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ADVANCED DEV-OPS EXPERIMENT-01

AIM: To understand the benefits of Cloud Infrastructure and Setup AWS Cloud9 IDE, Launch AWS Cloud9 IDE and Perform Collaboration Demonstration.

Theory:

Amazon EC2 (Elastic Compute Cloud) is a web service provided by AWS that offers scalable computing capacity in the cloud. It eliminates the need for investing in hardware upfront, allowing you to develop and deploy applications faster.

- Scalability: EC2 allows you to scale your compute capacity up or down as needed. You can increase or decrease the number of instances or the compute power of instances according to your application's needs.
- Flexibility: EC2 offers a wide variety of instance types that you can tailor to your application's requirements. These instance types vary based on CPU, memory, storage, and networking capabilities.
- Security: EC2 integrates with various AWS services such as AWS Identity and Access Management (IAM), AWS Key Management Service (KMS), and Virtual Private Cloud (VPC) to provide secure computing environments.
- Cost-Effective: EC2 provides different pricing models such as On-Demand Instances, Reserved Instances, Spot Instances, and Savings Plans, which help you optimize costs based on your workload.
- Global Reach: With data centers in multiple regions around the world, EC2 allows you to deploy applications closer to your users for reduced latency and better performance.

AWS Cloud9

AWS Cloud9 is an integrated development environment (IDE) that runs in the cloud. It allows you to write, run, and debug code with just a browser.

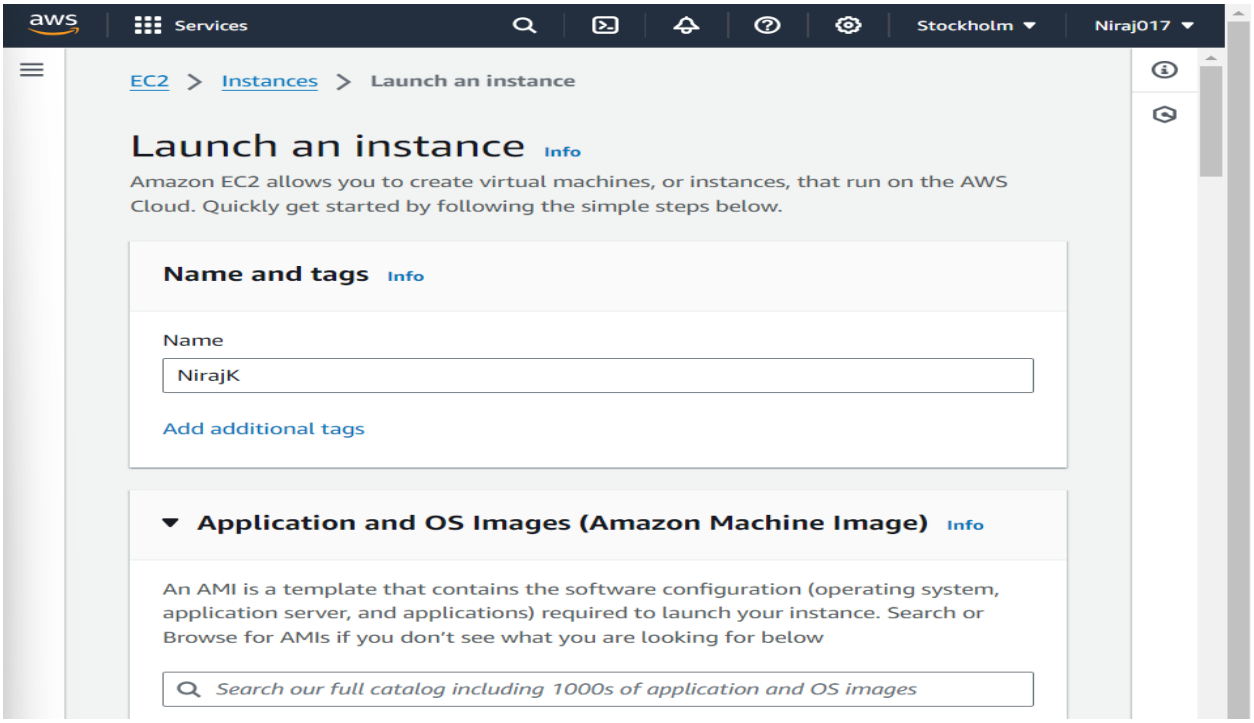
- Preconfigured Environment: Cloud9 comes prepackaged with essential tools like Python, Node.js, JavaScript, and more, so you don't have to install anything locally.
- Collaborative Coding: Multiple developers can work on the same project simultaneously, seeing each other's changes in real-time, which makes it ideal for pair programming or team collaboration.
- Integrated Terminal: You can access the terminal directly from the IDE, allowing you to run commands, install packages, and interact with AWS services using the AWS CLI.
- Serverless Development: Cloud9 makes it easier to develop serverless applications with built-in tools and environments that are ready for AWS Lambda functions.

- Portable Development Environment: Because it’s a cloud-based IDE, you can access your development environment from any device with a web browser, ensuring a consistent experience across different machines.

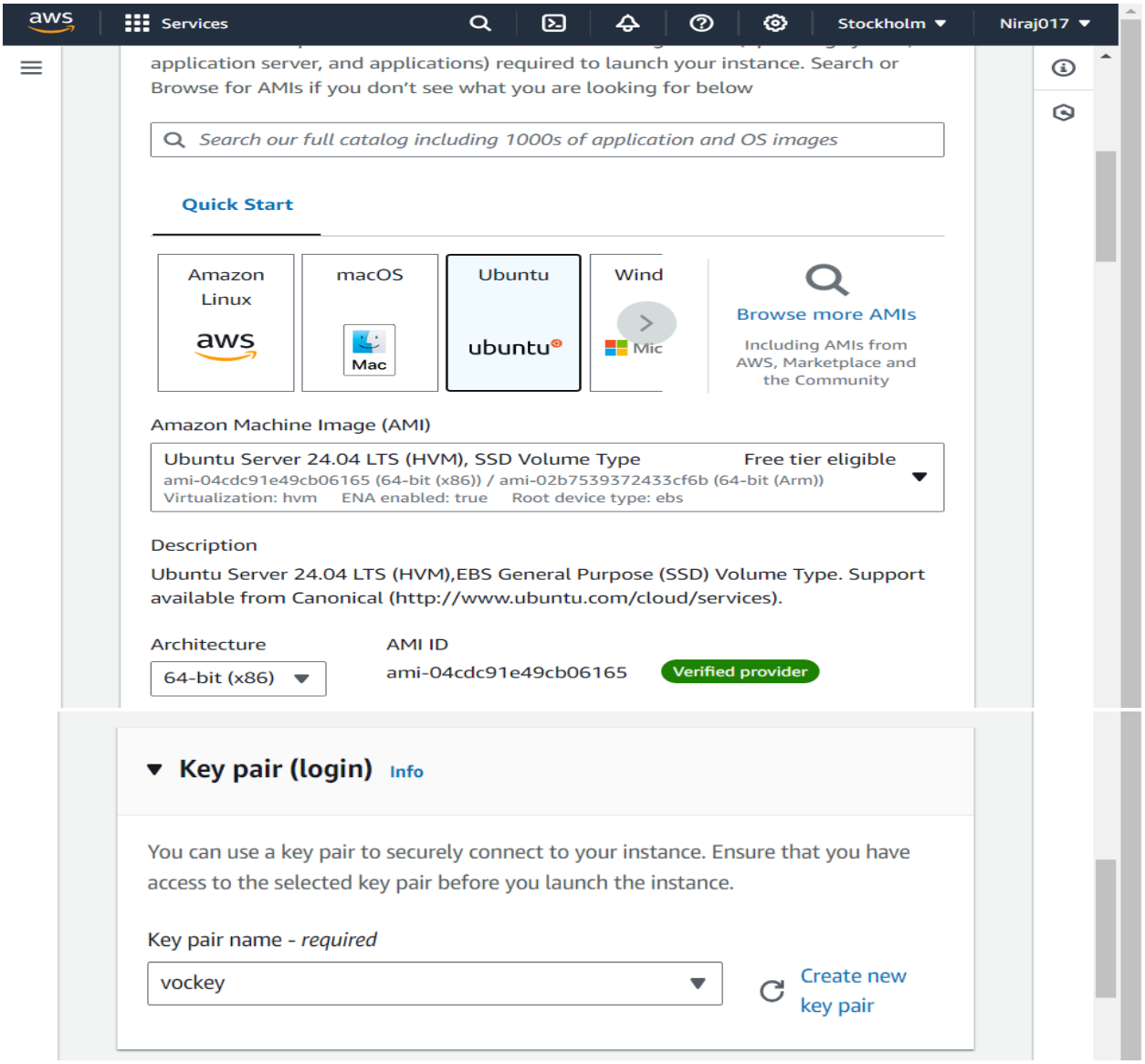
PART:1 Hosting a website using AWS EC2 instance

Steps:

1. Open up EC2 Console and Launch a new Instance



2. Choose the Linux environmentConnect to the instance to access the CLI


aws
Services
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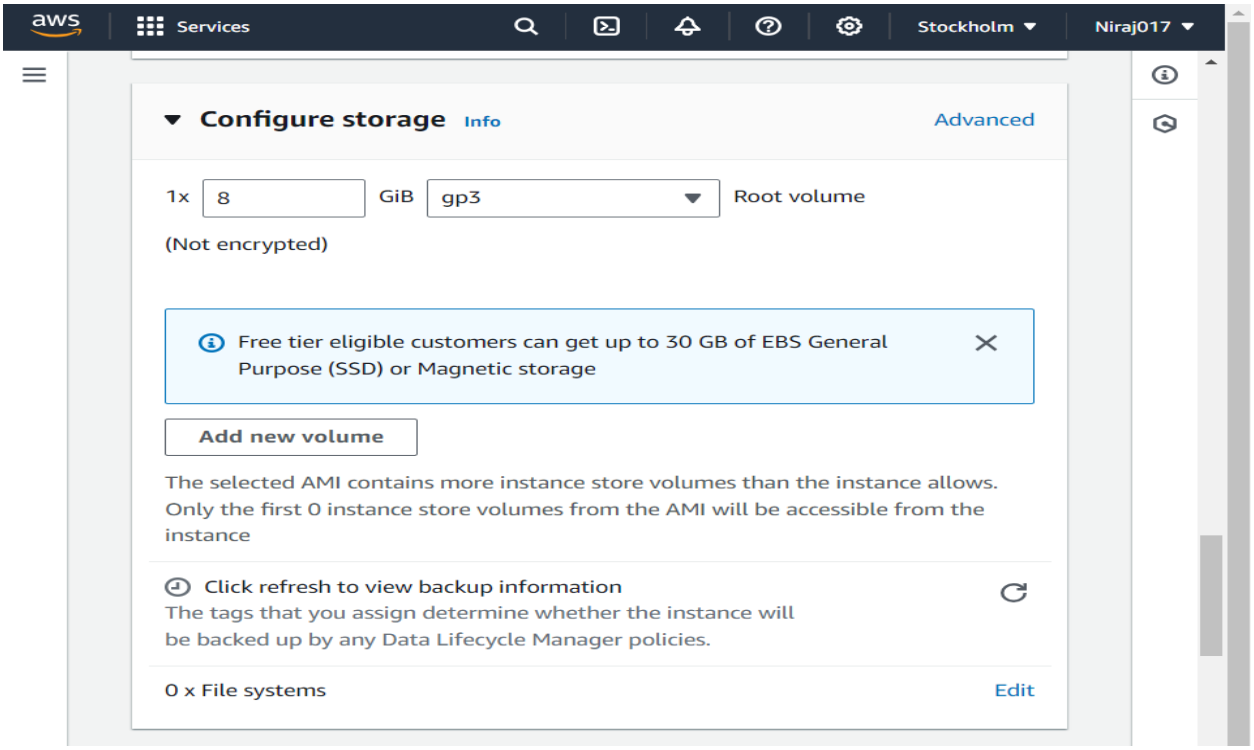
application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below
Search our full catalog including 1000s of application and OS images
Quick Start
Amazon Linux
macOS
Mac
Ubuntu
ubuntu
Wind
Mic
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Amazon Machine Image (AMI)
Ubuntu Server 24.04 LTS (HVM), SSD Volume Type
Free tier eligible
ami-04cdc91e49cb06165 (64-bit (x86)) / ami-02b7539372433cf6b (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs
Description
Ubuntu Server 24.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).
Architecture
64-bit (x86)
AMI ID
ami-04cdc91e49cb06165
Verified provider
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
vockey
Create new key pair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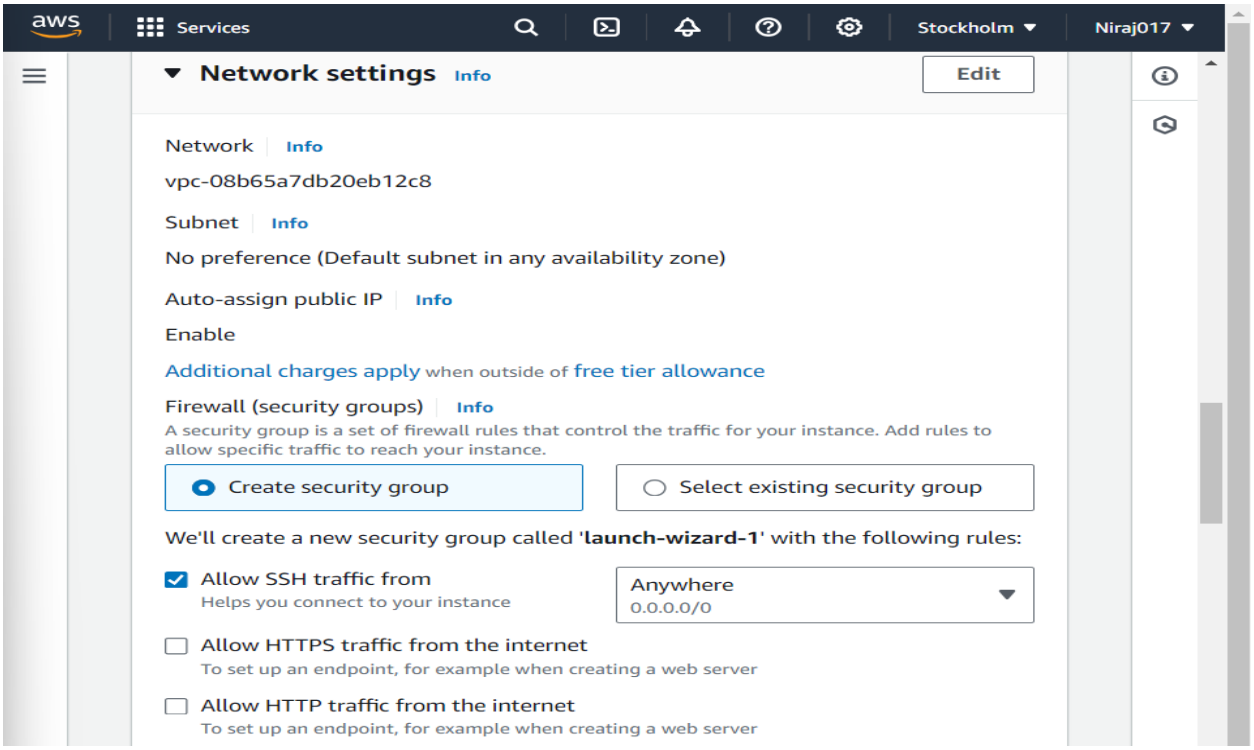
Configure storage Info
Advanced
1x 8 GiB gp3 Root volume
(Not encrypted)
Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage
Add new volume
The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance
Click refresh to view backup information
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.
0 x File systems
Edit


aws
Services
Stockholm
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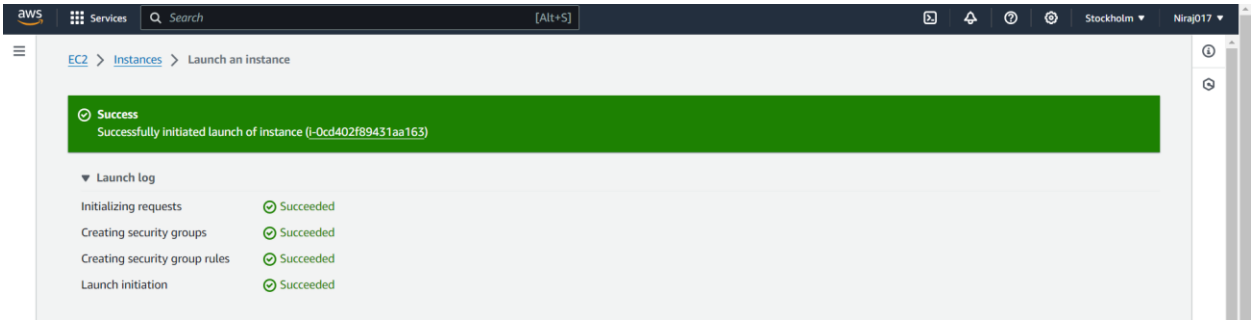
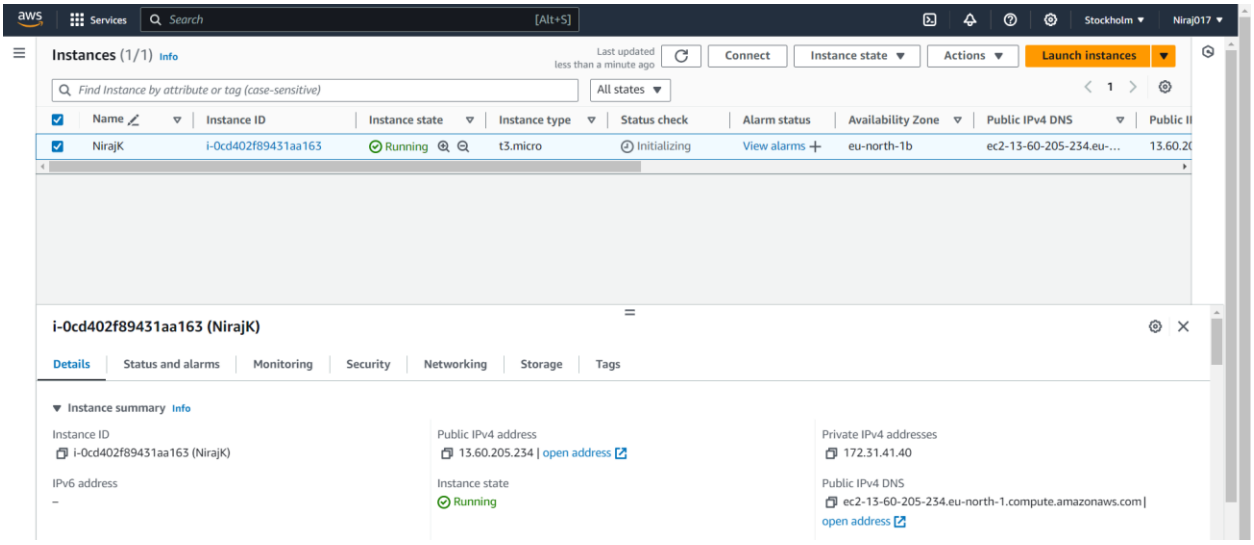
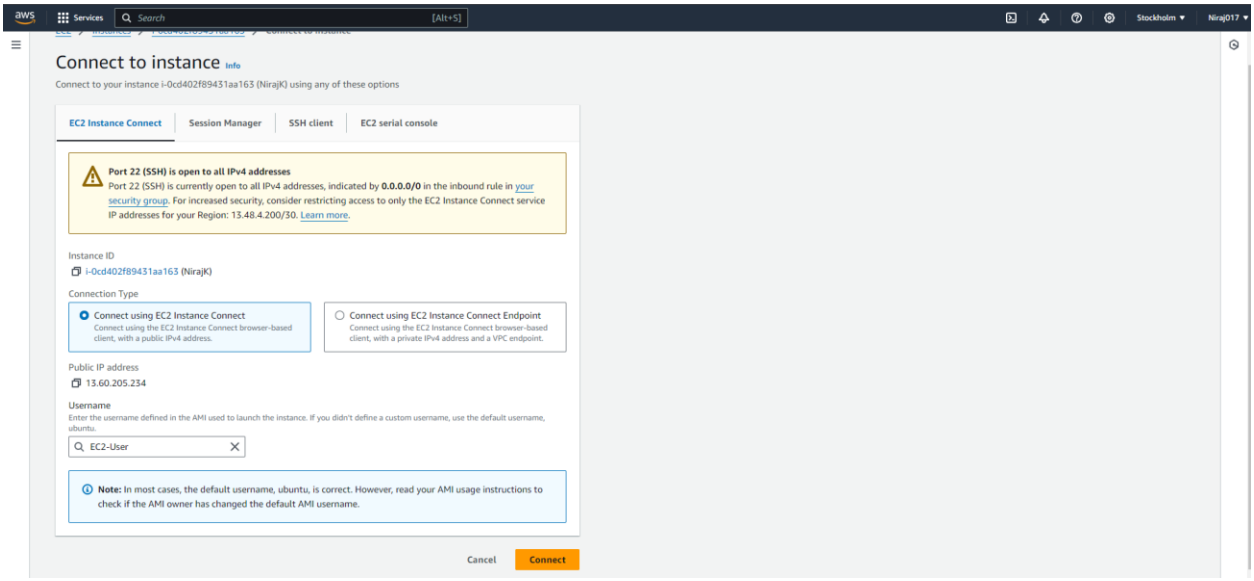
Network settings Info
Edit
Network Info
vpc-08b65a7db20eb12c8
Subnet Info
No preference (Default subnet in any availability zone)
Auto-assign public IP Info
Enable
Additional charges apply when outside of free tier allowance
Firewall (security groups) Info
A security group is a set of firewall rules 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-1' 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



3. Connect to the instance to access the CLI



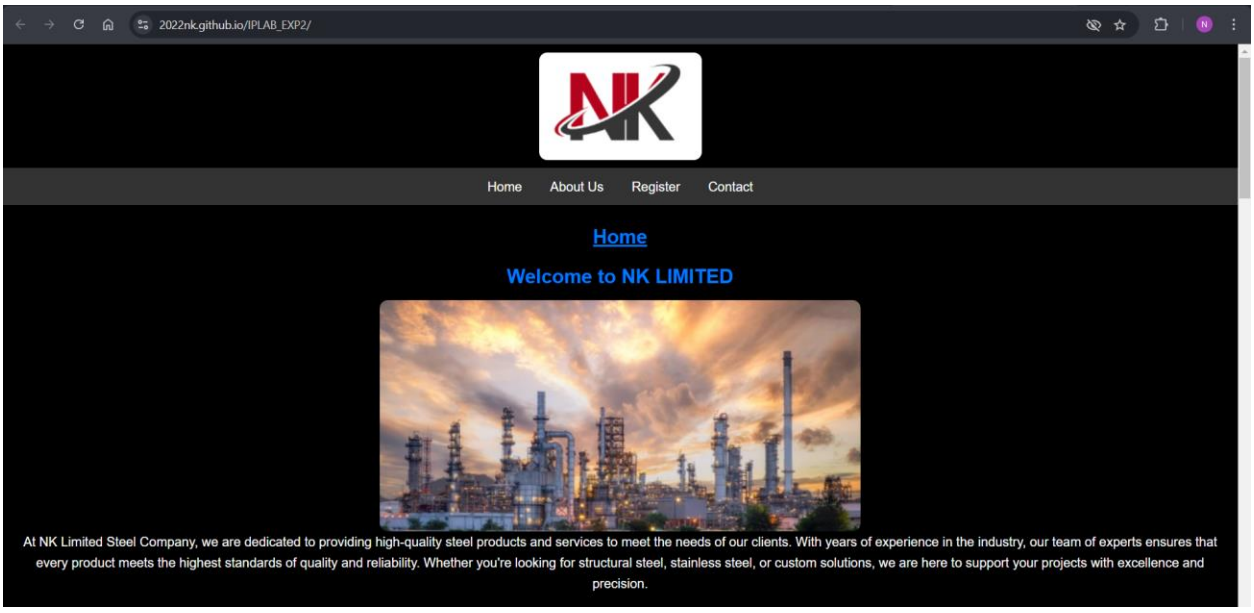


4.Perform following commands om terminal

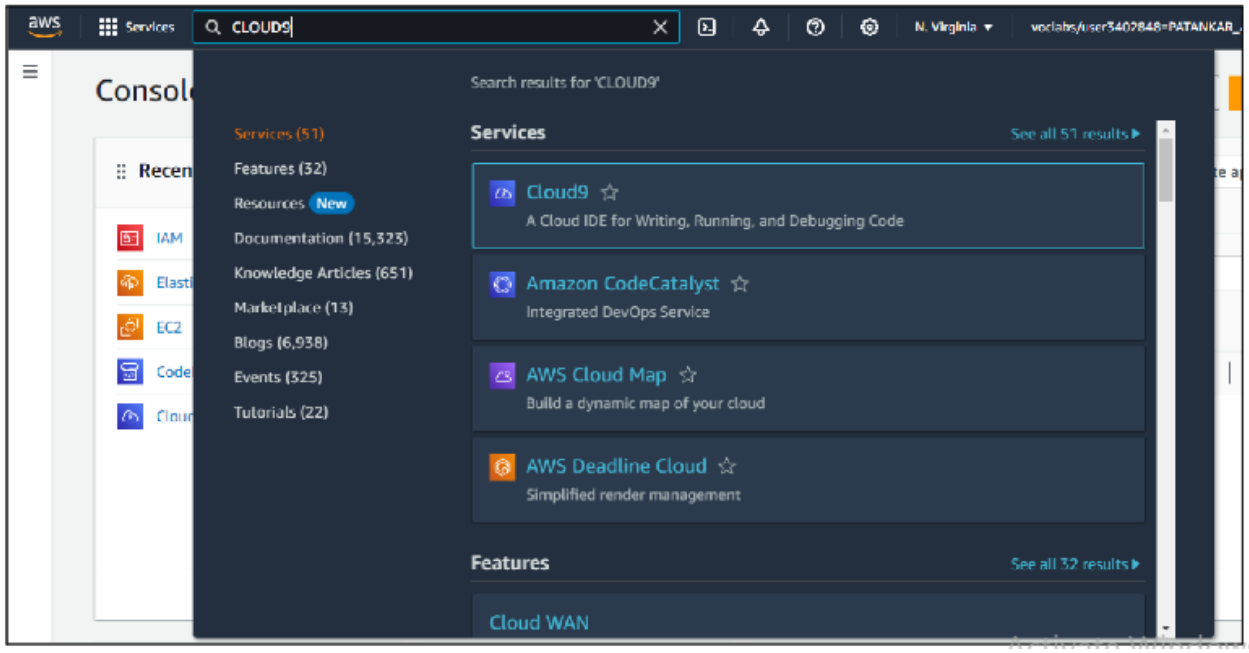
ssh -i your-key.pem ec2-user@your-ec2-public-dns
sudo yum update -y
sudo yum install httpd -y
sudo systemctl start httpd
sudo systemctl enable httpd
scp -i your-key.pem /path/to/your-website-files/* ec2-user@your-ec2-public-dns:/var/www/html/
sudo chown -R apache:apache /var/www/html
sudo chmod -R 755 /var/www/html
sudo yum install certbot python2-certbot-apache -y
sudo certbot --apache
sudo systemctl restart httpd

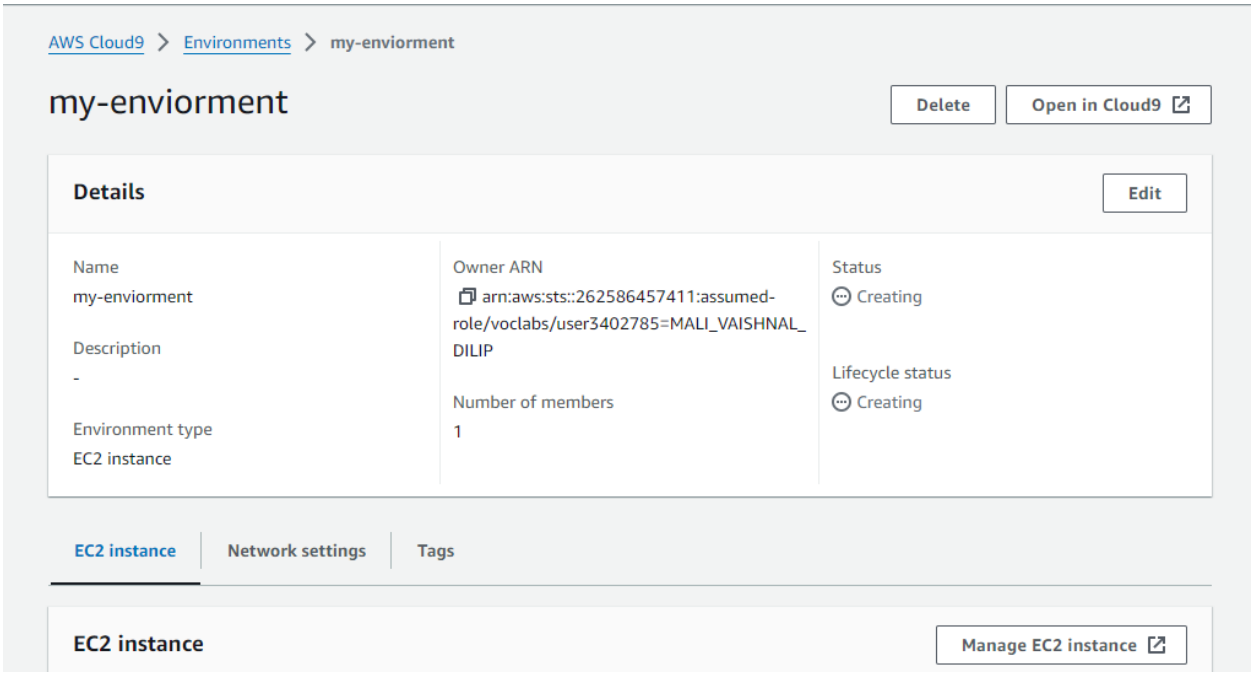
```
total 5792
-rw-r--r--. 1 root root 5811719 Aug  4 14:30  video.mp4
-rw-r--r--. 1 root root  112365 Aug  4 14:30 'introduction audio.mp3'
-rw-r--r--. 1 root root    2457 Aug  4 14:30  index.html
drwxr-xr-x. 2 root root     124 Aug  4 14:30  images
[root@ip-172-31-93-9 html]# systemctl status http
Unit http.service could not be found.
[root@ip-172-31-93-9 html]# systemctl enable http
Failed to enable unit: Unit file http.service does not exist.
[root@ip-172-31-93-9 html]# systemctl status status httpd
Unit status.service could not be found.
○ httpd.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; preset: disabled)
     Active: inactive (dead)
       Docs: man:httpd.service(8)
[root@ip-172-31-93-9 html]# systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-93-9 html]# systemctl start httpd
```

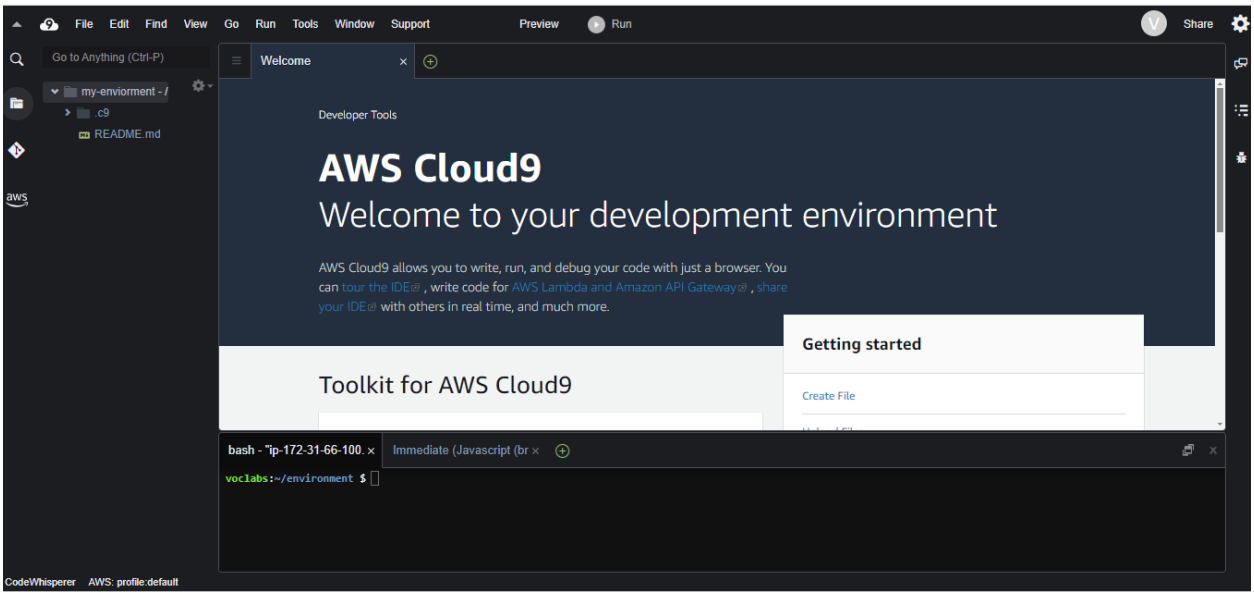
5.Host your Website



PART B: Create Environment on cloud 9




AWS Cloud9 > Environments > my-enviorment
my-enviorment
Delete
Open in Cloud9
Details
Edit
Name
my-enviorment
Description
-
Environment type
EC2 instance
Owner ARN
arn:aws:sts::262586457411:assumed-role/voclabs/user3402785=MALI_VAISHNAL_DILIP
Number of members
1
Status
Creating
Lifecycle status
Creating
EC2 instance
Network settings
Tags
EC2 instance
Manage EC2 instance


File Edit Find View Go Run Tools Window Support
Preview
Run
Share
Go to Anything (Ctrl-P)
my-enviorment - /
.c9
README.md
Welcome
Developer Tools
AWS Cloud9
Welcome to your development environment
AWS Cloud9 allows you to write, run, and debug your code with just a browser. You can tour the IDE, write code for AWS Lambda and Amazon API Gateway, share your IDE with others in real time, and much more.
Getting started
Create File
Toolkit for AWS Cloud9
bash - "ip-172-31-66-100.
Immediate (Javascript (br
voclabs:~/environment $
CodeWhisperer
AWS: profile:default