

### Experiment No. 3

**Title:**

Working in Cloud9 to demonstrate different language.

**Objective:**

To learn Platform as service (PaaS) using Free trial of Cloud9 in AWS, because firstly it was an independently platform now it is integrated with AWS.

**Tools used:**

Internet, AWS, EC2, Cloud9

**Prerequisite:**

Understanding of Platform as service in Service model of cloud computing

**Theory:**

AWS Cloud9 is an integrated development environment, or *IDE*.

The AWS Cloud9 IDE offers a rich code-editing experience with support for several programming languages and runtime debuggers, and a built-in terminal. It contains a collection of tools that you use to code, build, run, test, and debug software, and helps you release software to the cloud.

You access the AWS Cloud9 IDE through a web browser. You can configure the IDE to your preferences. You can switch color themes, bind shortcut keys, enable programming language-specific syntax coloring and code formatting, and more.

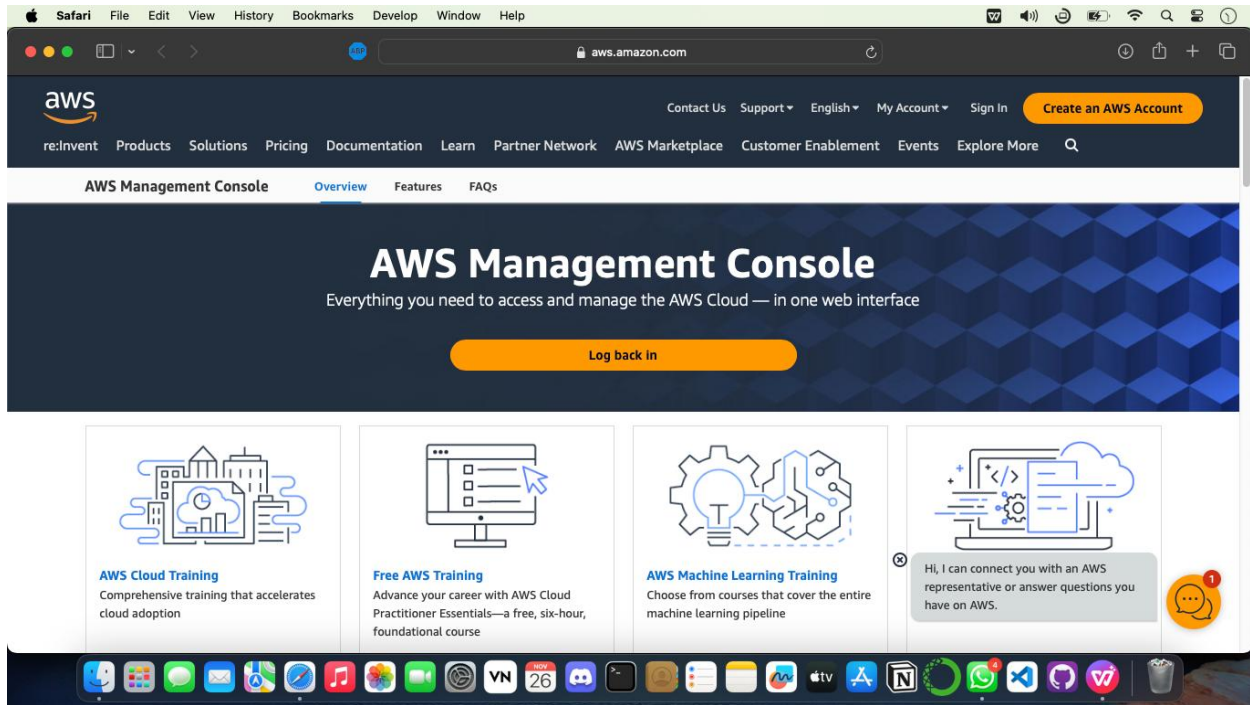
An *AWS Cloud9 environment* is a place where you store your project's files and where you run the tools to develop your applications.

Using the AWS Cloud9 IDE, you can:

- Store your project's files locally on the instance or server.
- Clone a remote code repository—such as a repo in AWS Code Commit—into your environment.
- Work with a combination of local and cloned files in the environment.

## Steps to setting up the cloud9

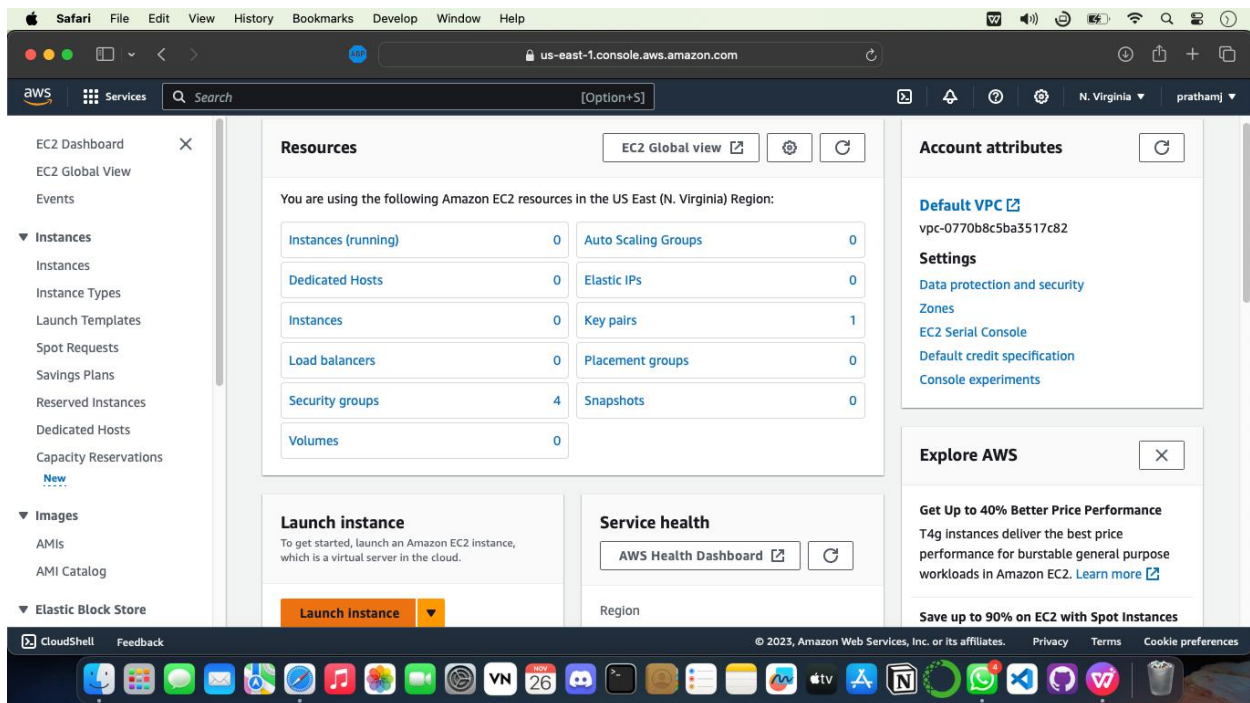
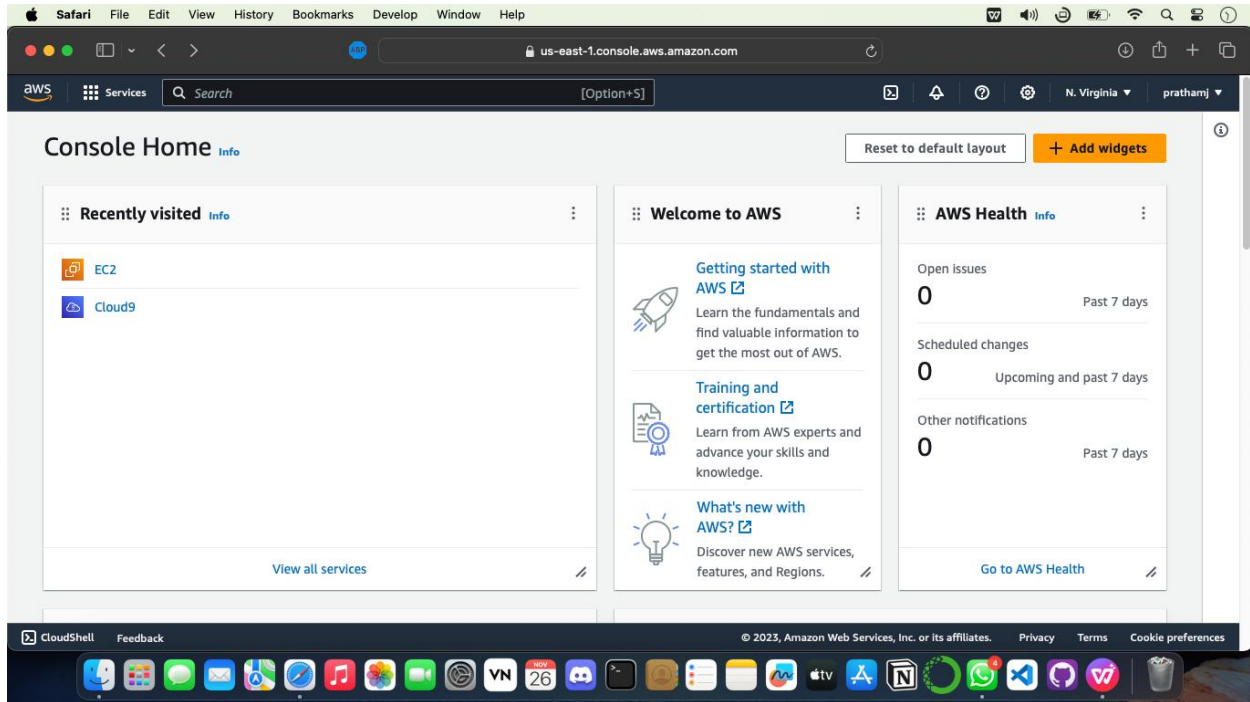
Step 1. Sign in to the Console <https://aws.amazon.com/console/>

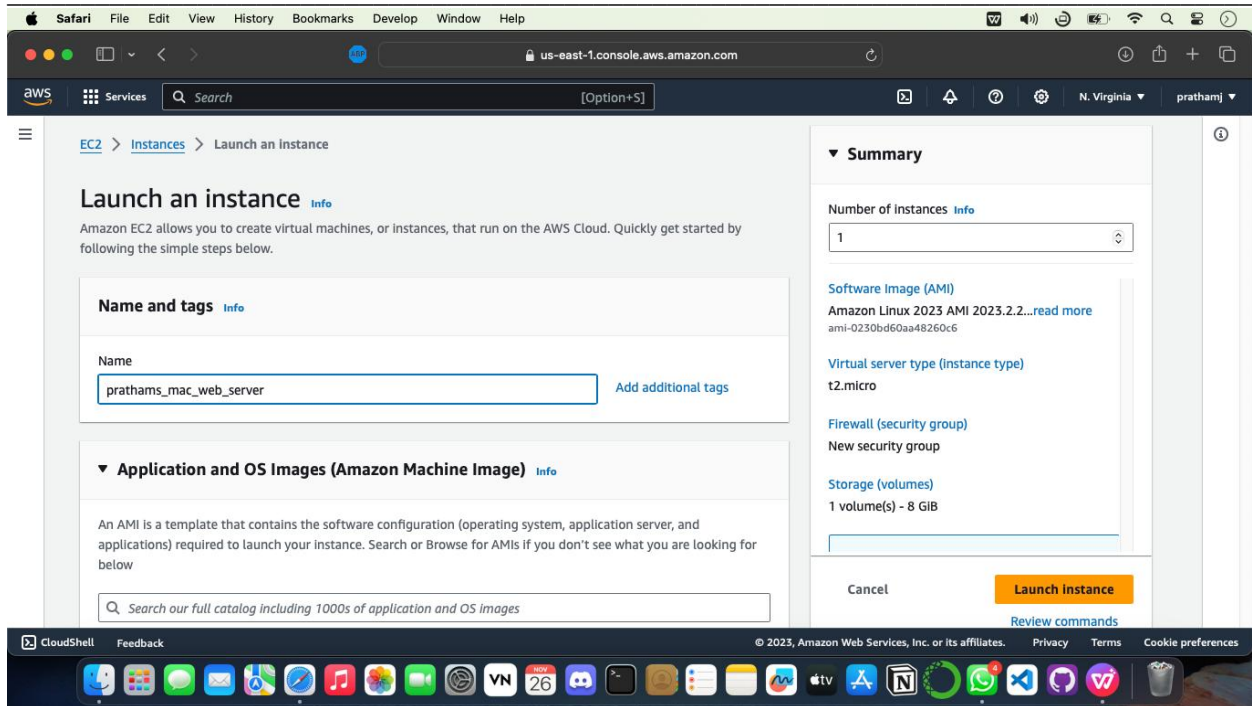


Step 2. Create EC2 instance and Launch it

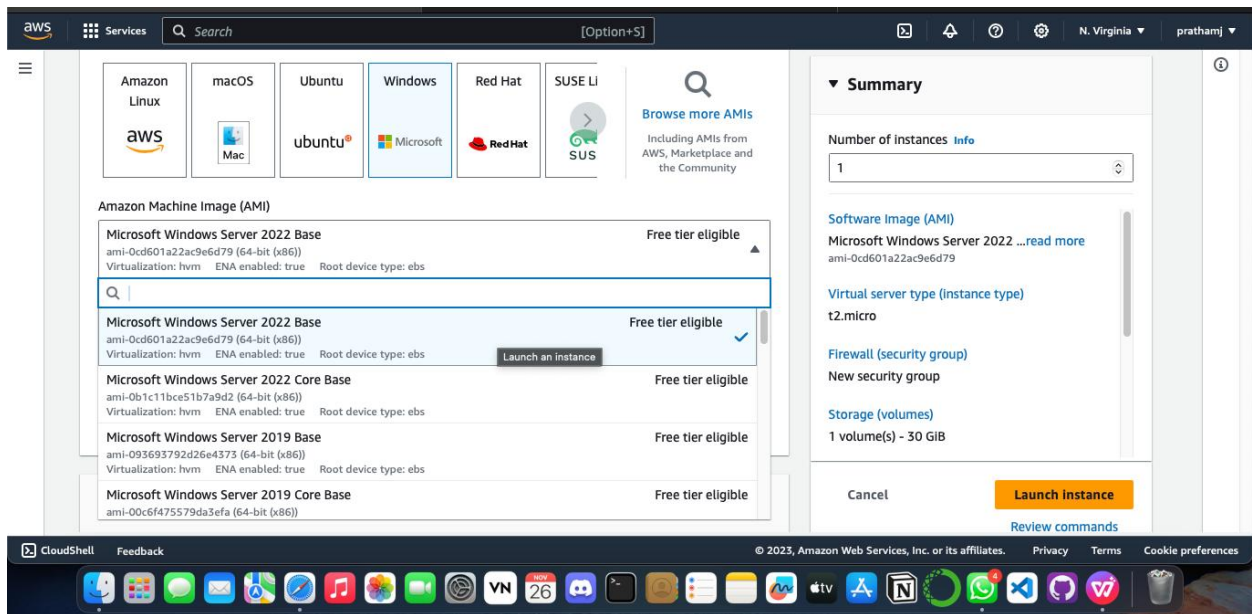
- ✓ **Log in to your AWS Management Console.**
- ✓ **Go to the EC2 dashboard and click on the "Launch Instance" button.**
- ✓ **Choose an Amazon Machine Image (AMI) for your instance.**
- ✓ **Select an instance type and configure instance details like network settings, storage, and tags.**
- ✓ **Create a new key pair**
- ✓ **Configure security groups to control inbound and outbound traffic.**
- ✓ **Review your instance settings and launch the EC2 instance.**
- ✓ **Create or use an existing key pair for secure access to your instance.**

✓ Access your EC2 instance using SSH (Secure Shell) or other remote access methods.



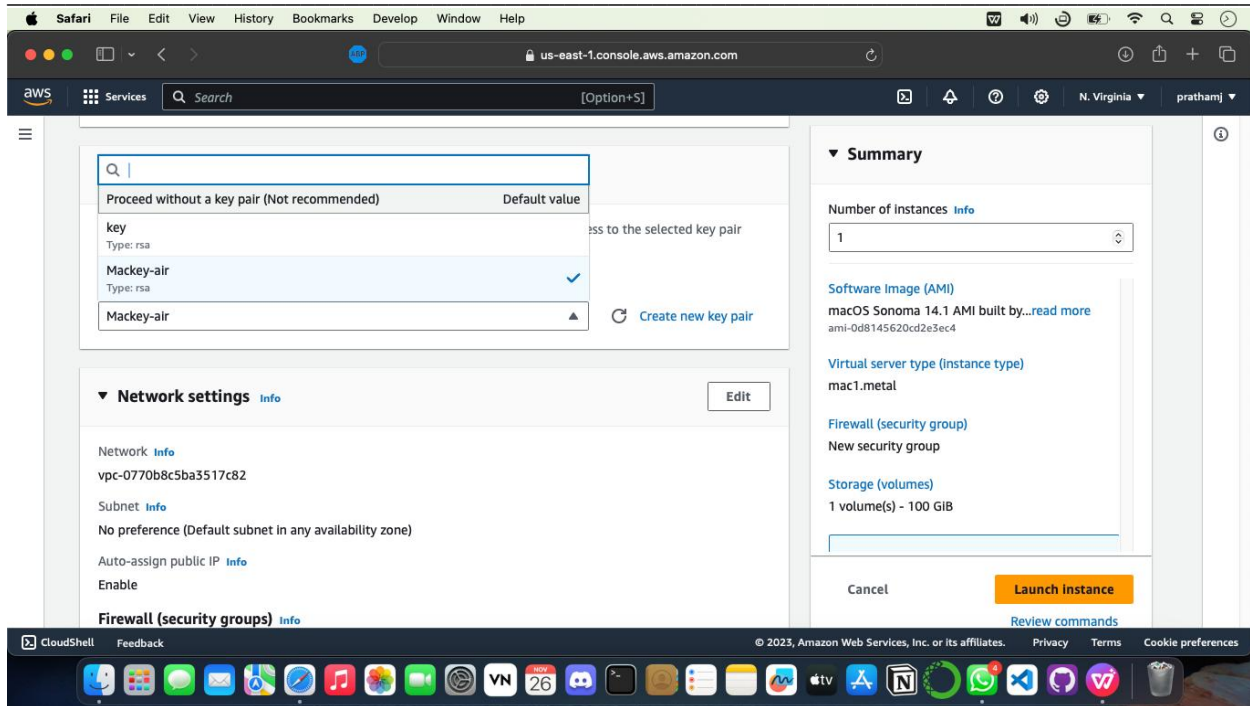


The screenshot shows the AWS Management Console 'Launch an Instance' page. The 'Name and tags' section has the name 'prathams\_mac\_web\_server'. The 'Application and OS Images (Amazon Machine Image)' section shows a search bar with the text 'Search our full catalog including 1000s of application and OS images'. The 'Summary' panel on the right shows: Number of Instances: 1, Software Image (AMI): Amazon Linux 2023 AMI 2023.2.2..., Virtual server type (instance type): t2.micro, Firewall (security group): New security group, Storage (volumes): 1 volume(s) - 8 GiB. The 'Launch Instance' button is highlighted in orange.

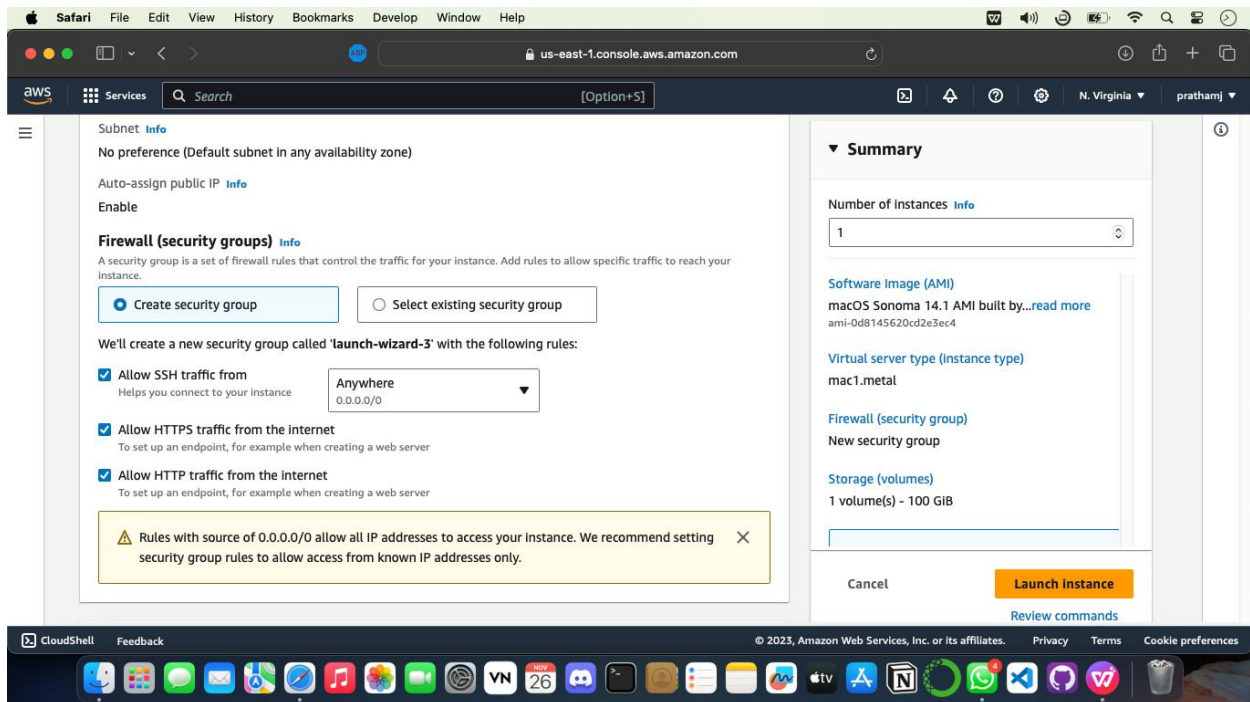


The screenshot shows the AWS Management Console 'Browse more AMIs' page. The 'Amazon Machine Image (AMI)' section lists several Microsoft Windows Server 2022 and 2019 Core Base AMIs, all marked as 'Free tier eligible'. The 'Summary' panel on the right shows: Number of Instances: 1, Software Image (AMI): Microsoft Windows Server 2022 ..., Virtual server type (instance type): t2.micro, Firewall (security group): New security group, Storage (volumes): 1 volume(s) - 30 GiB. The 'Launch Instance' button is highlighted in orange.

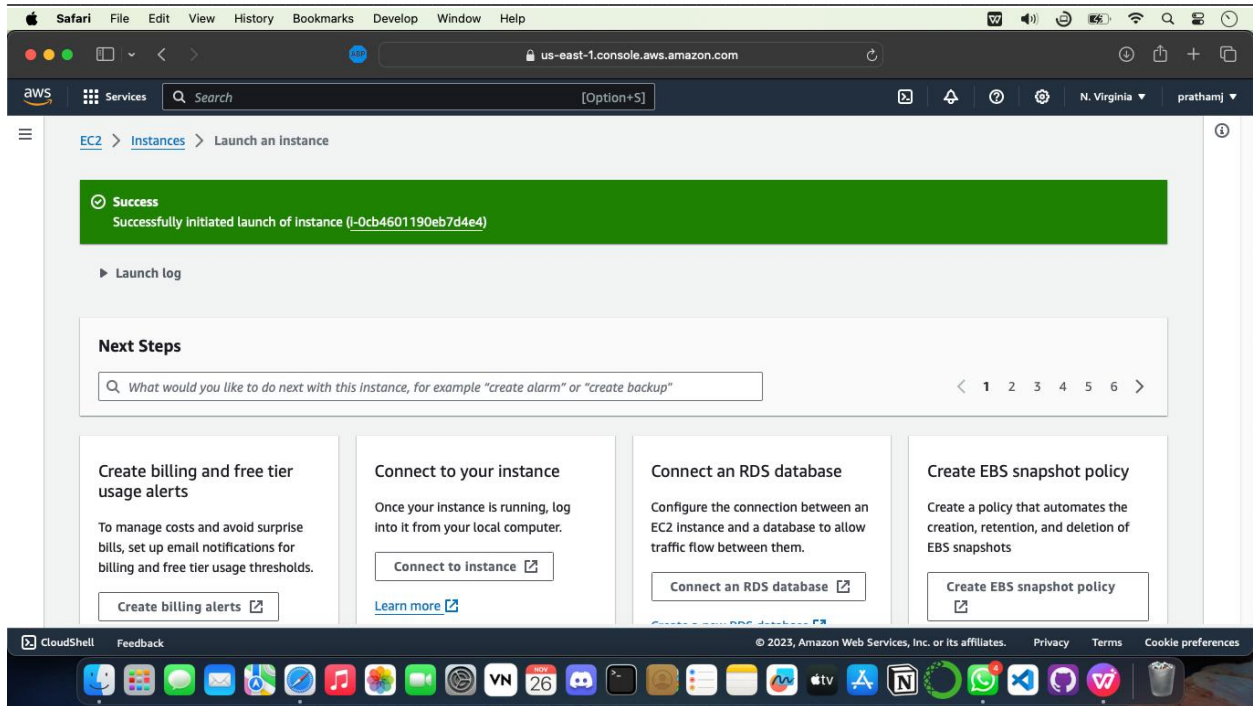




This screenshot shows the AWS Management Console for creating a new EC2 instance. The interface is in the 'us-east-1' region. The 'Summary' panel on the right shows the configuration: 1 instance, macOS Sonoma 14.1 AMI (ami-0d8145620cd2e3ec4), mac1.metal instance type, and 100 GiB storage. The 'Network settings' panel shows the subnet as 'No preference' and 'Auto-assign public IP' as 'Enable'. The 'Key pair' section shows 'Mackey-air' as the selected key pair. The 'Launch Instance' button is visible at the bottom right.



This screenshot shows the 'Firewall (security groups)' step in the AWS Management Console. The 'Create security group' option is selected. The rules section shows three rules: 'Allow SSH traffic from Anywhere', 'Allow HTTPS traffic from the internet', and 'Allow HTTP traffic from the internet'. A warning message states: '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.' The 'Launch Instance' button is visible at the bottom right.



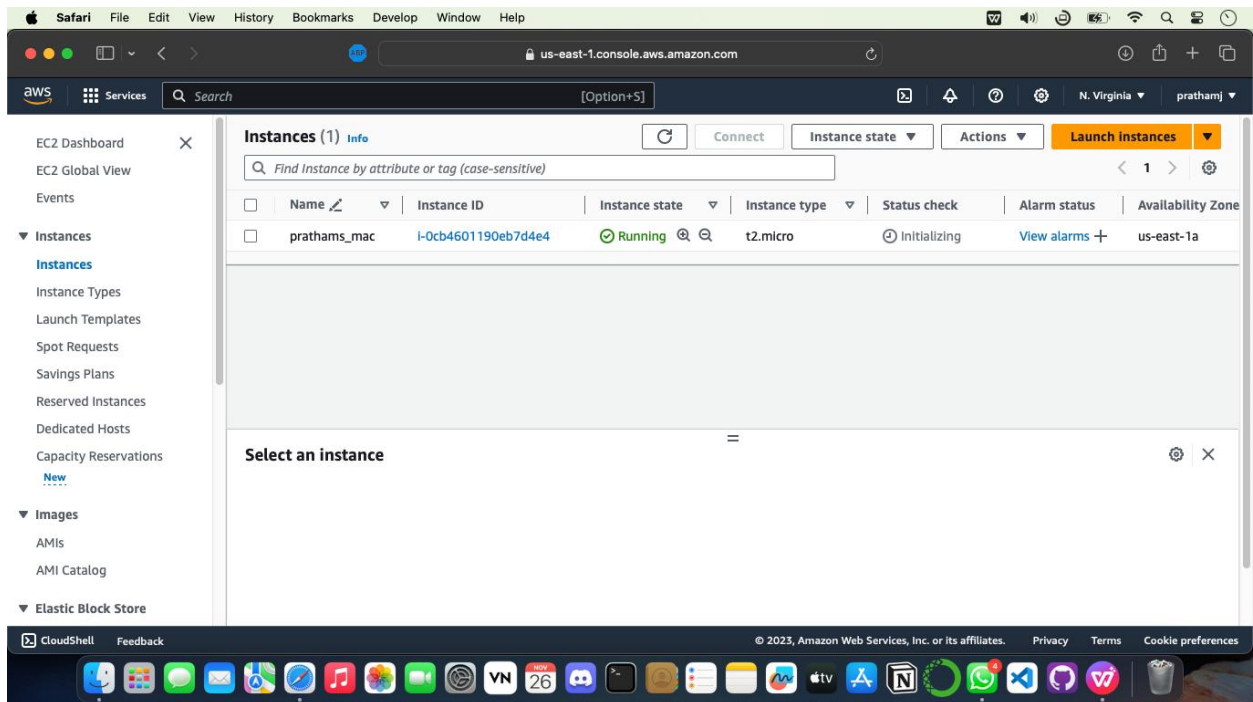
**Success**  
Successfully initiated launch of instance (i-0cb4601190eb7d4e4)

► Launch log

**Next Steps**

What would you like to do next with this instance, for example "create alarm" or "create backup"

- Create billing and free tier usage alerts  
To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds.  
[Create billing alerts](#)
- Connect to your instance  
Once your instance is running, log into it from your local computer.  
[Connect to instance](#)
- Connect an RDS database  
Configure the connection between an EC2 instance and a database to allow traffic flow between them.  
[Connect an RDS database](#)
- Create EBS snapshot policy  
Create a policy that automates the creation, retention, and deletion of EBS snapshots.  
[Create EBS snapshot policy](#)



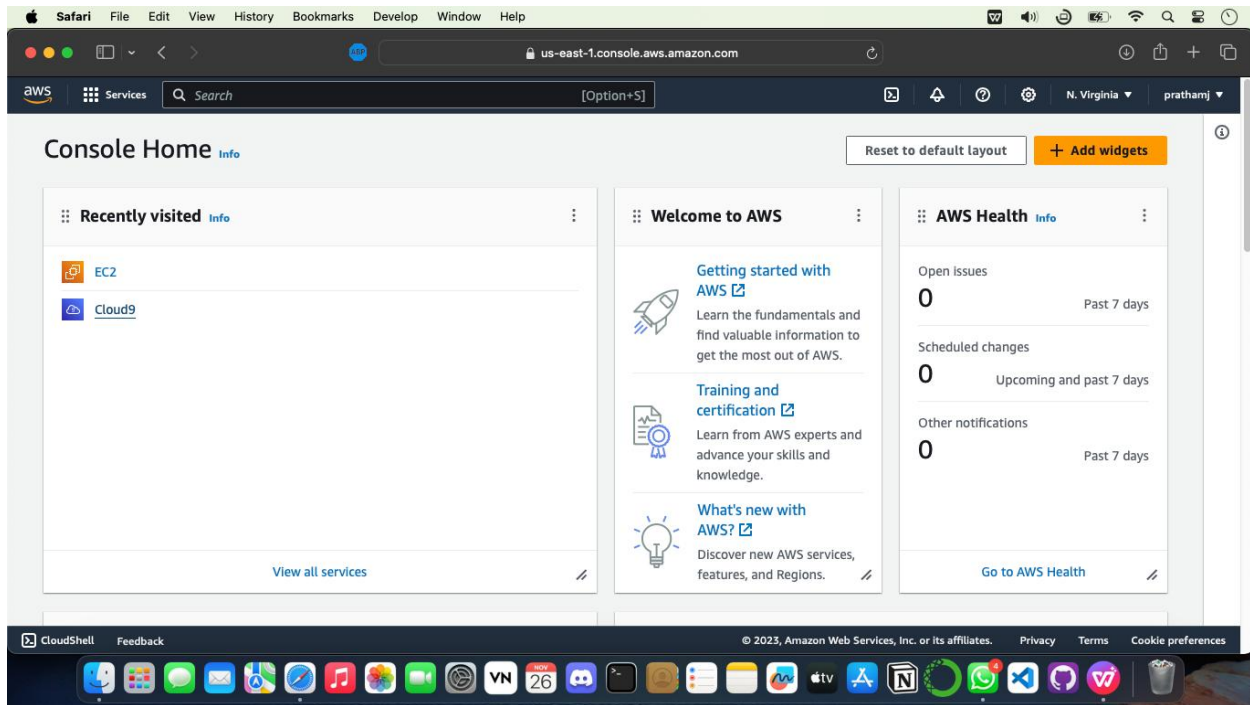
**Instances (1)** Info

Find Instance by attribute or tag (case-sensitive)

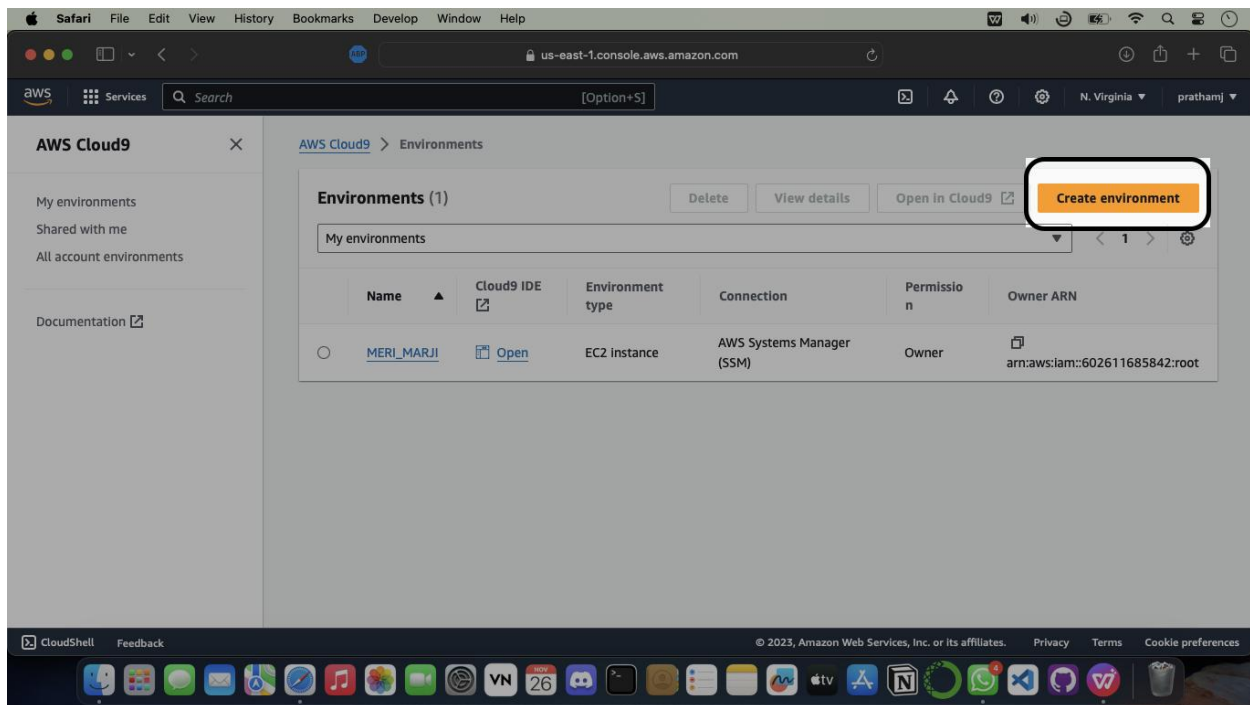
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
prathams_mac	i-0cb4601190eb7d4e4	Running	t2.micro	Initializing	View alarms	us-east-1a

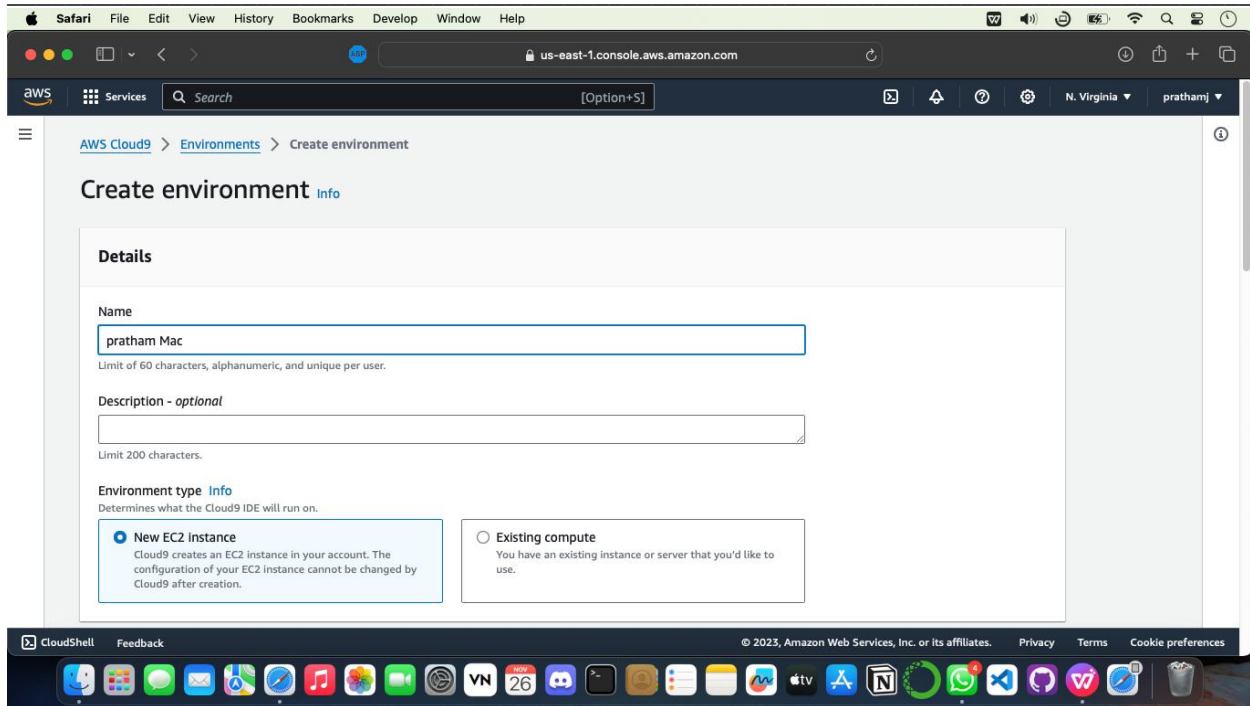
Select an instance

## Step 3 – Now we create instance and launch it, Now its time for Cloud9's setup

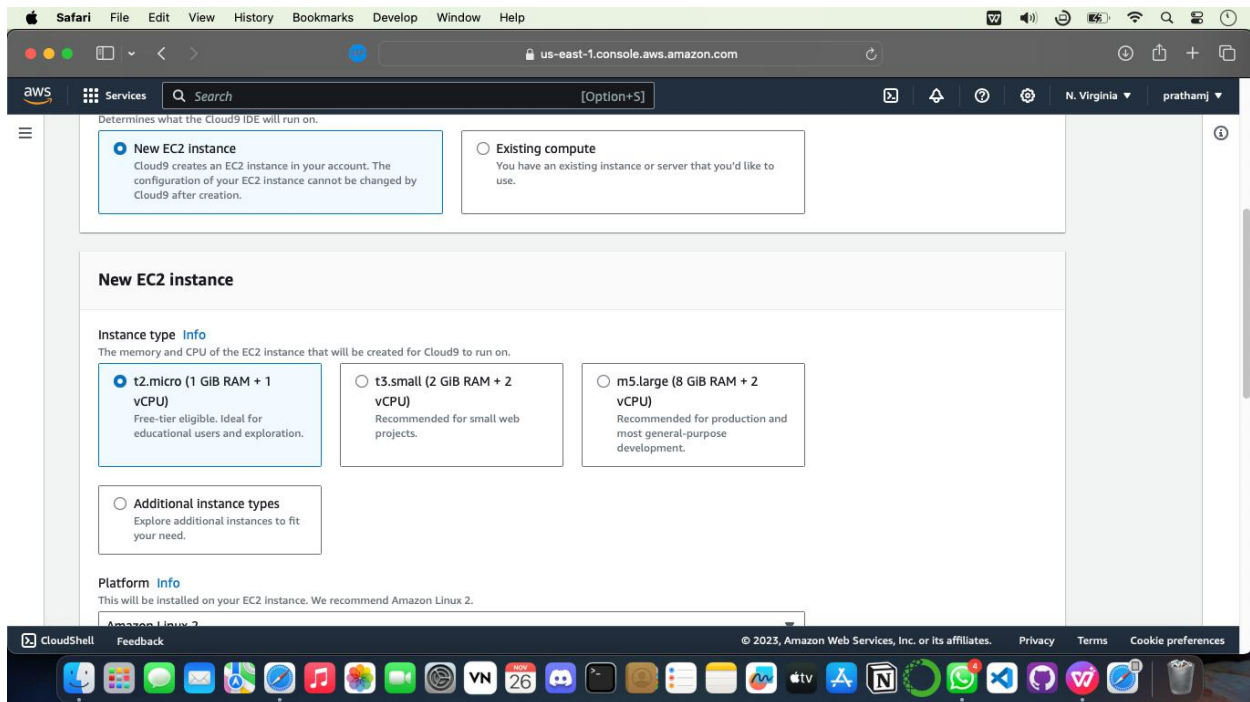


## Create New Enciornment



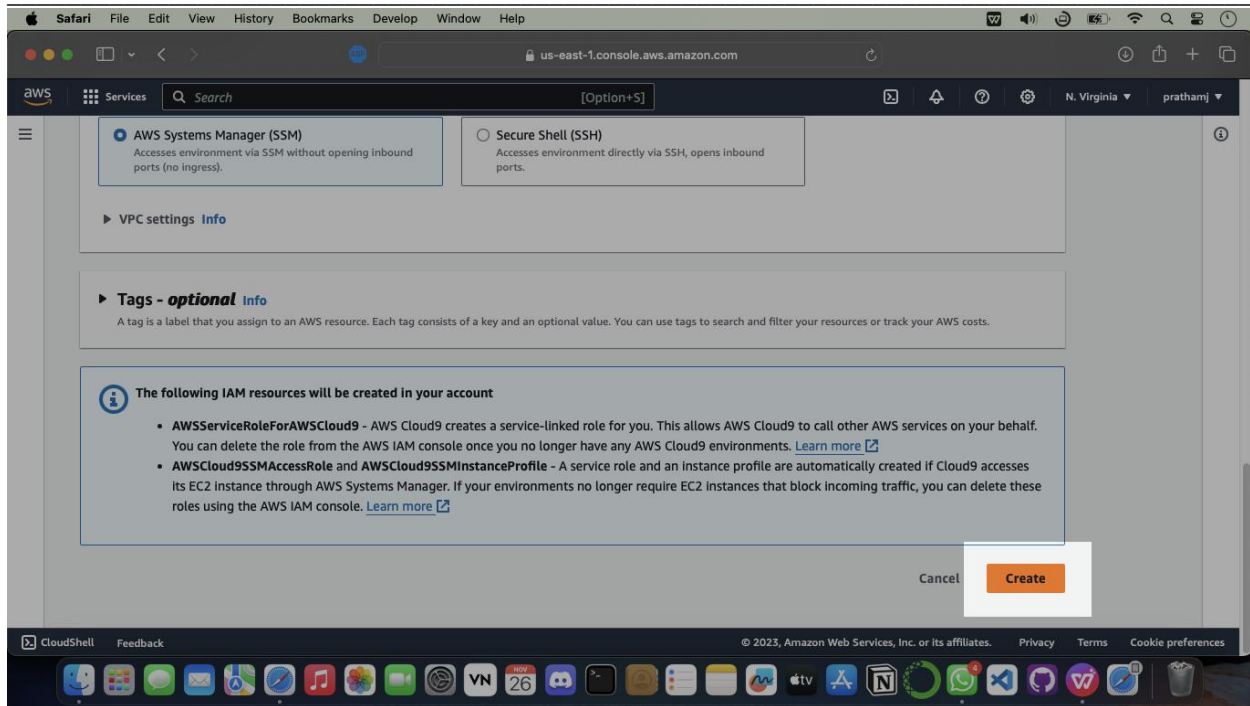


The screenshot shows the AWS Cloud9 'Create environment' page. The browser is Safari, and the URL is `us-east-1.console.aws.amazon.com`. The page title is 'Create environment' with a sub-link 'Info'. The 'Details' section contains a 'Name' field with the value 'pratham Mac' and a 'Description - optional' field. Below these is the 'Environment type' section, which has two radio buttons: 'New EC2 Instance' (selected) and 'Existing compute'. The 'New EC2 Instance' option includes a description: 'Cloud9 creates an EC2 instance in your account. The configuration of your EC2 instance cannot be changed by Cloud9 after creation.' The 'Existing compute' option includes the text: 'You have an existing instance or server that you'd like to use.'

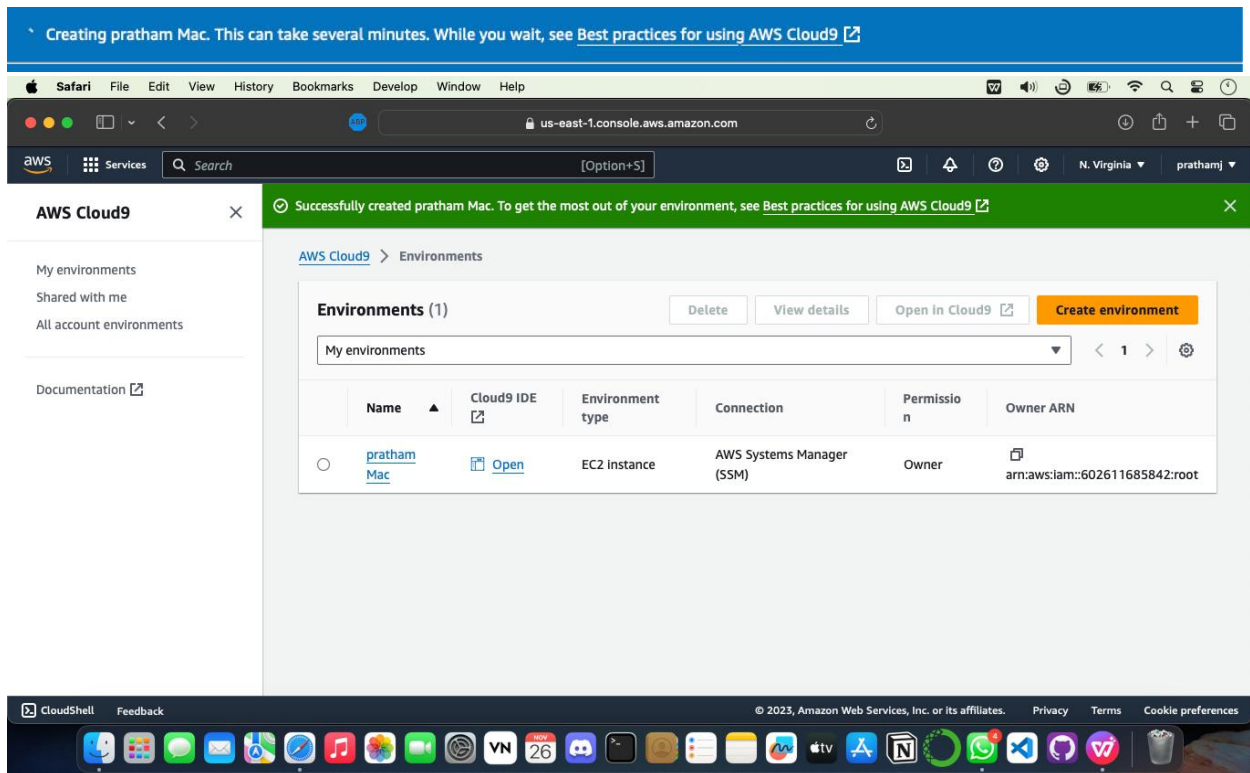


The screenshot shows the 'New EC2 instance' section of the AWS Cloud9 console. It features three radio buttons for instance types: 't2.micro (1 GIB RAM + 1 vCPU)' (selected), 't3.small (2 GIB RAM + 2 vCPU)', and 'm5.large (8 GIB RAM + 2 vCPU)'. Each option has a brief description. Below these is an 'Additional instance types' link. The 'Platform' section is partially visible at the bottom, showing 'Amazon Linux 2' as the recommended operating system.

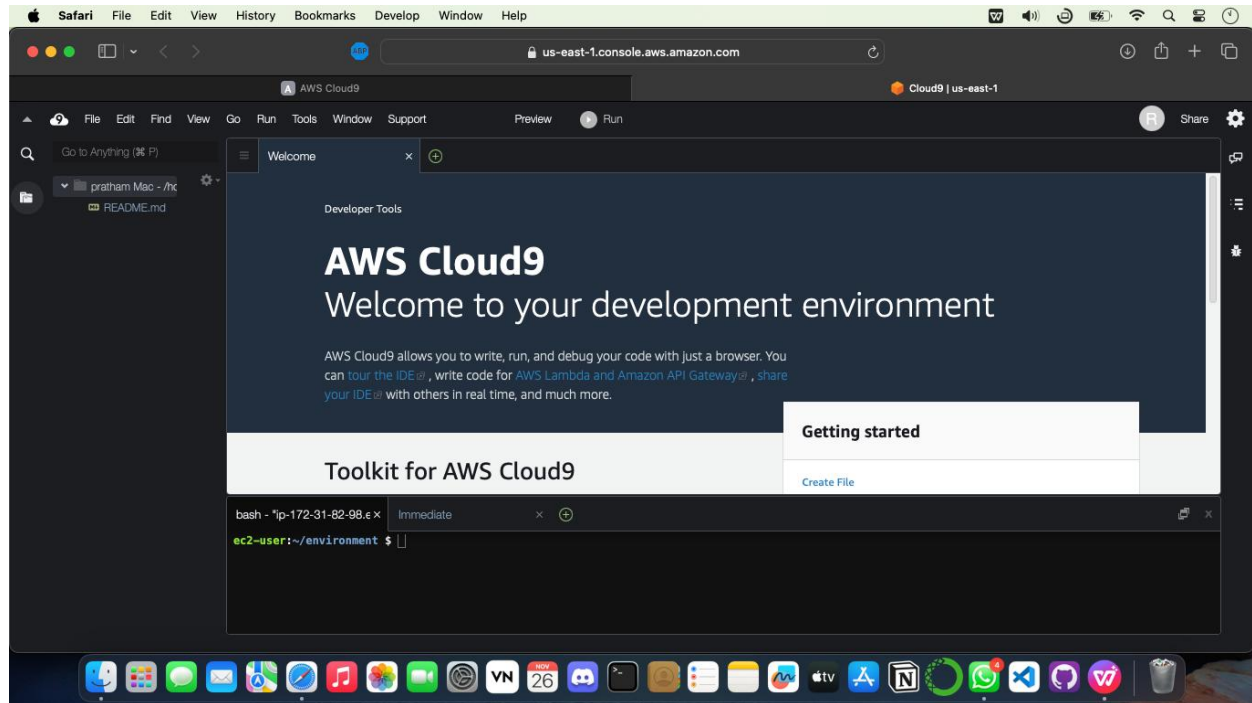




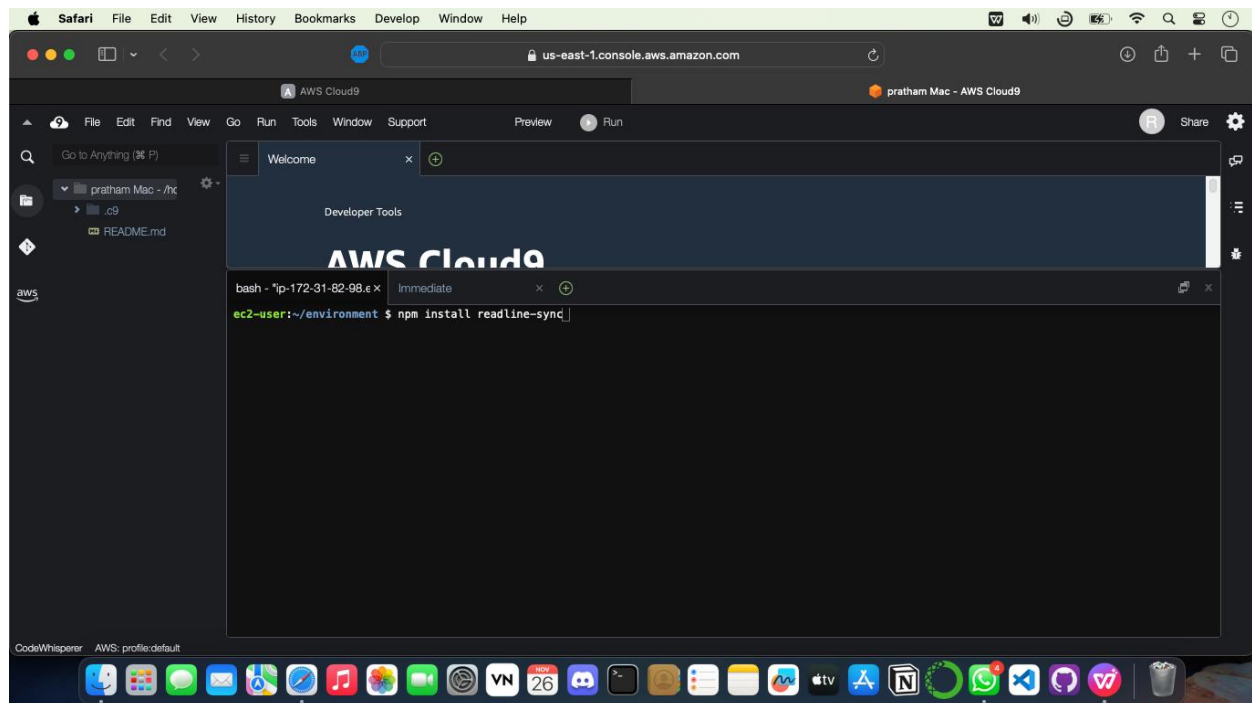
## Step 4. – Successfully Account is created

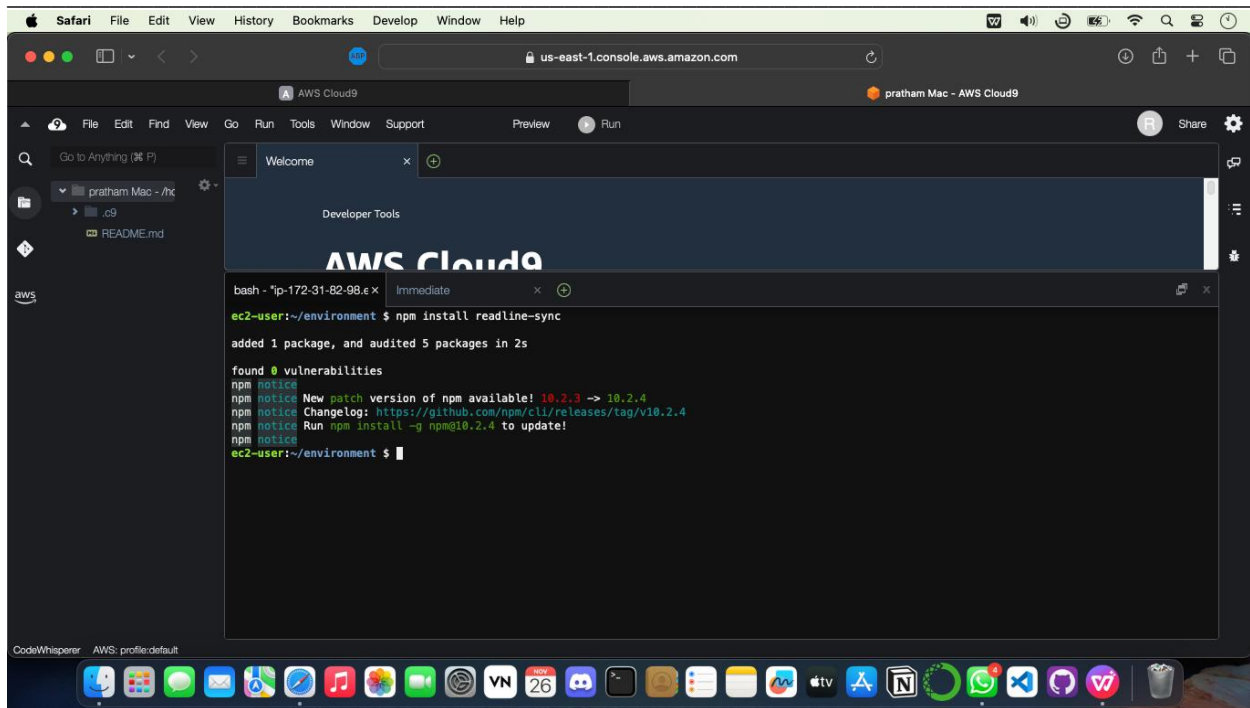


## Step 5 – After creating the cloud9 environment now we can start code in the environment



```npm install readline-sync```

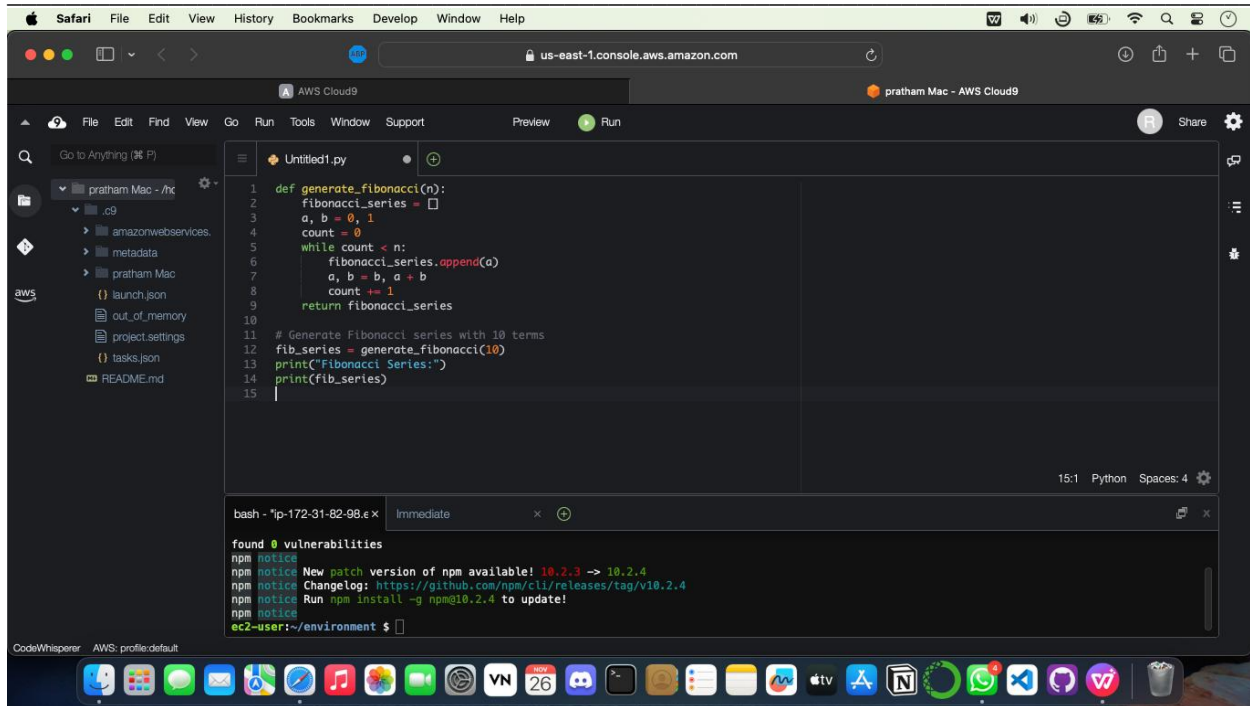




### Step 6. – Write the code in editor

#### python code for fibonacci series

```
def generate_fibonacci(n):  
    fibonacci_series = []  
    a, b = 0, 1  
    count = 0  
    while count < n:  
        fibonacci_series.append(a)  
        a, b = b, a + b  
        count += 1  
    return fibonacci_series  
  
# Generate Fibonacci series with 10 terms  
fib_series = generate_fibonacci(10)  
print("Fibonacci Series:")  
print(fib_series)
```



The screenshot shows the AWS Cloud9 IDE interface. The top bar indicates the user is logged in as 'pratham Mac - AWS Cloud9'. The left sidebar shows the file explorer with a project named 'pratham Mac' containing files like 'amazonwebservices', 'metadata', 'pratham Mac', 'launch.json', 'out\_of\_memory', 'project.settings', 'tasks.json', and 'README.md'. The main editor area displays a Python script named 'Untitled1.py' with the following code:

```
1 def generate_fibonacci(n):
2     fibonacci_series = []
3     a, b = 0, 1
4     count = 0
5     while count < n:
6         fibonacci_series.append(a)
7         a, b = b, a + b
8         count += 1
9     return fibonacci_series
10
11 # Generate Fibonacci series with 10 terms
12 fib_series = generate_fibonacci(10)
13 print("Fibonacci Series:")
14 print(fib_series)
15
```

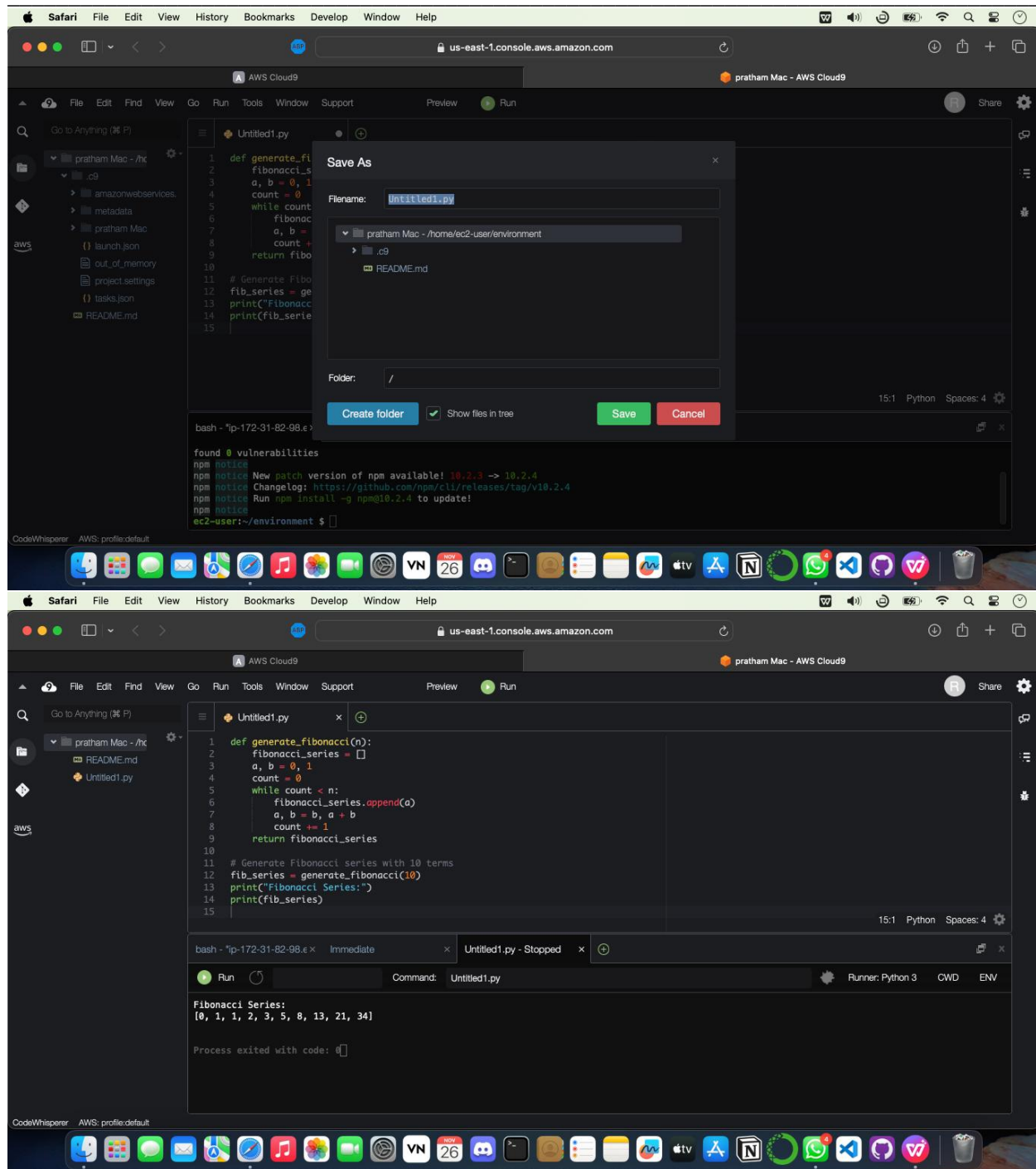
Below the editor, a terminal window is open, showing the output of the script:

```
bash - "ip-172-31-82-98.ek" Immediate
found 0 vulnerabilities
npm notice New patch version of npm available! 10.2.3 -> 10.2.4
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.2.4
npm notice Run npm install -g npm@10.2.4 to update!
npm notice
ec2-user:~/environment $
```

## Step 6. – Save the file and Run the code

1. Click on Run
2. Run Configuration
3. New Configuration





In cloud9 you can write code in any languages like C++, C, python and many more.

**Conclusion-**

Successfully learnt Working in Cloud9 to demonstrate different language.