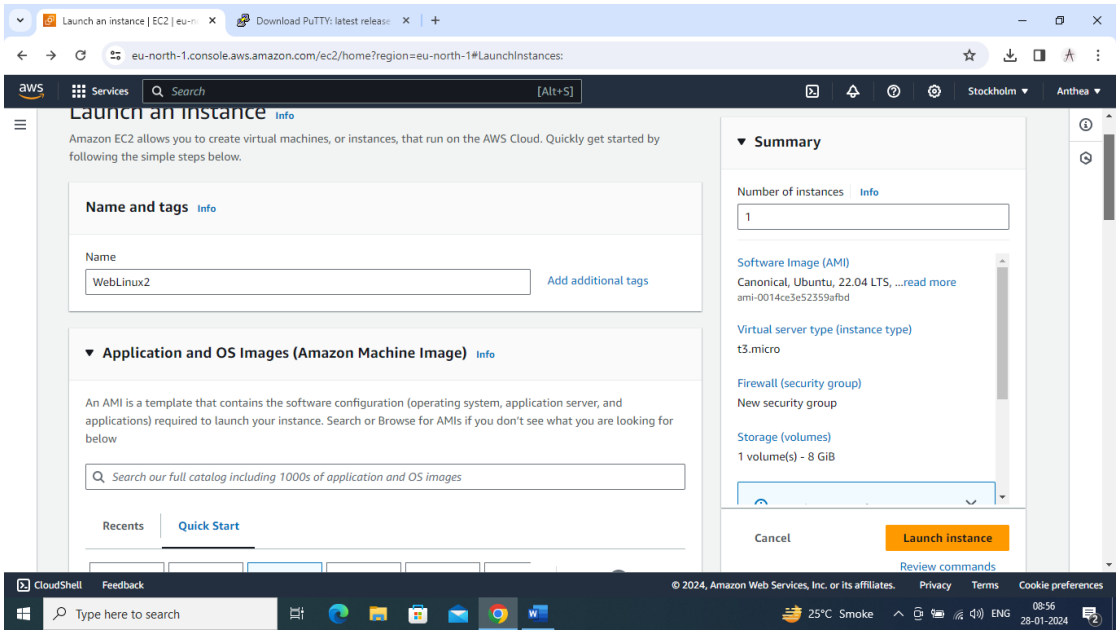


Q2:STEPS:

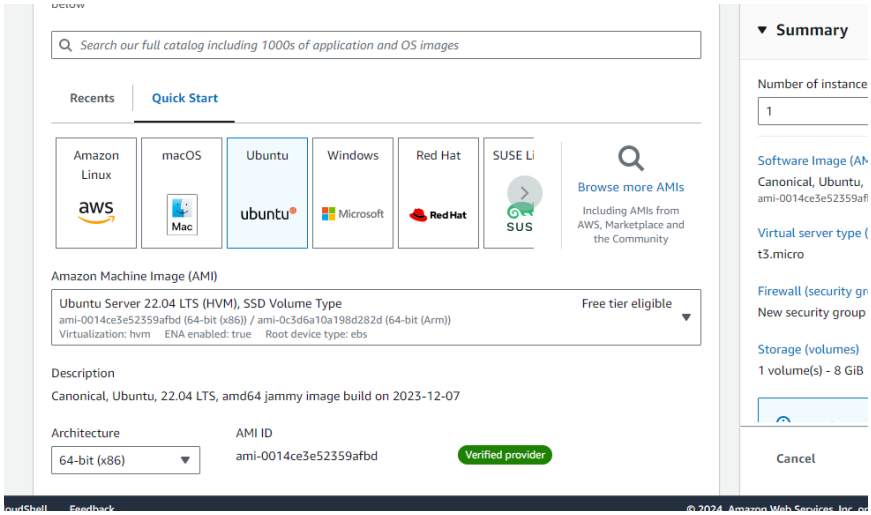
22) Launch a new instance for LINUX



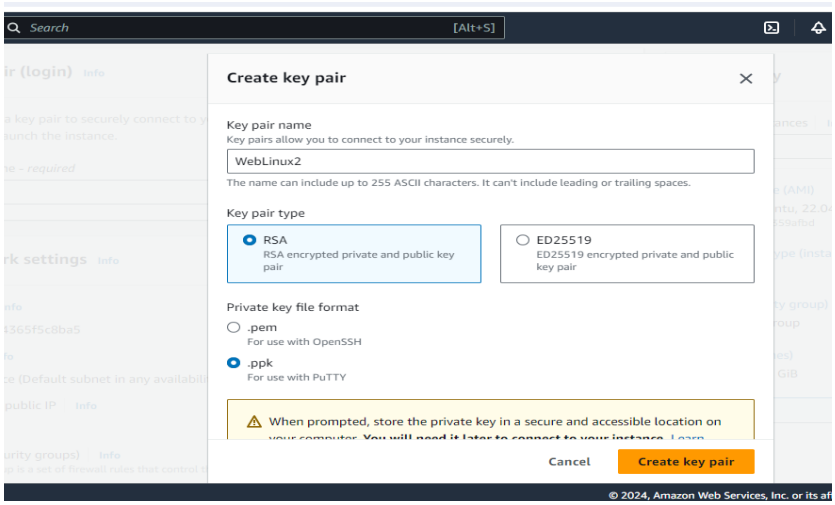
23) Write a web server name



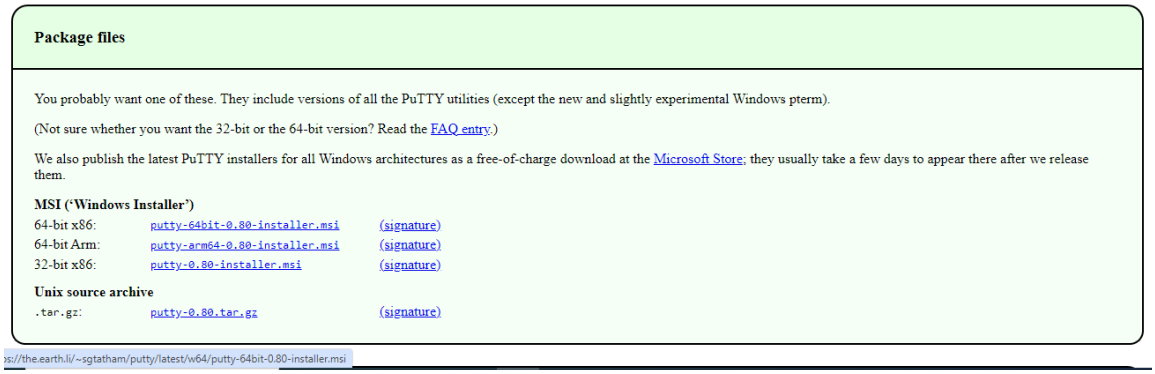
24) Select ubuntu



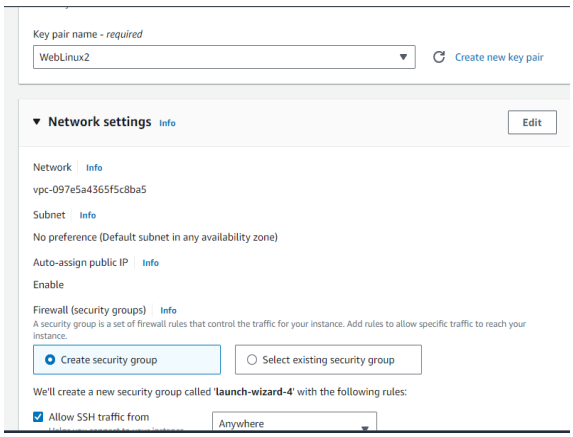
25) Create a new key value pair and select ppk

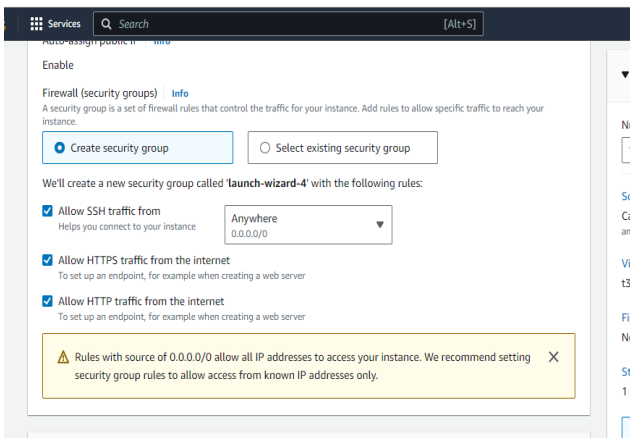


26) Download putty.exe from google
27) Select and download exe file 64 bit x86

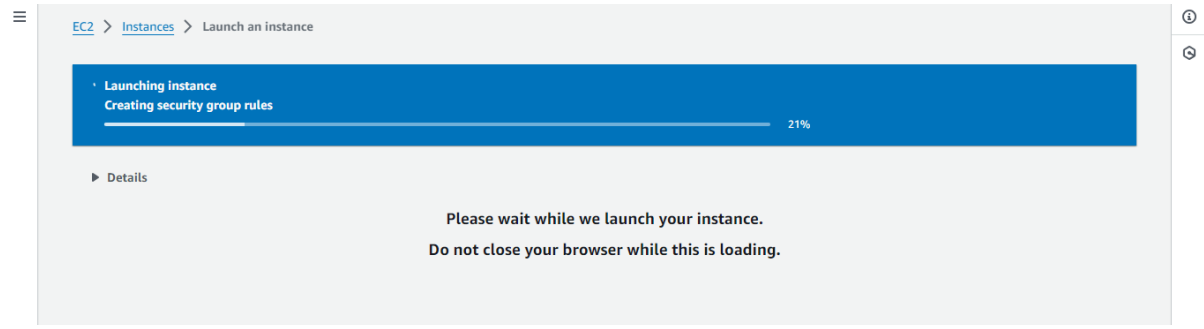


28) Create ppk key value pair and save the file
29) Allow all traffic

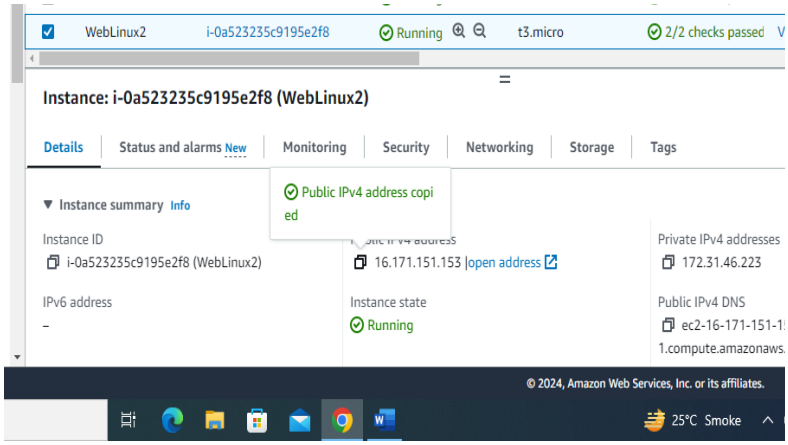




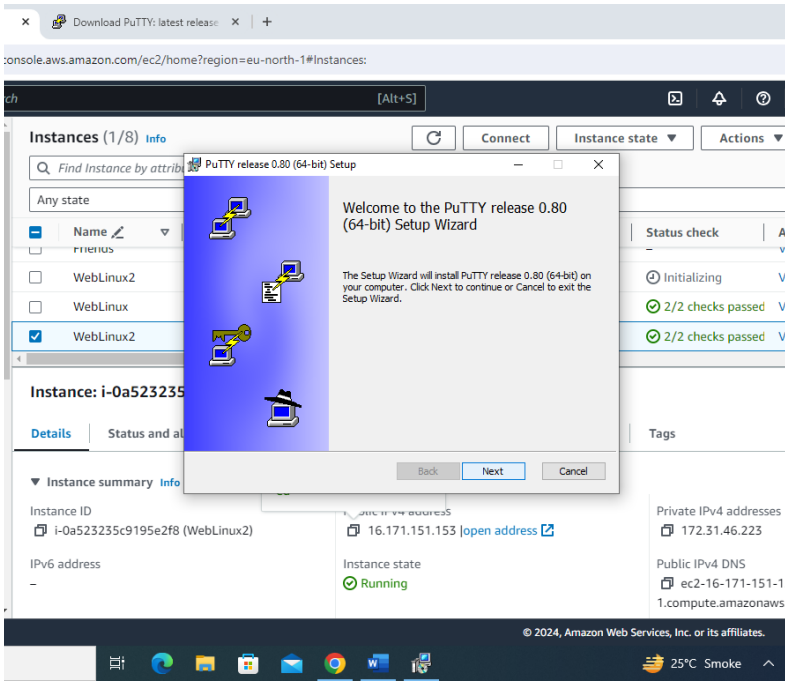
30) Launch instance



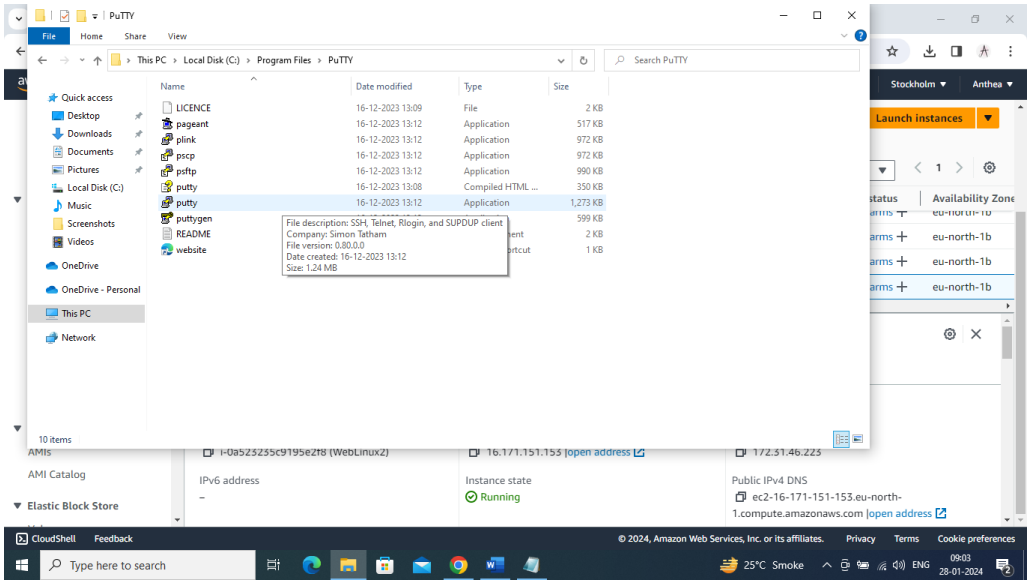
31) Go back to instances and refresh
32) Select and copy public IPV4 address and save the address
33) 16.171.151.153



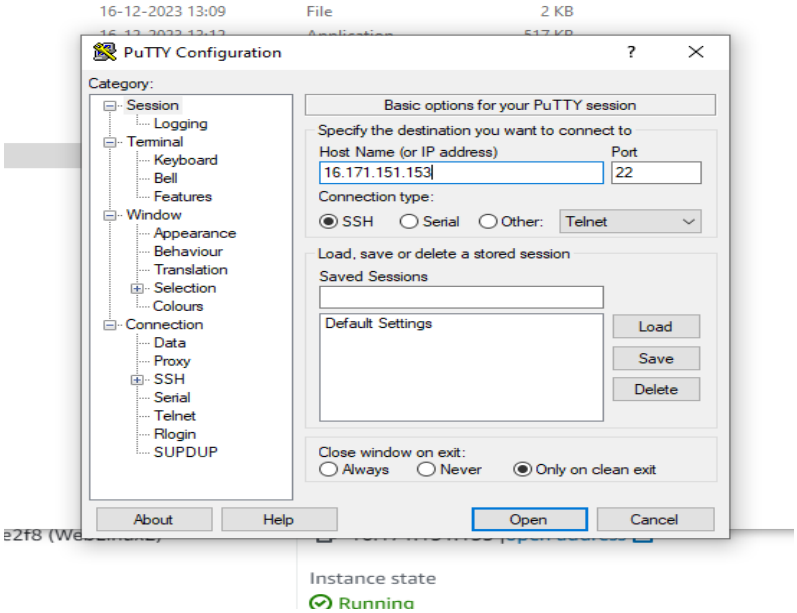
34) Open the downloaded putty



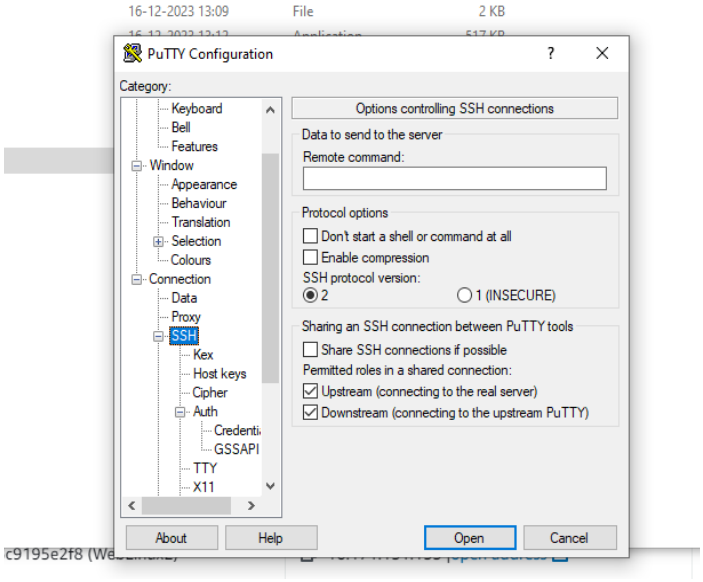
35) Go to program files and open putty

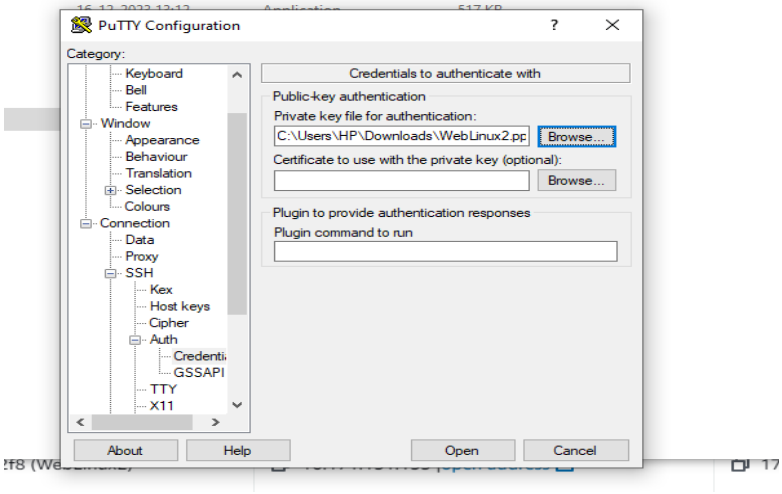


36) Paste the IP address

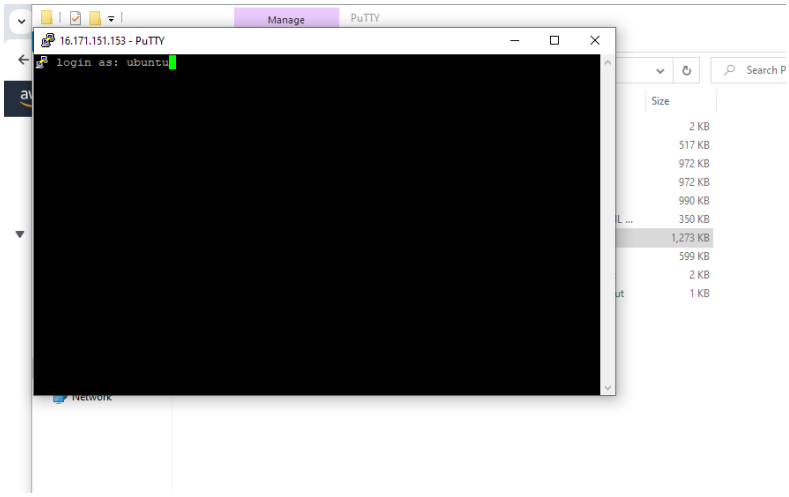


37) Category->connection-> SSH -> Auth -> Credentials ->Browse and select ppk file

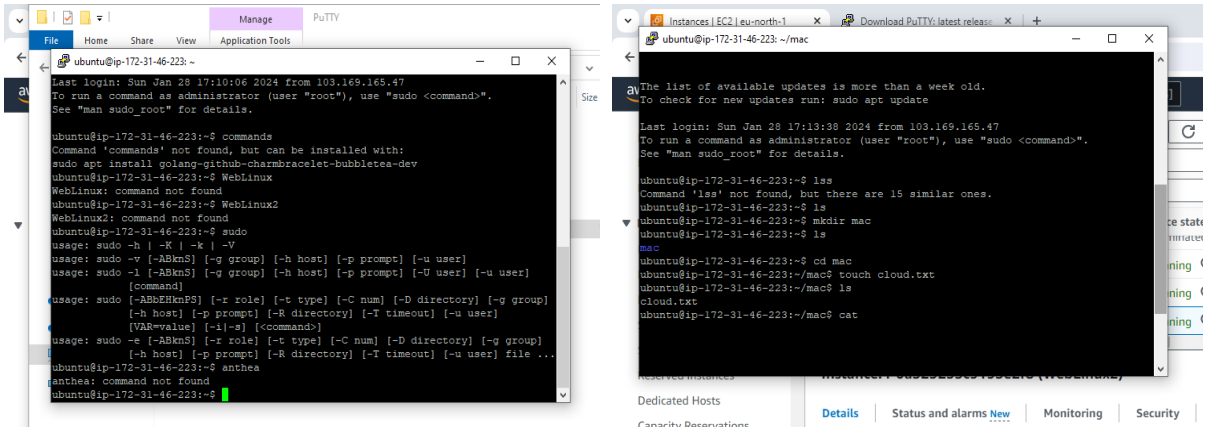


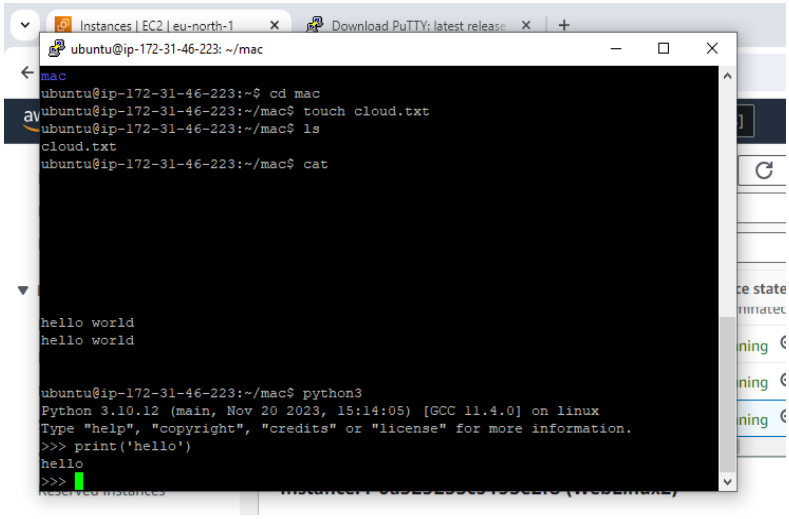


38) Putty will launch
39) Login as ubuntu



40) Type commands





41) Control+ D
42) Terminate the instance, close putty