



BHARATIYA VIDYA BHAVAN'S
SARDAR PATEL INSTITUTE OF TECHNOLOGY
MUNSHI NAGAR, ANDHERI (WEST), MUMBAI - 400 058.
(Autonomous College Affiliated to University of Mumbai)
MASTER OF COMPUTER APPLICATIONS

Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

Roll No: 2023510059

Batch: C

Name: Vivek Tiwari

Experiment No: 11

Experiment Title: CI/CD Tools,

Objectives:

1. To create EC2 instance on AWS.
2. To deploy Jenkins service on the instance.
3. To create a pipeline in Jenkins.



Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

Steps:

1. Search for EC2 on AWS and launch an instance.

[EC2](#) > [Instances](#) > Launch an instance

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

 [Add additional tags](#)

2. Select OS of your choice:

▼ Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, 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.

Quick Start

Amazon Linux
aws

macOS
Mac

Ubuntu
ubuntu

Windows
Microsoft

Red Hat
Red Hat

SUSE Linux
SUSE

[Browse more](#)
Including AMIs from
AWS, Marketplace, and
Community

Amazon Machine Image (AMI)

Ubuntu Server 20.04 LTS (HVM), SSD Volume Type	Free tier eligible
ami-06aa3f7caf3a30282 (64-bit (x86)) / ami-0a75bd84854bc95c9 (64-bit (Arm))	
Virtualization: hvm ENA enabled: true Root device type: ebs	

Description
Canonical, Ubuntu, 20.04 LTS, amd64 focal image build on 2023-10-25

Architecture	AMI ID	Verified provider
64-bit (x86)	ami-06aa3f7caf3a30282	



Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

3. Confirm Instance type:

▼ Instance type Info

Instance type

t2.microFree tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.0716 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

☐ All generations

[Compare instance types](#)

Additional costs apply for AMIs with pre-installed software

4. Create a key pair and save the downloaded file to a organised folder:

Create key pair

Key pair name

Key pairs allow you to connect to your instance securely.

lab11Vivek59

The name can include upto 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type

☒ RSA
RSA encrypted private and public key pair

☐ ED25519
ED25519 encrypted private and public key pair

Private key file format

☒ .pem
For use with OpenSSH

☐ .ppk
For use with PuTTY

⚠ When prompted, store the private key in a secure and accessible location on your computer. You will need it later to connect to your instance. [Learn more](#)

Cancel

Create key pair



Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

▼ 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*

lab11Vivek59

[Create new key pair](#)

5. Enable all network settings:

▼ Network settings [Info](#)

[Edit](#)

Network [Info](#)

vpc-0d1602ead38f9dce0

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-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

⚠ 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. [×](#)



Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

6. Confirm your choices, so as not to get billed unnecessarily:

▼ Summary

Number of instances [Info](#)

1

⬆ ⬇ ⬆

Software Image (AMI)

Canonical, Ubuntu, 20.04 LTS, ...[read more](#)
ami-06aa3f7caf3a30282

[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 AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of

×

Cancel

Launch instance

[Review commands](#)



Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

API Calls to the instance:

```
{
  "MaxCount": 1,
  "MinCount": 1,
  "ImageId": "ami-06aa3f7caf3a30282",
  "InstanceType": "t2.micro",
  "KeyName": "lab11Vivek59",
  "EbsOptimized": false,
  "NetworkInterfaces": [
    {
      "AssociatePublicIpAddress": true,
      "DeviceIndex": 0,
      "Groups": [
        "<groupId of the new security group created below>"
      ]
    }
  ],
  "TagSpecifications": [
    {
      "ResourceType": "instance",
      "Tags": [
        {
          "Key": "Name",
          "Value": "lab11_2023510059"
        }
      ]
    }
  ],
  "MetadataOptions": {
    "HttpTokens": "required",
    "HttpEndpoint": "enabled",
    "HttpPutResponseHopLimit": 2
  },
  "PrivateDnsNameOptions": {
    "HostnameType": "ip-name",
    "EnableResourceNameDnsARecord": true,
    "EnableResourceNameDnsAAAARecord": false
  }
}
```

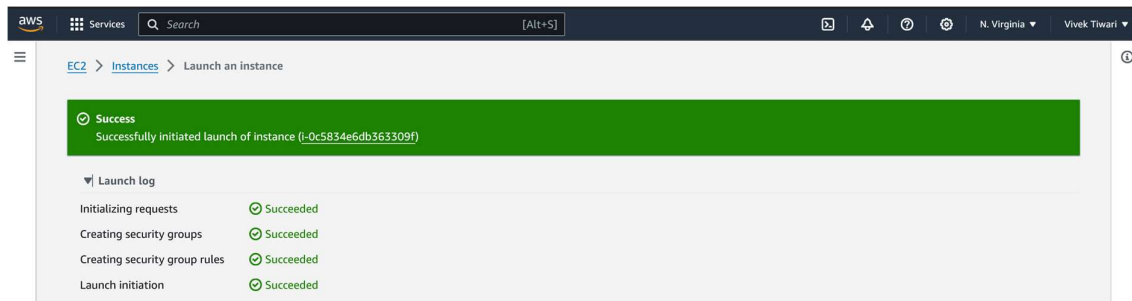


Academic Year – 2023-24

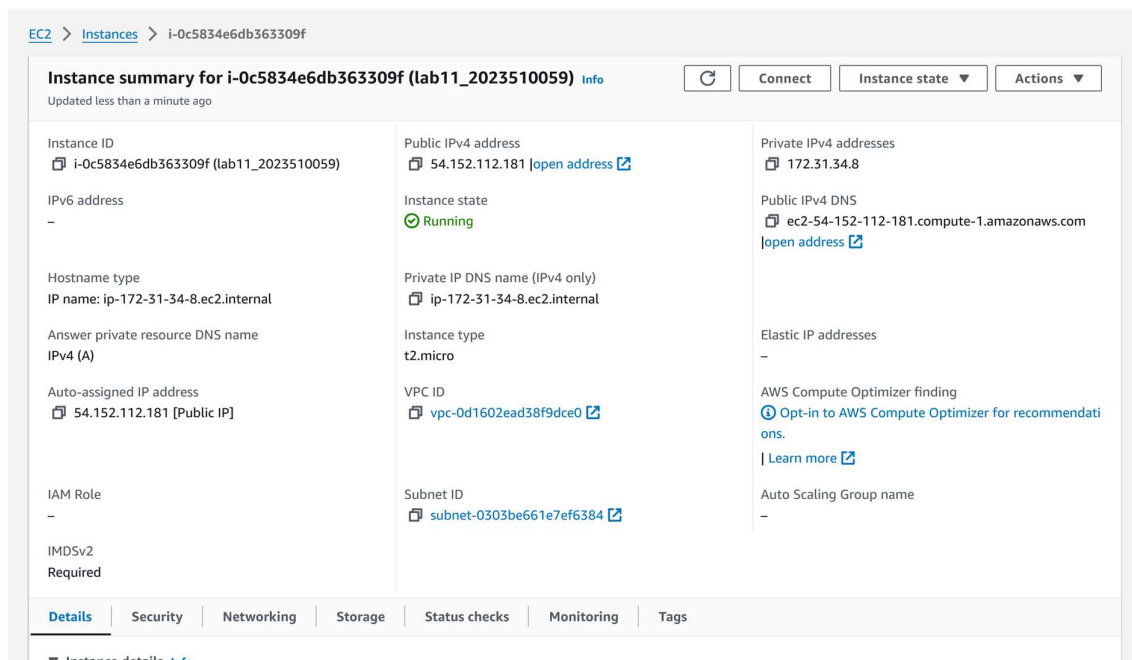
Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

7. You've successfully created an EC2 instance:



8. Check all the details:





BHARATIYA VIDYA BHAVAN'S
SARDAR PATEL INSTITUTE OF TECHNOLOGY
MUNSHI NAGAR, ANDHERI (WEST), MUMBAI – 400 058.
(Autonomous College Affiliated to University of Mumbai)
MASTER OF COMPUTER APPLICATIONS

Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

Details

Security

Networking

Storage

Status checks

Monitoring

Tags

▼ Instance details Info

Platform

Ubuntu (Inferred)

Platform details

Linux/UNIX

Stop protection

Disabled

Instance auto-recovery

Default

AMI Launch index

0

Credit specification

standard

Usage operation

RunInstances

Enclaves Support

-

Allow tags in instance metadata

Disabled

AMI ID

ami-06aa3f7caf3a30282

AMI name

ubuntu/images/hvm-ssd/ubuntu-focal-20.04-amd64-server-20231025

Launch time

Wed Nov 22 2023 01:59:44 GMT+0530 (India Standard Time) (2 minutes)

Lifecycle

normal

Key pair assigned at launch

lab11Vivek59

Kernel ID

-

RAM disk ID

-

Boot mode

-

Use RBN as guest OS hostname

Disabled

Monitoring

disabled

Termination protection

Disabled

AMI location

amazon/ubuntu/images/hvm-ssd/ubuntu-focal-20.04-amd64-server-20231025

Stop-hibernate behavior

Disabled

State transition reason

-

State transition message

-

Owner

677493993751

Current instance boot mode

legacy-bios

Answer RBN DNS hostname IPv4

Enabled

9. Now create a custom TCP protocol using any port number you like, 8080 has been used here:

Inbound rules [Info](#)

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
sgr-06cf4fb01383ac845	HTTPS	TCP	443	Cust... <input type="text" value="0.0.0.0"/>		Delete
sgr-04fba47e51f440a3b	SSH	TCP	22	Cust... <input type="text" value="0.0.0.0"/>		Delete
sgr-0cd133beb588c84dd	HTTP	TCP	80	Cust... <input type="text" value="0.0.0.0"/>		Delete
-	Custom TCP	TCP	8080	Any... <input type="text" value="0.0.0.0"/>		Delete
<div>Add rule</div> <div>Custom Anywhere-IPv4 ✓ Anywhere-IPv6 My IP</div>						

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



Academic Year – 2023-24

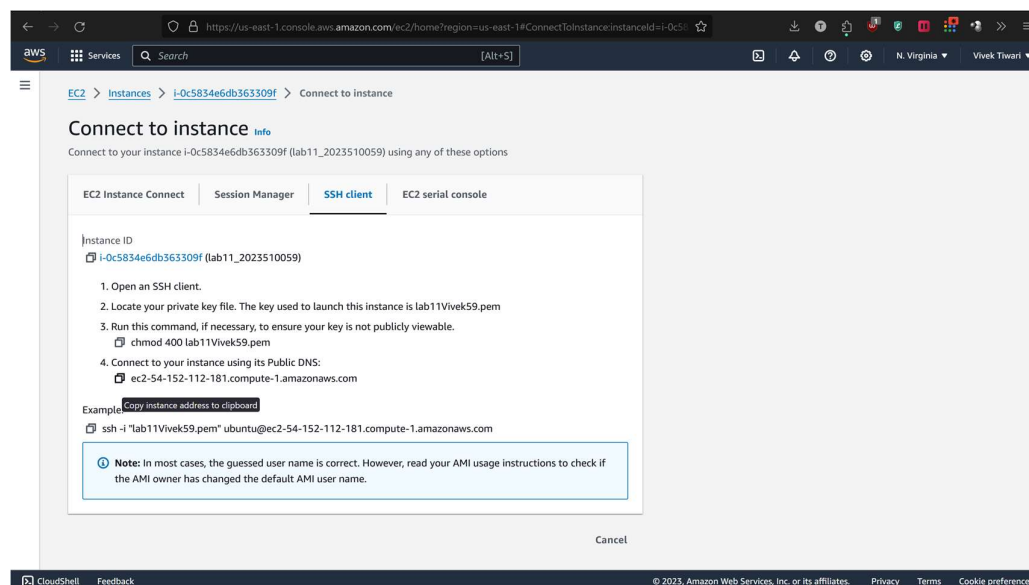
Class: F.Y.MCA Semester: I Subject: Software Engineering Course Code: MC503

Subject In charge: Nikhita Mangaonkar

10. Now connect to the EC2 instance using CLI via SSH protocol:

To do so:

- Head over to your EC2 instance and click on connect.
- Click on the SSH tab and copy the command present there.



- Open the directory where you've stored the .pem file.
- Open a CLI in that directory
- Now run the copied SSH command in the CLI window.

```
C:\Users\Vivek\Desktop\WCA\Sem 1\Sem 1\SE\lab11>ssh -i "lab11Vivek59.pem" ubuntu@ec2-54-152-112-181.compute-1.amazonaws.com
The authenticity of host 'ec2-54-152-112-181.compute-1.amazonaws.com (54.152.112.181)' can't be established.
ED25519 key fingerprint is SHA256:z3UALVH2AMjQD/kZCQYV2SMKJQnWQeFTzhwOpEbdCJ4.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-54-152-112-181.compute-1.amazonaws.com' (ED25519) to the list of known hosts.
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1048-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:   https://landscape.canonical.com
 * Support:      https://ubuntu.com/advantage

System information as of Tue Nov 21 20:39:22 UTC 2023

System load:  0.0               Processes:    97
Usage of /:   21.0% of 7.57GB   Users logged in: 0
Memory usage: 21%              IPv4 address for eth0: 172.31.34.8
Swap usage:  0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*-copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
```



Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

- Run the command 'sudo apt-get update' to update your Linux machine.

```
System load: 0.0          Processes:           97
Usage of /:  21.0% of 7.57GB Users logged in:     0
Memory usage: 21%        IPv4 address for eth0: 172.31.34.8
Swap usage:  0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

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

ubuntu@ip-172-31-34-8:~$ sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal InRelease
```

11. Now adding Jenkins repository for ubuntu:

Command 1:

```
sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
```

```
ubuntu@ip-172-31-34-8:~$ sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
> https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
--2023-11-21 20:56:55-- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
Resolving pkg.jenkins.io (pkg.jenkins.io)... 146.75.38.133, 2a04:4e42:78::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|146.75.38.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3175 (3.1K) [application/pgp-keys]
Saving to: '/usr/share/keyrings/jenkins-keyring.asc'

/usr/share/keyrings/jenkins-k 100%[=====] 3.10K --.-KB/s
2023-11-21 20:56:55 (49.4 MB/s) - '/usr/share/keyrings/jenkins-keyring.asc' saved [3175/3175]
```



Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

Command 2:

```
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \  
https://pkg.jenkins.io/debian-stable binary/ | sudo tee \  
/etc/apt/sources.list.d/jenkins.list > /dev/null
```

```
ubuntu@ip-172-31-34-8:~$ echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \  
> https://pkg.jenkins.io/debian-stable binary/ | sudo tee \  
> /etc/apt/sources.list.d/jenkins.list > /dev/null  
ubuntu@ip-172-31-34-8:~$
```

12. Now run 'sudo apt-get update' to update the Jenkins repository

```
ubuntu@ip-172-31-34-8:~$ sudo apt-get update  
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal InRelease  
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates InRelease  
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports InRelease  
Ign:4 https://pkg.jenkins.io/debian-stable binary/ InRelease  
Get:5 https://pkg.jenkins.io/debian-stable binary/ Release [2044 B]  
Get:6 https://pkg.jenkins.io/debian-stable binary/ Release.gpg [833 B]  
Get:7 https://pkg.jenkins.io/debian-stable binary/ Packages [25.9 kB]  
Hit:8 http://security.ubuntu.com/ubuntu focal-security InRelease  
Fetched 28.8 kB in 4s (6840 B/s)  
Reading package lists... Done
```

Before installing Jenkins, install openjdk -17 using the command 'sudo apt install fontconfig openjdk-17-jre'

```
ubuntu@ip-172-31-34-8:~$ sudo apt install fontconfig openjdk-17-jre  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
fontconfig is already the newest version (2.13.1-2ubuntu3).  
openjdk-17-jre is already the newest version (17.0.8.1+1~us1-0ubuntu1~20.04).  
0 upgraded, 0 newly installed, 0 to remove and 21 not upgraded.  
1 not fully installed or removed.  
After this operation, 0 B of additional disk space will be used.  
Do you want to continue? [Y/n] y  
Setting up jenkins (2.426.1)
```



Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

13. Now install Jenkins using the command 'sudo apt-get install Jenkins -y'

```
ubuntu@ip-172-31-34-8:~$ sudo apt-get install jenkins -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
jenkins is already the newest version (2.426.1).
0 upgraded, 0 newly installed, 0 to remove and 21 not upgraded.
ubuntu@ip-172-31-34-8:~$
```

14. Now run the command 'sudo systemctl enable jenkins'

```
ubuntu@ip-172-31-34-8:~$ sudo systemctl enable jenkins
Synchronizing state of jenkins.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable jenkins
ubuntu@ip-172-31-34-8:~$
```

15. Start Jenkins service using the command 'sudo systemctl start Jenkins'

To check if Jenkins is running or not, use the command 'sudo systemctl status jenkins'

```
ubuntu@ip-172-31-34-8:~$ sudo systemctl start jenkins
ubuntu@ip-172-31-34-8:~$ sudo systemctl status jenkins
Unit jenkins.service could not be found.
ubuntu@ip-172-31-34-8:~$ sudo systemctl status jenkins
● jenkins.service - Jenkins Continuous Integration Server
   Loaded: loaded (/lib/systemd/system/jenkins.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2023-11-21 21:11:10 UTC; 8min ago
     Main PID: 18372 (java)
       Tasks: 41 (limit: 1126)
      Memory: 316.4M
    CGroup: /system.slice/jenkins.service
            └─18372 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080

Nov 21 21:10:43 ip-172-31-34-8 jenkins[18372]: 89ad5fd15995d738a8c5e911932adbdu
Nov 21 21:10:43 ip-172-31-34-8 jenkins[18372]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Nov 21 21:10:43 ip-172-31-34-8 jenkins[18372]: *****
Nov 21 21:10:43 ip-172-31-34-8 jenkins[18372]: *****
Nov 21 21:10:43 ip-172-31-34-8 jenkins[18372]: *****
Nov 21 21:11:10 ip-172-31-34-8 jenkins[18372]: 2023-11-21 21:11:10.772+0000 [id=31] INFO jenkins.InitReactorRunner$1#onAttained: Comp
Nov 21 21:11:10 ip-172-31-34-8 jenkins[18372]: 2023-11-21 21:11:10.803+0000 [id=24] INFO hudson.lifecycle.Lifecycle#onReady: Jenkins
Nov 21 21:11:10 ip-172-31-34-8 systemd[1]: Started Jenkins Continuous Integration Server.
Nov 21 21:11:10 ip-172-31-34-8 jenkins[18372]: 2023-11-21 21:11:10.957+0000 [id=47] INFO h.m.DownloadService$Downloadable#load: Obtai
Nov 21 21:11:10 ip-172-31-34-8 jenkins[18372]: 2023-11-21 21:11:10.958+0000 [id=47] INFO hudson.util.Retrier#start: Performed the act
lines 1-19/19 (END)
```



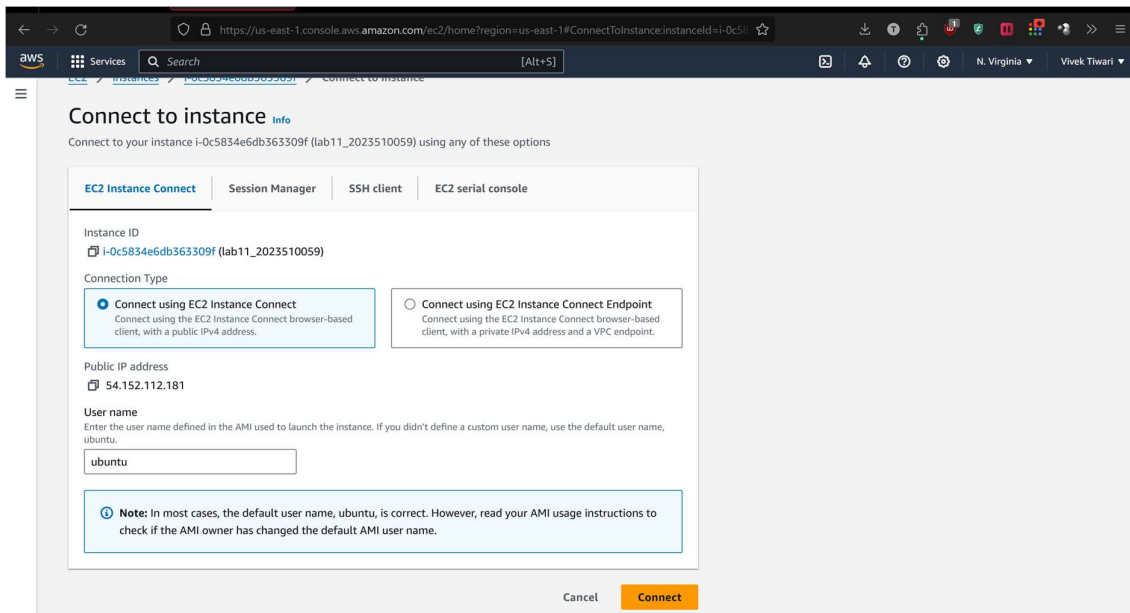
BHARATIYA VIDYA BHAVAN'S
SARDAR PATEL INSTITUTE OF TECHNOLOGY
MUNSHI NAGAR, ANDHERI (WEST), MUMBAI – 400 058.
(Autonomous College Affiliated to University of Mumbai)
MASTER OF COMPUTER APPLICATIONS

Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

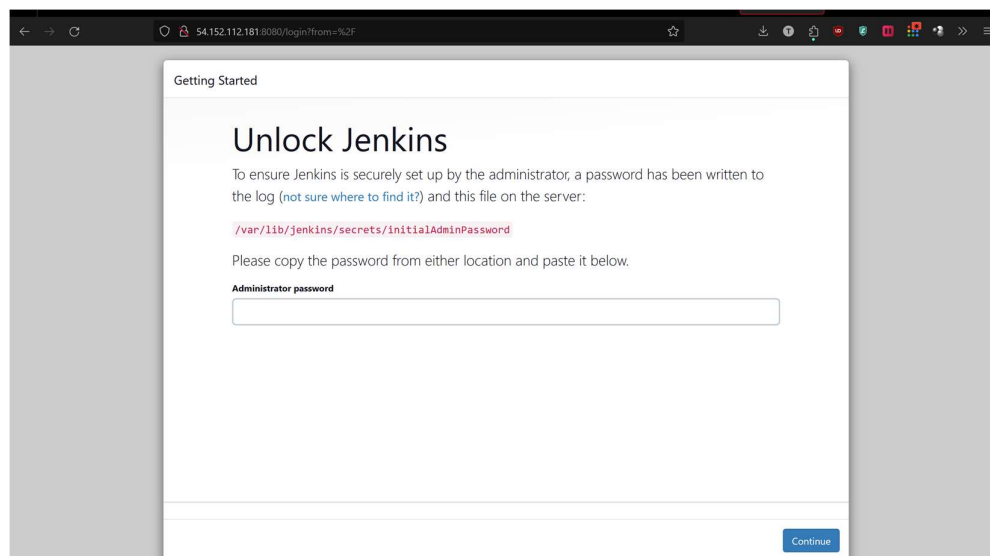
Subject In charge: Nikhita Mangaonkar

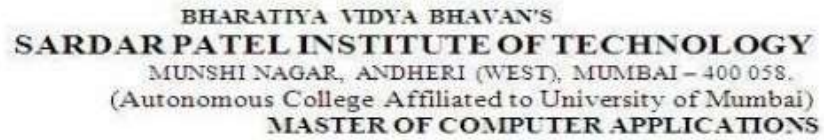
16. Now copy the IP address mentioned under the ec2 connect tab



17. Append the port 8080 to the IP address as we had previously defined:

- 54.152.112.181:8080, and paste the IP address in your browser.
- The browser should load unlock Jenkins page as below.





Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

18. Copy the path:

```
ubuntu@ip-172-31-34-8:~$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword
Jenkins will automatically create an initial administrator user with the
username "admin" and the password "JenkinsX" if you do not specify an
initial administrator user.
ubuntu@ip-172-31-34-8:~$
```

Getting Started

Customize Jenkins

Plugins extend Jenkins with additional features to support many different needs.

Install suggested plugins

Install plugins the Jenkins community finds most useful.

Select plugins to install

Select and install plugins most suitable for your needs.

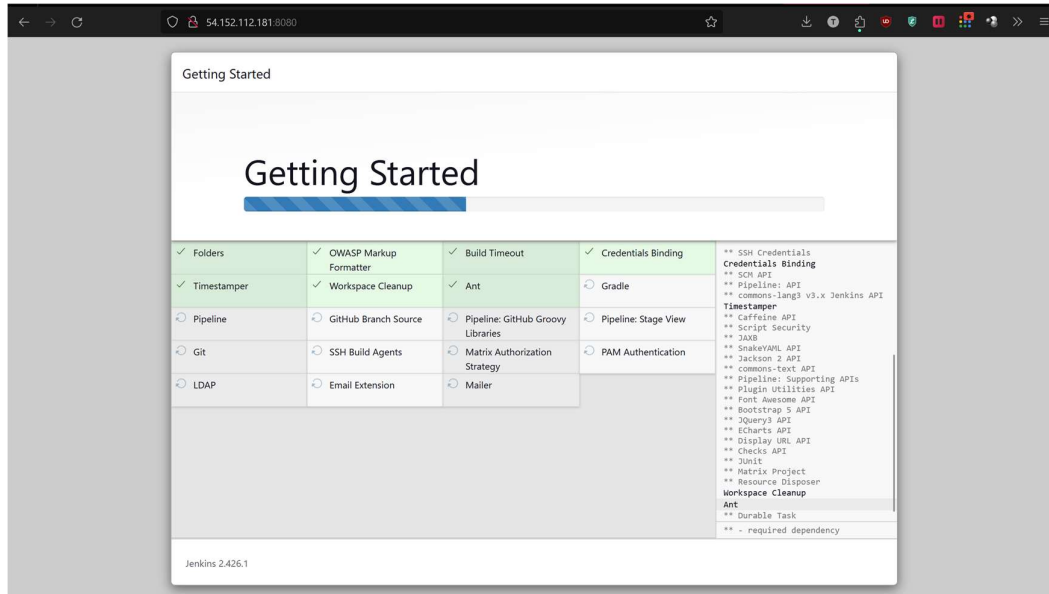
Jenkins 2.426.1



Academic Year – 2023-24

Class: F.Y.MCA Semester: I Subject: Software Engineering Course Code: MC503

Subject In charge: Nikhita Mangaonkar



21. Now create an admin user:

Getting Started

Create First Admin User

Username

Password

Confirm password

Full name

E-mail address

Jenkins 2.426.1

[Skip and continue as admin](#) [Save and Continue](#)



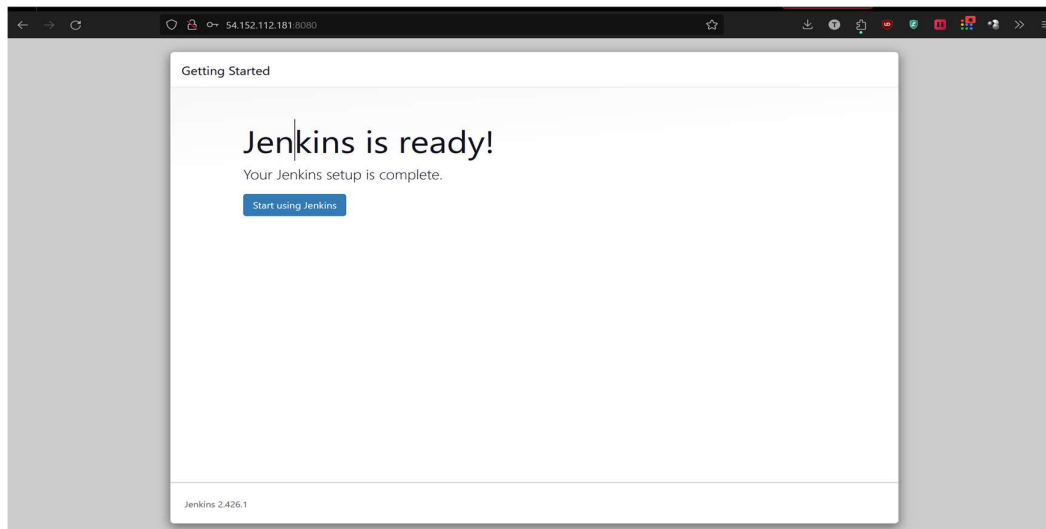
Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

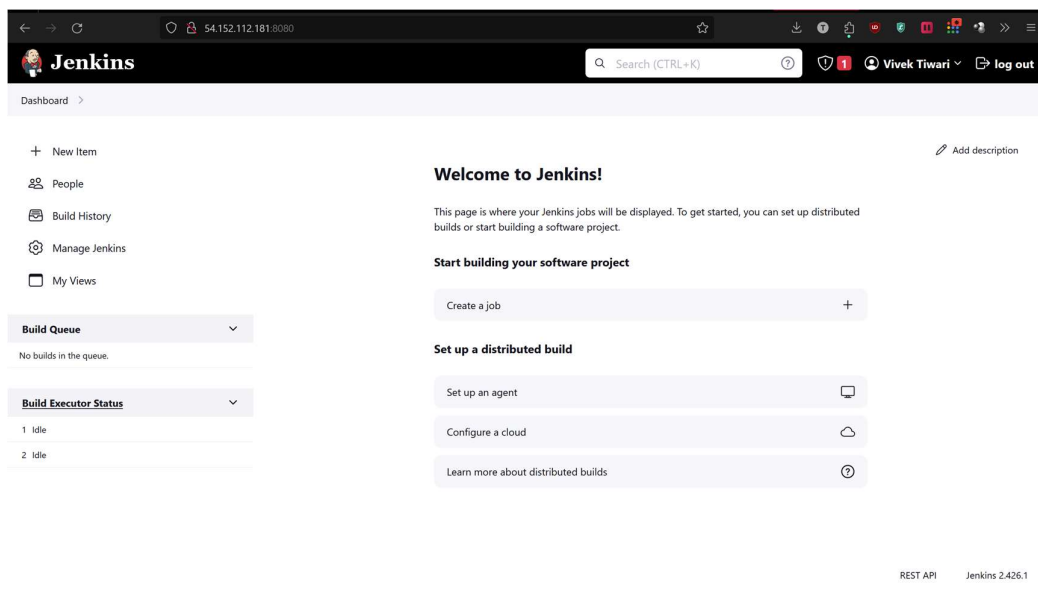
Subject In charge: Nikhita Mangaonkar

Make sure to copy your Jenkins URL on the next step after saving the user details.

22. Once done, you'll be greeted with the following message.



Now Jenkins is ready to use:





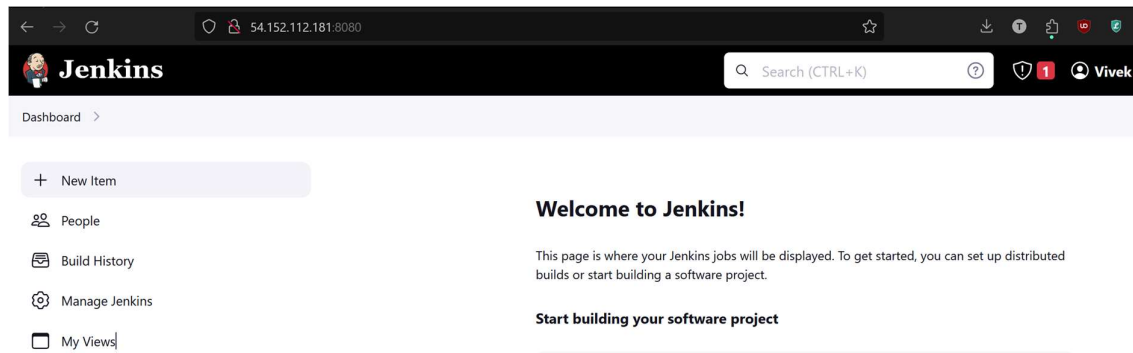
BHARATIYA VIDYA BHAVAN'S
SARDAR PATEL INSTITUTE OF TECHNOLOGY
MUNSHI NAGAR, ANDHERI (WEST), MUMBAI – 400 058.
(Autonomous College Affiliated to University of Mumbai)
MASTER OF COMPUTER APPLICATIONS

Academic Year – 2023-24

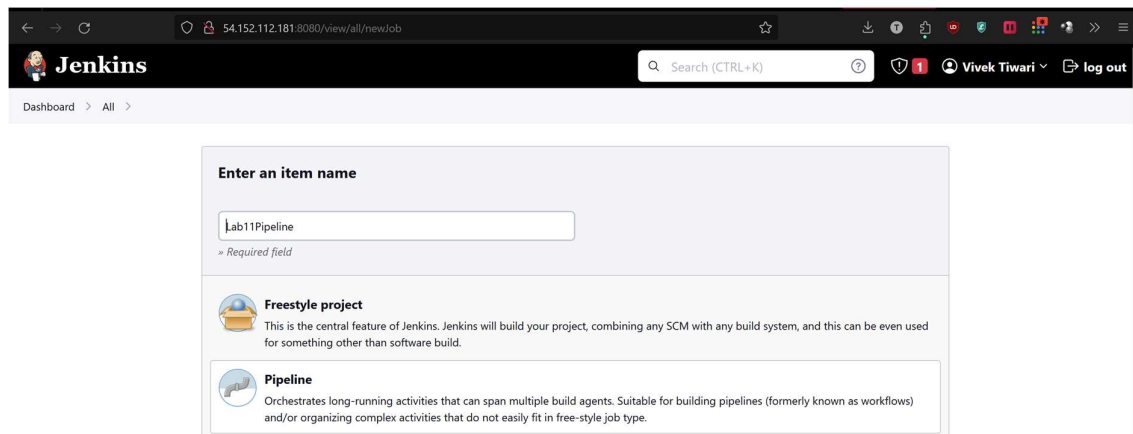
Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

23. Click on new item:



24. Now enter any suitable name for your pipeline and select the pipeline options from below:





Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

25. On the next page, scroll down to Pipeline, and select 'hello world' from the top right drop down menu.

Dashboard > Lab11Pipeline > Configuration

Configure

- General
- Advanced Project Options
- Pipeline**

Pipeline

Definition: Pipeline script

```
1 pipeline {
2   agent any
3
4   stages {
5     stage('Hello') {
6       steps {
7         echo 'Hello Vivek'
8       }
9     }
10  }
11 }
12
```

☒ Use Groovy Sandbox

[Pipeline Syntax](#)

Save Apply

REST API Jenkins 2.426.1

26. After saving it, go back to your dashboard and schedule a build:

Jenkins

Search (CTRL+K) Vivek Tiwari log out

Dashboard >

+ New Item Add description

People

Build History

Manage Jenkins

My Views

S	W	Name	Last Success	Last Failure	Last Duration
✓	☀	Lab11Pipeline	1 min 3 sec #4	N/A	0.76 sec

Build Queue

No builds in the queue.

Icon: S M L

Atom feed for all Atom feed for failures Atom feed for just latest builds



Academic Year – 2023-24

Class: F.Y.MCA **Semester:** I **Subject:** Software Engineering **Course Code:** MC503

Subject In charge: Nikhita Mangaonkar

27. Now you can check if your pipeline is functional or not:

The screenshot shows the Lab11Pipeline web interface. The top navigation bar includes a back arrow, a refresh icon, and the URL `54.152.112.181:8080/job/Lab11Pipeline/`. The main content area is titled "Lab11Pipeline" and features a sidebar with navigation options: Status, Changes, Build Now, Configure, Delete Pipeline, Full Stage View, Rename, and Pipeline Syntax. The main area displays the "Stage View" for a pipeline named "Hello". It shows a table of stage execution times for four builds, with an average stage time of 189ms and an average full run time of ~2s. The build history table lists four builds, all of which were successful.

Average stage times:	
(Average full run time: ~2s)	
Stage	Time
1	119ms
2	133ms
3	198ms
4	308ms

Build	Status	Time
#4	Success	Nov 21, 2023, 9:49 PM
#3	Success	Nov 21, 2023, 9:49 PM
#2	Success	Nov 21, 2023, 9:49 PM
#1	Success	Nov 21, 2023, 9:48 PM