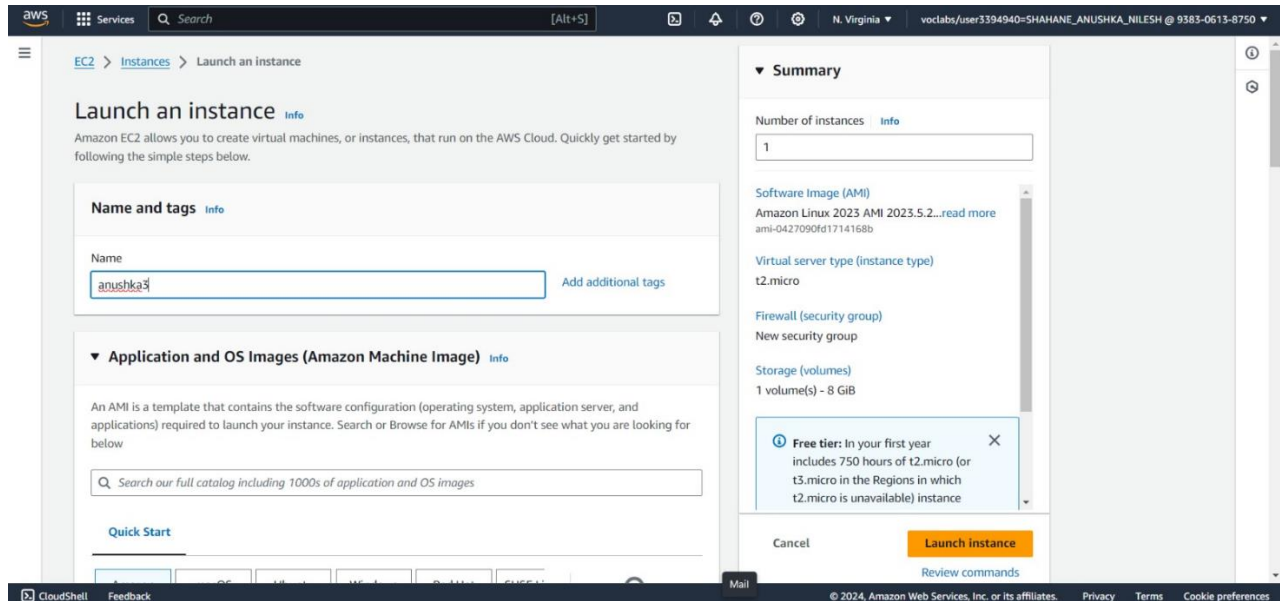


ADVANCE DEVOPS EXPERIMENT 1

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



Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name

Anushka

[Add additional tags](#)

Quick Start

Amazon Linux

aws

macOS

Mac

Ubuntu

ubuntu

Windows

Microsoft

Red Hat

Red Hat

SUSE Li

SUSE

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-04a81a99f5ec58529 (64-bit (x86)) / ami-0c14ff330901e49ff (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

AMI ID

64-bit (x86)

ami-04a81a99f5ec58529

Verified provider

▼ Configure storage [Info](#)

Advanced

1x GiB 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

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

EC2 > Instances > Launch an instance

Success

Successfully initiated launch of instance (i-0df3904aed5f9e9d9)

Launch log

Next Steps

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

< 1 2 3 4 5 6 >

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

Learn more

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 a new RDS database

Learn more

Create EBS snapshot policy

Create a policy that automates the creation, retention, and deletion of EBS snapshots

Create EBS snapshot policy

EC2 > Instances > Launch an instance

Success

Successfully initiated launch of instance (i-0df3904aed5f9e9d9)

Launch log

Initializing requests

Creating security groups

Creating security group rules

Launch initiation

Succeeded

Succeeded

Succeeded

Succeeded

Next Steps

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

< 1 2 3 4 5 6 >

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

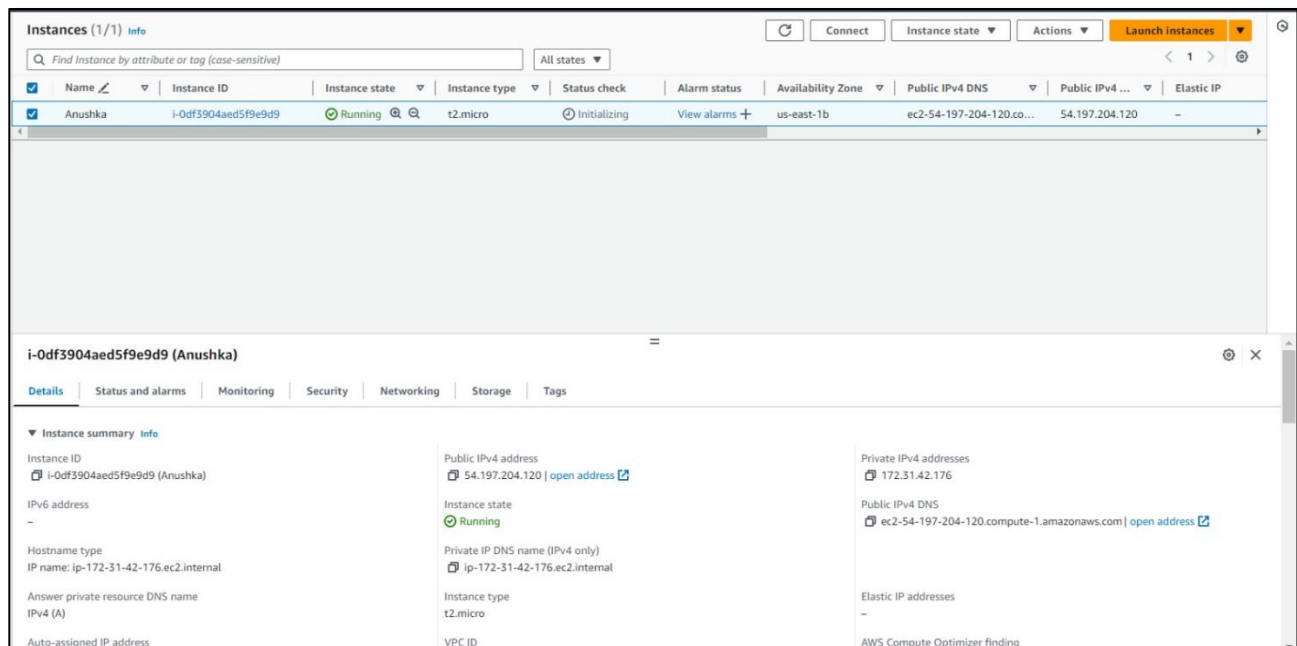
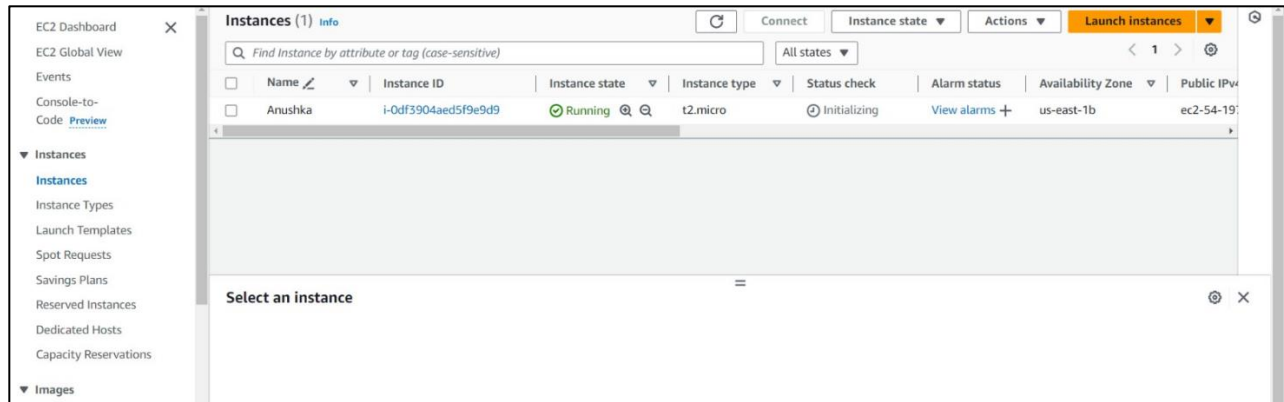
Configure the connection between an EC2 instance and a database to allow traffic flow between them.

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



To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

```
ubuntu@ip-172-31-42-176:~$ ls
ubuntu@ip-172-31-42-176:~$ echo "hello"
hello
ubuntu@ip-172-31-42-176:~$ cat > myfile.txt
This is Advance devops lab
^C
ubuntu@ip-172-31-42-176:~$ cat myfile
cat: myfile: No such file or directory
ubuntu@ip-172-31-42-176:~$ cat myfile.txt
This is Advance devops lab
ubuntu@ip-172-31-42-176:~$
```

Hosting a static website using EC2 instance:

```
*** System restart required ***
Pending kernel upgrade!
Running kernel version:
  6.8.0-1009-aws
Diagnostics:
  The currently running kernel version is not the expected kernel version 6.8.0-1012-aws.
Last login: Tue Jul 30 08:37:47 2024 from 18.206.107.28
ubuntu@ip-172-31-41-78:~$ sudo su
root@ip-172-31-41-78:/home/ubuntu# apt install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
apache2 is already the newest version (2.4.58-1ubuntu8.4).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
root@ip-172-31-41-78:/home/ubuntu# systemctl
```

i-0104434d25a50dc8d (anushka1)

PublicIPs: 18.215.241.79 PrivateIPs: 172.31.41.78

```
└─12917 /usr/sbin/apache2 -k start
└─12919 /usr/sbin/apache2 -k start
└─12921 /usr/sbin/apache2 -k start

Jul 30 08:44:17 ip-172-31-41-78 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Jul 30 08:44:17 ip-172-31-41-78 systemd[1]: Started apache2.service - The Apache HTTP Server.
root@ip-172-31-41-78:/home/ubuntu# cd /var/www/html/
bash: cd /var/www/html/: No such file or directory
root@ip-172-31-41-78:/home/ubuntu# cd /var/www/html/
root@ip-172-31-41-78:/var/www/html# /var/www/html#
bash: /var/www/html#: No such file or directory
root@ip-172-31-41-78:/var/www/html#
```

i-0104434d25a50dc8d (anushka1)

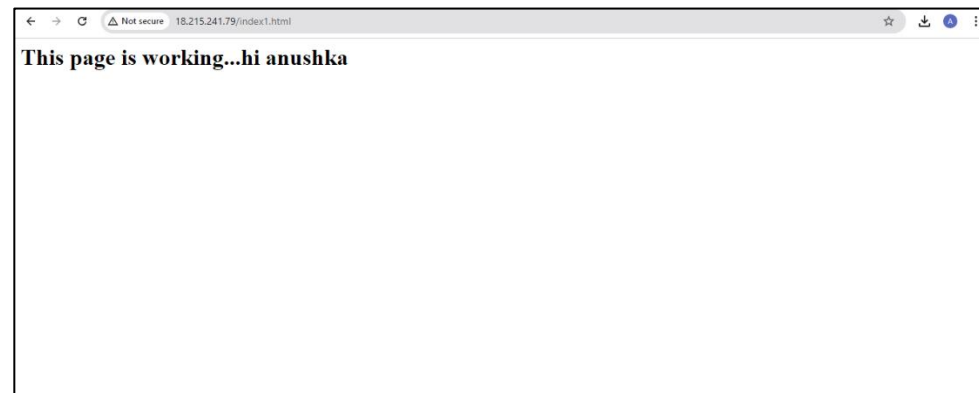
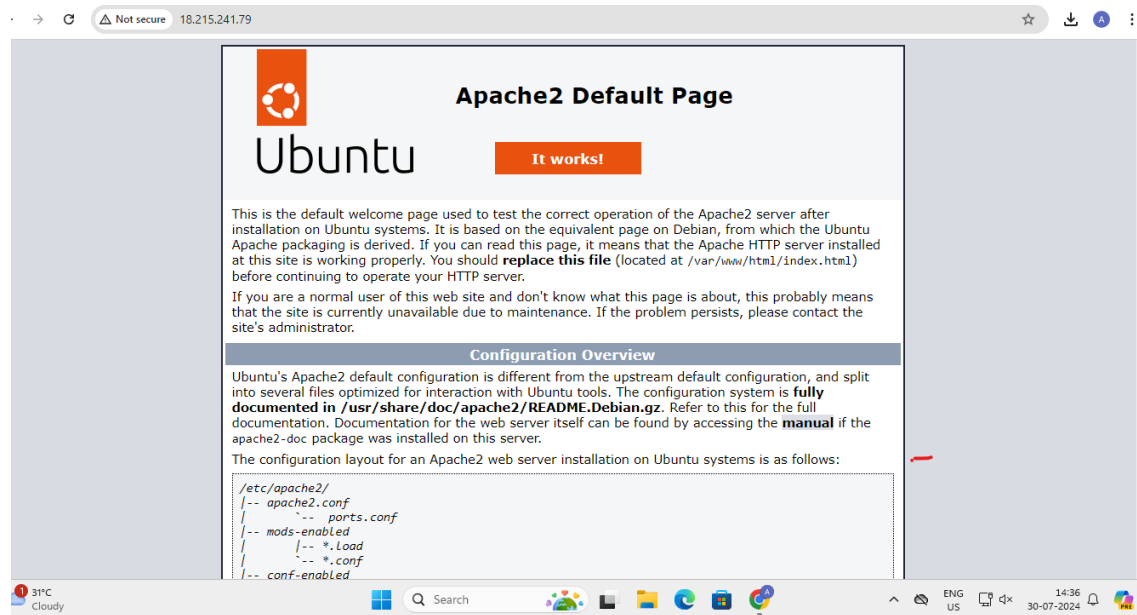
PublicIPs: 18.215.241.79 PrivateIPs: 172.31.41.78

```
command 'systemctl' from deb systemctl (1.4.4181-1.1)
Try: apt install <deb name>
root@ip-172-31-41-78:/home/ubuntu# systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Tue 2024-07-30 08:44:17 UTC; 12min ago
     Docs: https://httpd.apache.org/docs/2.4/
    Main PID: 12917 (apache2)
      Tasks: 55 (limit: 1130)
     Memory: 5.3M (peak: 5.4M)
        CPU: 74ms
    CGroup: /system.slice/apache2.service
            └─12917 /usr/sbin/apache2 -k start
              └─12919 /usr/sbin/apache2 -k start
                └─12921 /usr/sbin/apache2 -k start

Jul 30 08:44:17 ip-172-31-41-78 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Jul 30 08:44:17 ip-172-31-41-78 systemd[1]: Started apache2.service - The Apache HTTP Server.
root@ip-172-31-41-78:/home/ubuntu#
```

i-0104434d25a50dc8d (anushka1)

PublicIPs: 18.215.241.79 PrivateIPs: 172.31.41.78



Hosting using S3 bucket :

[Amazon S3](#) > [Buckets](#) > Create bucket

Create bucket [Info](#)

Buckets are containers for data stored in S3.

General configuration

AWS Region

US East (N. Virginia) us-east-1

Bucket type [Info](#)

☒ **General purpose**
Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.

☐ **Directory - New**
Recommended for low-latency use cases. These buckets use only the S3 Express One Zone storage class, which provides faster processing of data within a single Availability Zone.

Bucket name [Info](#)

test-123-anushka

Bucket name must be unique within the global namespace and follow the bucket naming rules. [See rules for bucket naming](#)

Copy settings from existing bucket - *optional*
Only the bucket settings in the following configuration are copied.

Choose bucket

Format: s3://bucket/prefix

Default encryption [Info](#)

Server-side encryption is automatically applied to new objects stored in this bucket.

Encryption type [Info](#)

☒ **Server-side encryption with Amazon S3 managed keys (SSE-S3)**
☐ Server-side encryption with AWS Key Management Service keys (SSE-KMS)
☐ Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)
Secure your objects with two separate layers of encryption. For details on pricing, see [DSSE-KMS pricing](#) on the **Storage** tab of the [Amazon S3 pricing page](#).

Bucket Key
Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS. [Learn more](#)

☐ Disable
☒ Enable

► **Advanced settings**

After creating the bucket, you can upload files and folders to the bucket, and configure additional bucket settings.

Cancel

Create bucket

Successfully created bucket "test-123-anushka"
To upload files and folders, or to configure additional bucket settings, choose [View details](#).

Amazon S3 > Buckets

Account snapshot - updated every 24 hours
Storage lens provides visibility into storage usage and activity trends. [Learn more](#)

View Storage Lens dashboard

General purpose buckets

Directory buckets

General purpose buckets (1) Info

Buckets are containers for data stored in S3.

Find buckets by name

< 1 >

Name	AWS Region	IAM Access Analyzer	Creation date
test-123-anushka	US East (N. Virginia) us-east-1	View analyzer for us-east-1	August 11, 2024, 19:49:09 (UTC+05:30)

Upload succeeded
View details below.

The information below will no longer be available after you navigate away from this page.

Summary

Destination
s3://test-123-anushka

Succeeded
1 file, 0 B (0%)

Failed
0 files, 0 B (0%)

Files and folders

Configuration

Files and folders (1 Total, 0 B)

Find by name

< 1 >

Name	Folder	Type	Size	Status	Error
Test.txt	-	text/plain	0 B	Succeeded	-

Amazon S3

Amazon S3 > Buckets > test-123-anushka > Test.txt

Test.txt Info

Copy S3 URI

Download

Open

Object actions

Properties

Permissions

Versions

Object overview

Owner
aws:labs0w4201793t1653663267

AWS Region
US East (N. Virginia) us-east-1

Last modified
August 11, 2024, 19:58:50 (UTC+05:30)

Size
-

Type
txt

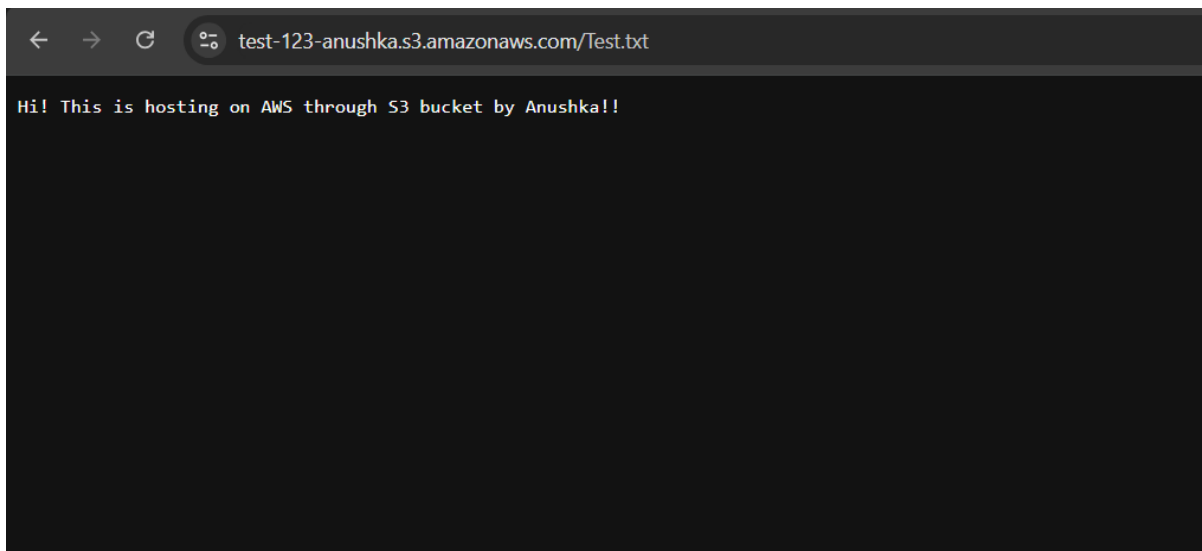
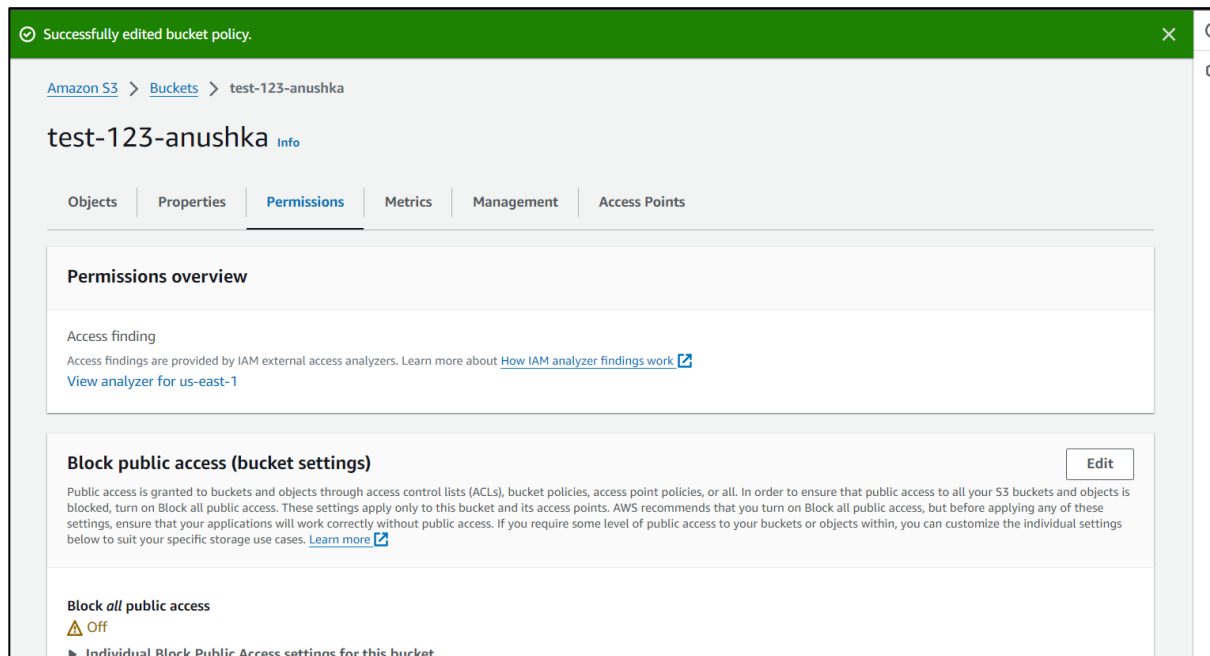
Key

S3 URI
s3://test-123-anushka/Test.txt

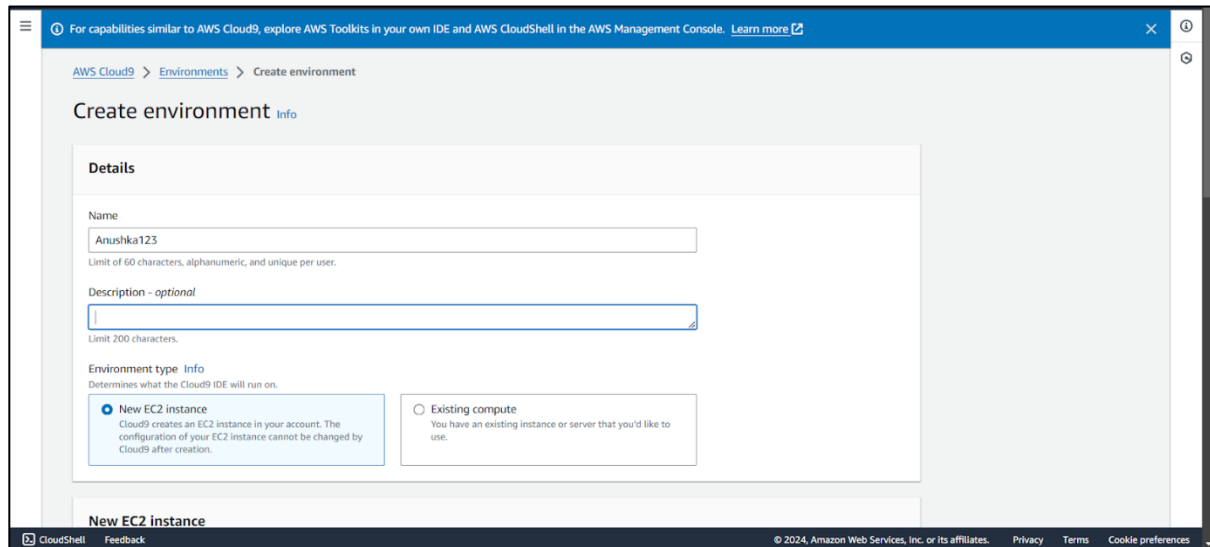
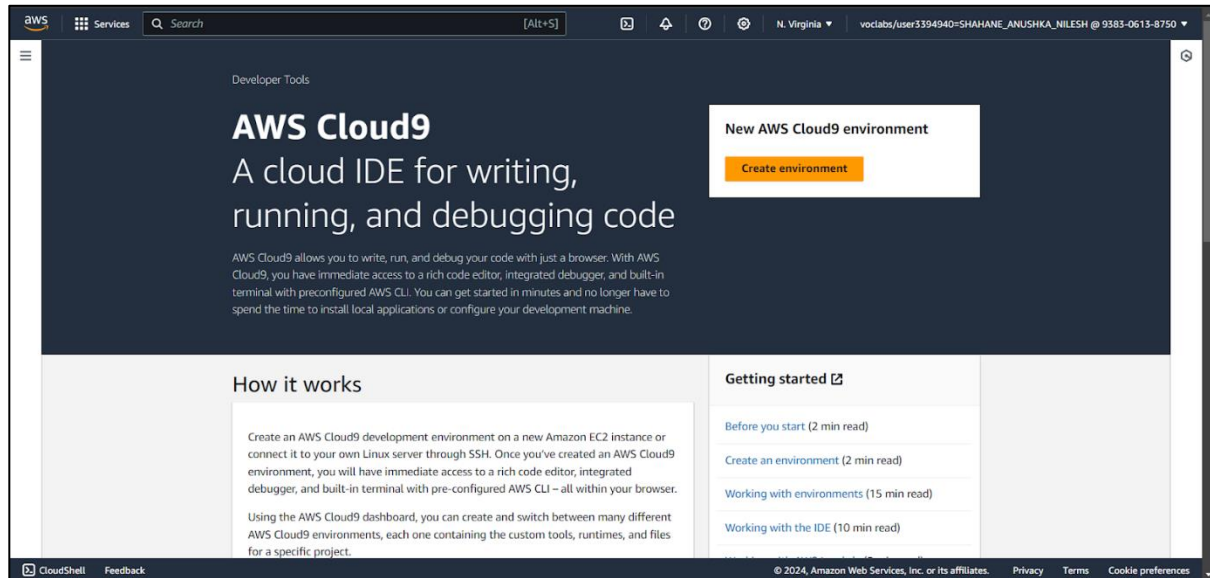
Amazon Resource Name (ARN)
arn:aws:s3:::test-123-anushka/Test.txt

Entity tag (Etag)
d41d8cd98f00b204e9800998ecf8427e

Object URL
https://test-123-anushka.s3.amazonaws.com/Test.txt



Hosting using Cloud 9 :



New EC2 instance

Instance type [Info](#)

The memory and CPU of the EC2 instance that will be created for Cloud9 to run on.

☒ **t2.micro** (1 GiB RAM + 1 vCPU)
Free-tier eligible. Ideal for educational users and exploration.

☐ **t3.small** (2 GiB RAM + 2 vCPU)
Recommended for small web projects.

☐ **m5.large** (8 GiB RAM + 2 vCPU)
Recommended for production and most general-purpose development.

☐ **Additional instance types**
Explore additional instances to fit your need.

Platform [Info](#)

This will be installed on your EC2 instance. We recommend Amazon Linux 2023.

Amazon Linux 2023 ▼

Timeout

How long Cloud9 can be inactive (no user input) before auto-hibernating. This helps prevent unnecessary charges.

30 minutes ▼

Network settings [Info](#)

Connection

How your environment is accessed.


☒ **AWS Systems Manager (SSM)**
Accesses environment via SSM without opening inbound ports (no ingress).

☐ **Secure Shell (SSH)**
Accesses environment directly via SSH, opens inbound ports.

[▶ VPC settings](#) [Info](#)

[▶ Tags - optional](#) [Info](#)

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

 **The following IAM resources will be created in your account**

- AWSServiceRoleForAWSCloud9** - AWS Cloud9 creates a service-linked role for you. This allows AWS Cloud9 to call other AWS services on your behalf. You can delete the role from the AWS IAM console once you no longer have any AWS Cloud9 environments. [Learn more](#)
- AWSCloud9SSMAccessRole** and **AWSCloud9SSMInstanceProfile** - A service role and an instance profile are automatically created if Cloud9 accesses its EC2 instance through AWS Systems Manager. If your environments no longer require EC2 instances that block incoming traffic, you can delete these roles using the AWS IAM console. [Learn more](#)

Cancel

Create

Console password

☐ Autogenerated password

You can view the password after you create the user.

☒ Custom password

Enter a custom password for the user.

☐ Show password

☐ Users must create a new password at next sign-in - Recommended

Users automatically get the [IAMUserChangePassword](#) policy to allow them to change their own password.

If you are creating programmatic access through access keys or service-specific credentials for AWS CodeCommit or Amazon Keyspaces, you can generate them after you create this IAM user. [Learn more](#)

Cancel

Next

Set permissions

Add user to an existing group or create a new one. Using groups is a best-practice way to manage user's permissions by job functions. [Learn more](#)

Permissions options

☒ Add user to group

Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.

☐ Copy permissions

Copy all group memberships, attached managed policies, and inline policies from an existing user.

☐ Attach policies directly

Attach a managed policy directly to a user. As a best practice, we recommend attaching policies to a group instead. Then, add the user to the appropriate group.

Get started with groups

Create a group and select policies to attach to the group. We recommend using groups to manage user permissions by job function, AWS service access, or custom permissions. [Learn more](#)

Create group

▼ Set permissions boundary - optional

Set a permissions boundary to control the maximum permissions for this user. Use this advanced feature used to delegate permission management to others. [Learn more](#)

☐ Use a permissions boundary to control the maximum permissions

You can select one of the existing permissions policies to define the boundary.

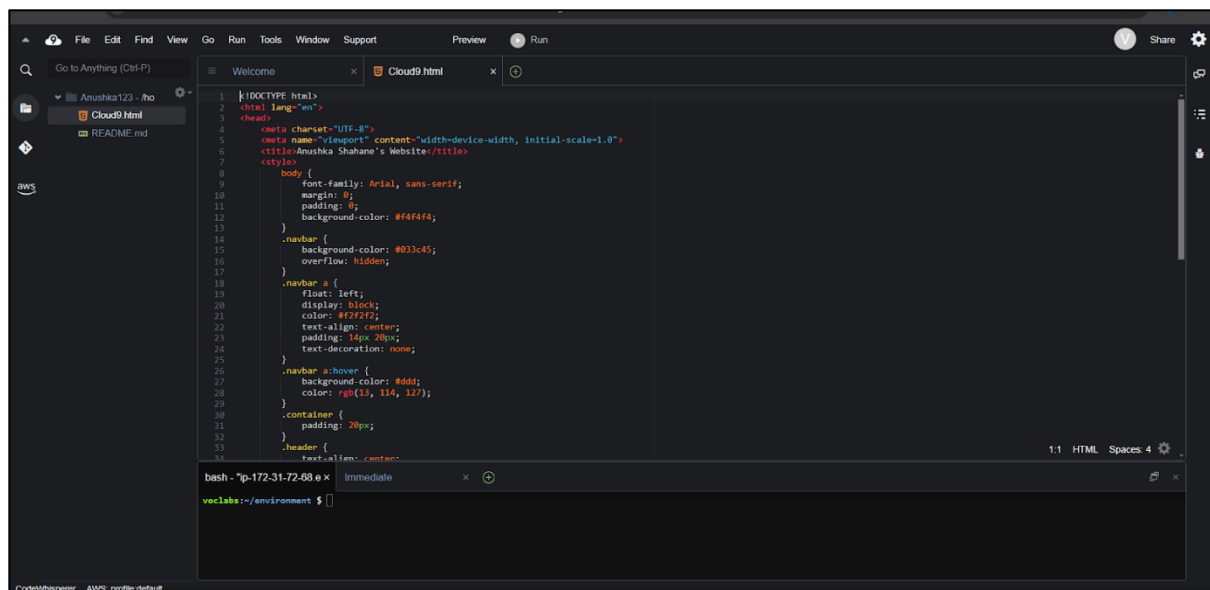
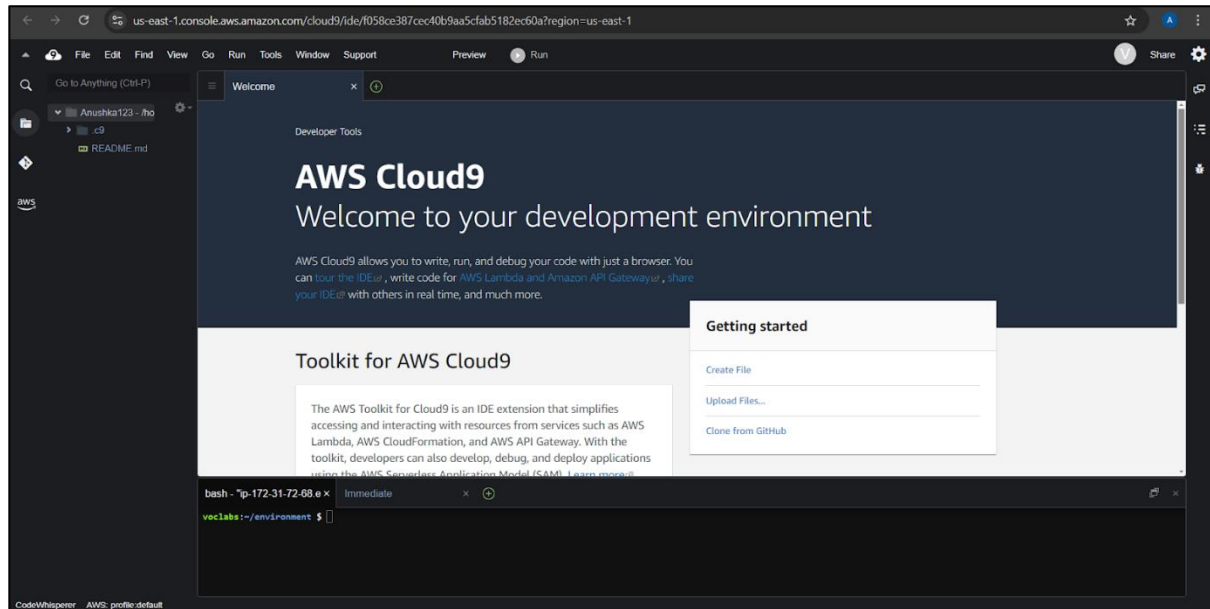
Cancel

Previous

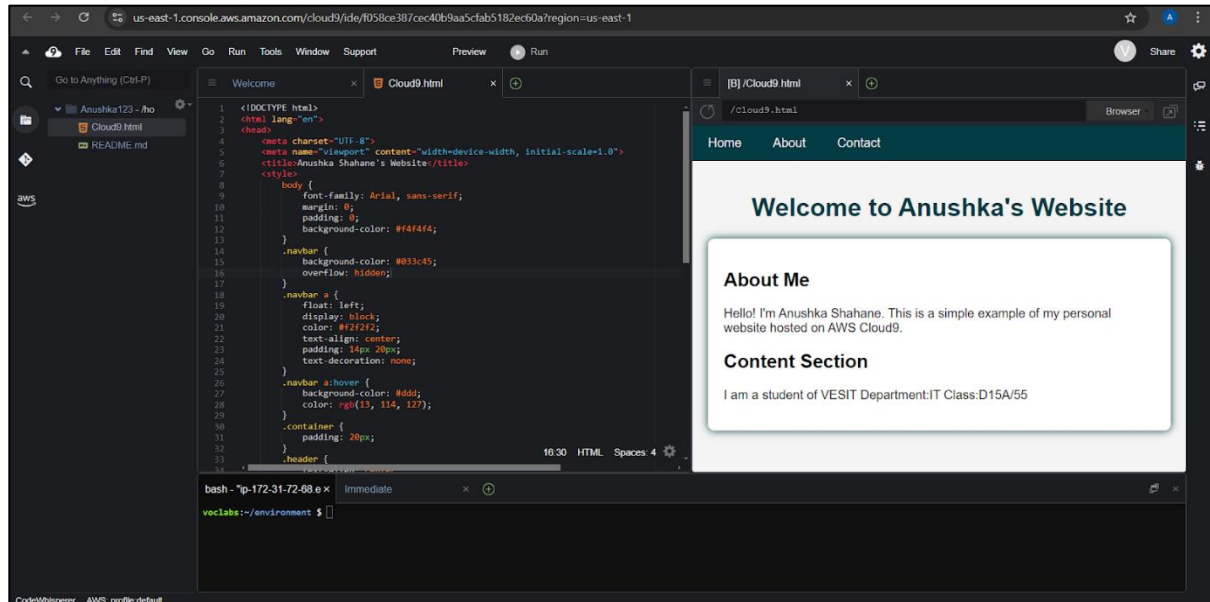
Next

The screenshot shows the AWS Cloud9 console interface. At the top, there's a navigation bar with the AWS logo, Services menu, a search bar, and user information (N. Virginia, voclabs/user3394940=SHAHANE_ANUSHKA_NILESH). Below this, a blue banner provides instructions for creating Anushka123. The main content area is titled "Environments (1)" and contains a table listing the environment.

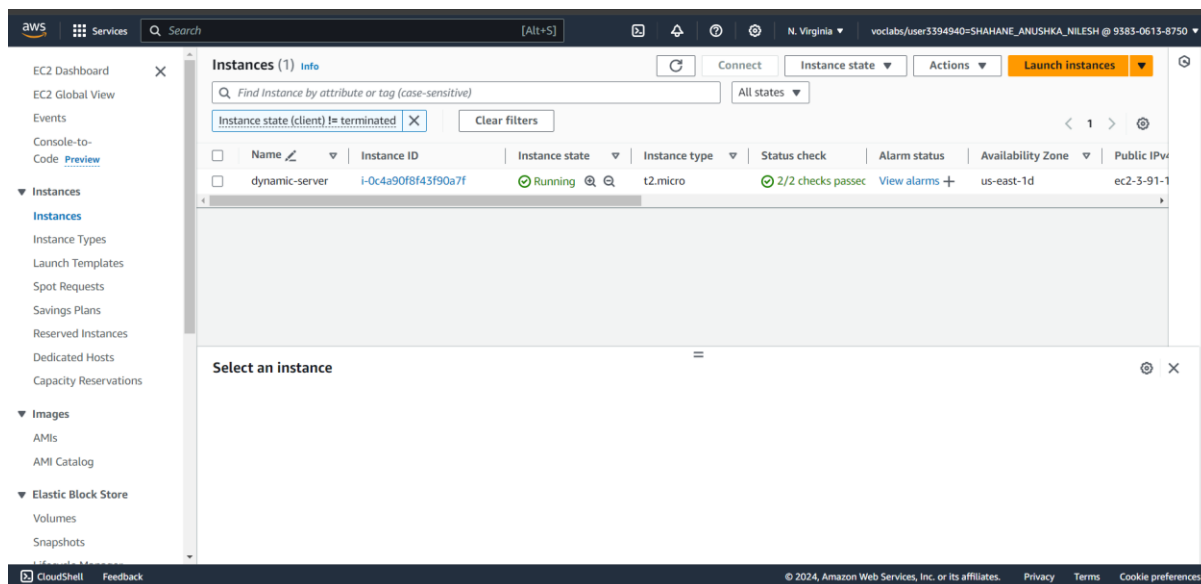
Name	Cloud9 IDE	Environment type	Connection	Permissions	Owner ARN
Anushka123	Open	EC2 instance	Secure Shell (SSH)	Owner	arnaws:sts::938306138750:assumed-role/voclabs/user3394940=SHAHANE_ANUSHKA_NILESH

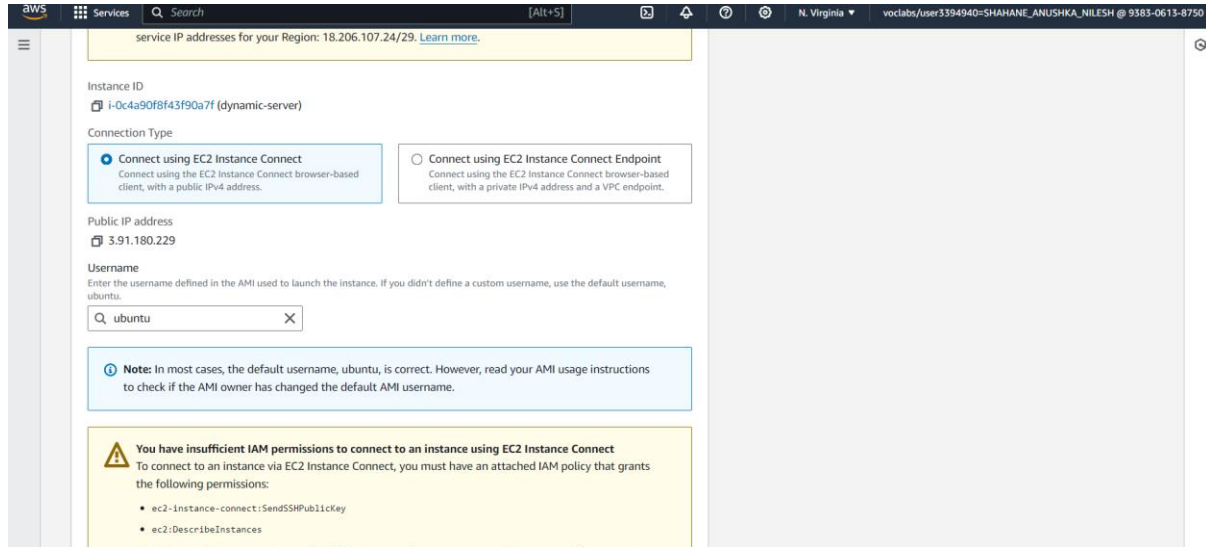


Anushka Shahane D15A 55



Dynamic Hosting using EC2 instance :





```
ubuntu@ip-172-31-83-228:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-83-228:~$ mkdir Anushka
ubuntu@ip-172-31-83-228:~$ cd Anushka
ubuntu@ip-172-31-83-228:~/Anushka$ git clone https://github.com/Anushka3204/Dynamic_hosting_EC2.git
Cloning into 'Dynamic_hosting_EC2'...
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (5/5), done.
remote: Total 5 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (5/5), 8.39 KiB | 1.68 MiB/s, done.
ubuntu@ip-172-31-83-228:~/Anushka$ ls
Dynamic_hosting_EC2
ubuntu@ip-172-31-83-228:~/Anushka$ cd ^C
ubuntu@ip-172-31-83-228:~/Anushka$ cd Dynamic_hosting_EC2
ubuntu@ip-172-31-83-228:~/Anushka/Dynamic_hosting_EC2$ ls
index.js package-lock.json package.json
```

```
no VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-83-228:~/Anushka/Dynamic_hosting_EC2/Dynamic_hosting_EC2$ npm i
added 64 packages, and audited 65 packages in 3s

12 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
ubuntu@ip-172-31-83-228:~/Anushka/Dynamic_hosting_EC2/Dynamic_hosting_EC2$
```

```
Dynamic_hosting_EC2 Dynamic_hosting_ec2 Hosting_dynamic_ec2 package-lock.json
ubuntu@ip-172-31-83-228:~/Anushka$ cd Hosting_dynamic_ec2
ubuntu@ip-172-31-83-228:~/Anushka/Hosting_dynamic_ec2$ ls
index.js package-lock.json package.json
ubuntu@ip-172-31-83-228:~/Anushka/Hosting_dynamic_ec2$ npm i
added 64 packages, and audited 65 packages in 1s

12 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
ubuntu@ip-172-31-83-228:~/Anushka/Hosting_dynamic_ec2$ npm start
> server@1.0.0 start
> node index.js

Server is running on port 3000
```