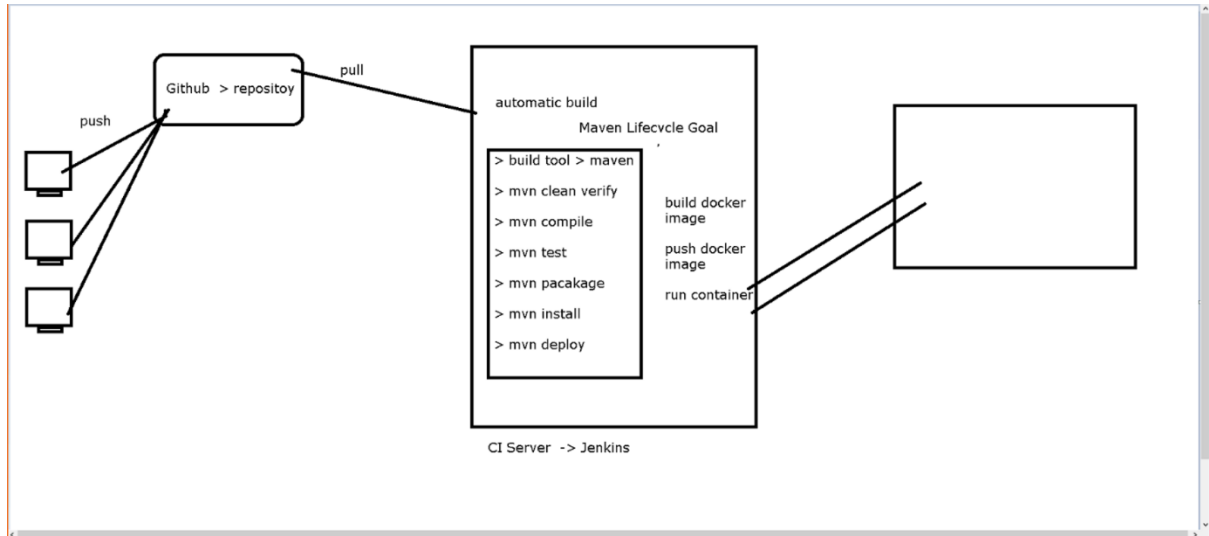
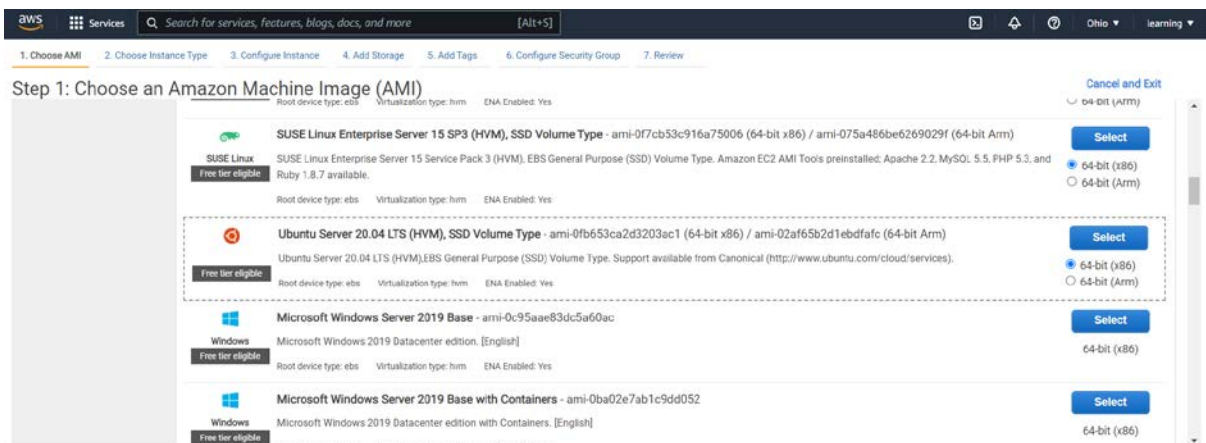


Screenshot

Application Overview Diagram.



1. AWS Setup (EC2 Instance)



Selected Ubuntu Server 20.04 LTS AMI 64bit.

Step 2: Choose an Instance Type

Instance Type	Free tier eligible	VCPUs	Memory (GiB)	Storage	Network	Performance	Yes
t2	Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
t2	t2.xlarge	4	16	EBS only	-	Moderate	Yes
t2	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
t3	t3.nano	2	0.5	EBS only	Yes	Up to 5 Gigabit	Yes
t3	t3.micro	2	1	EBS only	Yes	Up to 5 Gigabit	Yes
t3	t3.small	2	2	EBS only	Yes	Up to 5 Gigabit	Yes
t3	t3.medium	2	4	EBS only	Yes	Up to 5 Gigabit	Yes
t3	t3.large	2	8	EBS only	Yes	Up to 5 Gigabit	Yes

Cancel Previous **Review and Launch** Next: Configure Instance Details

Selected t2.xlarge instance since it has more memory and CPU for high performance

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/sda1	snap-092498e2cc2e3eb82	20	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

Add New Volume

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

▼ Shared file systems

You currently don't have any file systems on this instance. Select "Add file system" button below to add a file system.

Cancel Previous **Review and Launch** Next: Add Tags

Disk Storage selection 20 Gb for the ubuntu instance.

Step 6: Configure Security Group

Select an existing security group

Security group name: launch-wizard-1

Description: launch-wizard-1 created 2022-01-03T16:04:46.423+05:30

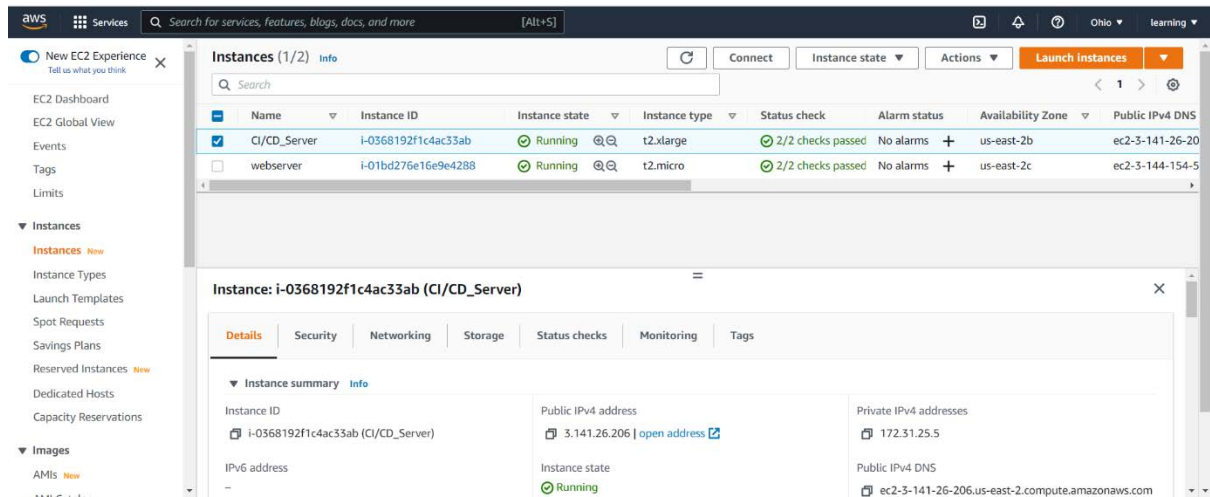
Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Anywhere 0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop
Custom TCP R	TCP	80	Anywhere 0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop
Custom TCP R	TCP	8080	Anywhere 0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop
Custom TCP R	TCP	8081	Anywhere 0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop
Custom TCP R	TCP	8090	Anywhere 0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop

Add Rule

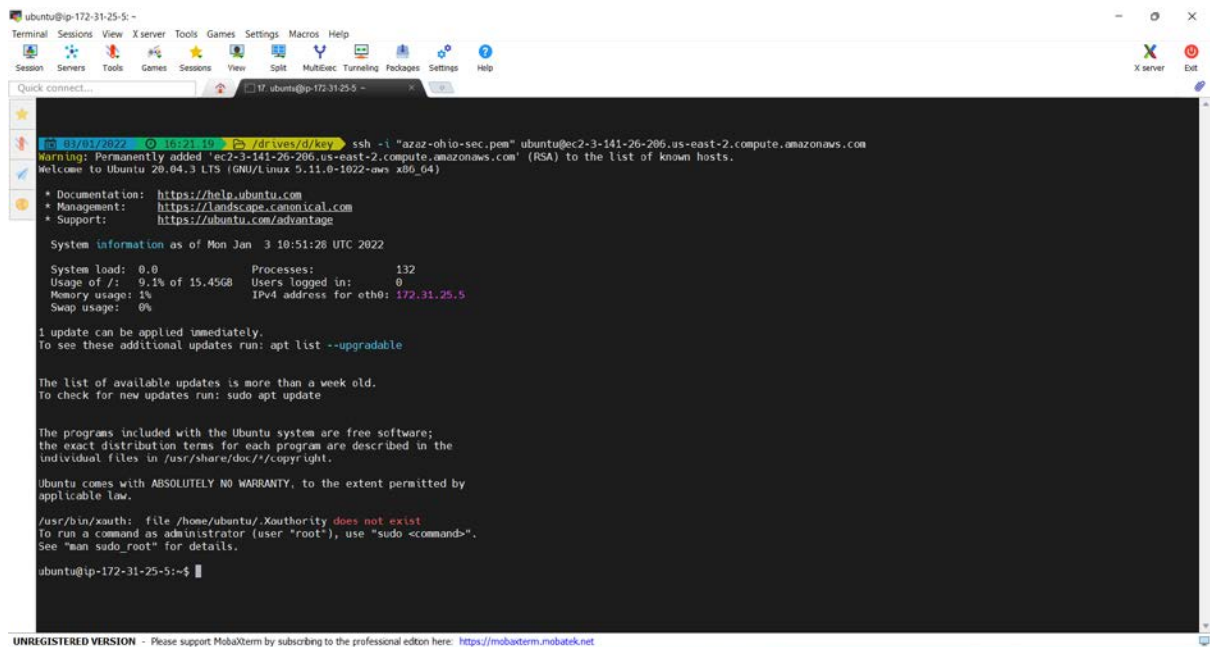
Warning
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Cancel Previous **Review and Launch**

Network /port configuration for SSH and Web application etc.

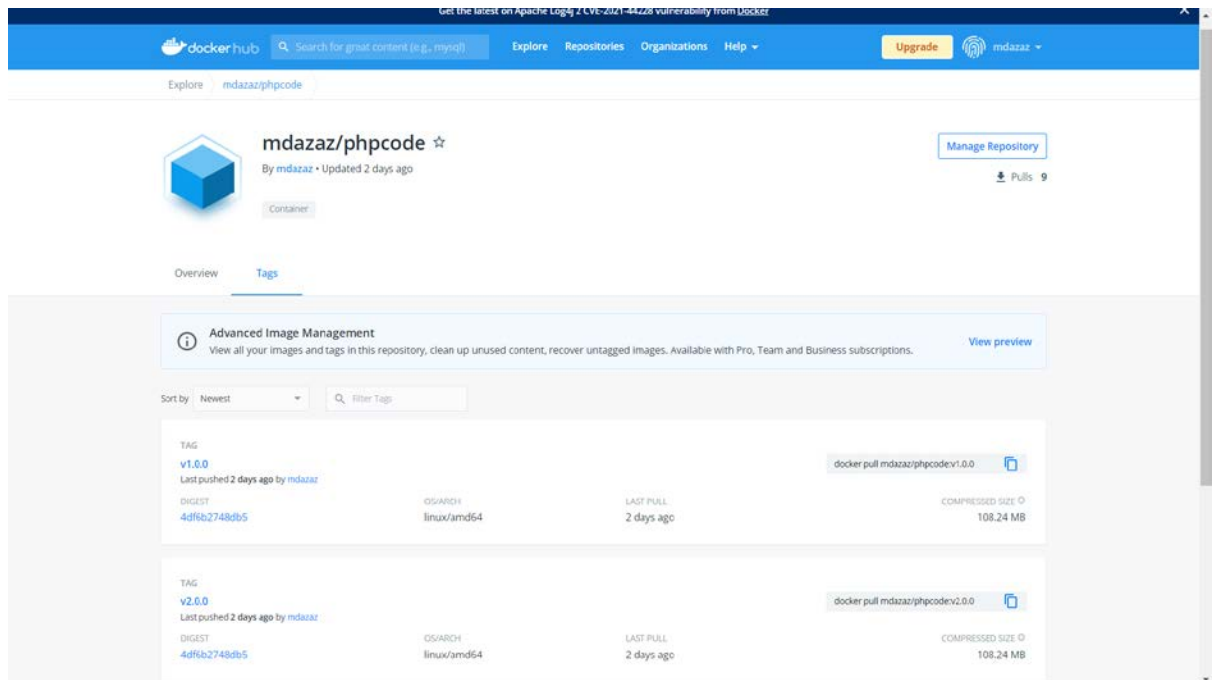


Instance created with the configurations

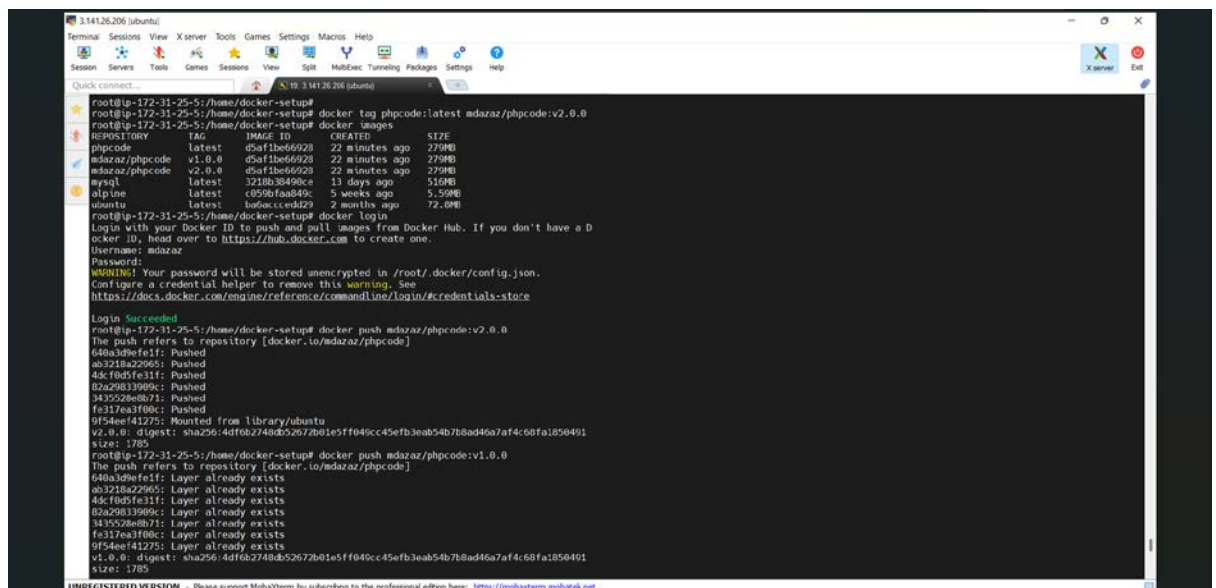


Connected using MobaXterm (SSH client)

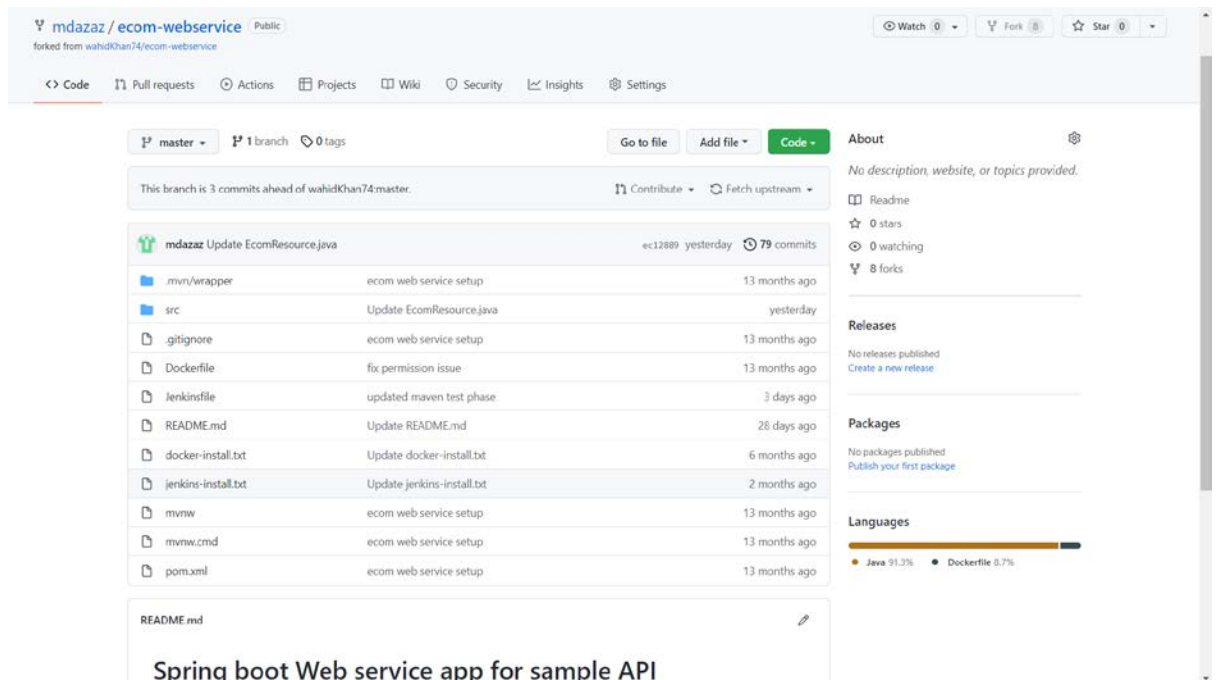
2. Docker



DOCKER HUB Dashboard and Image pushed via command line



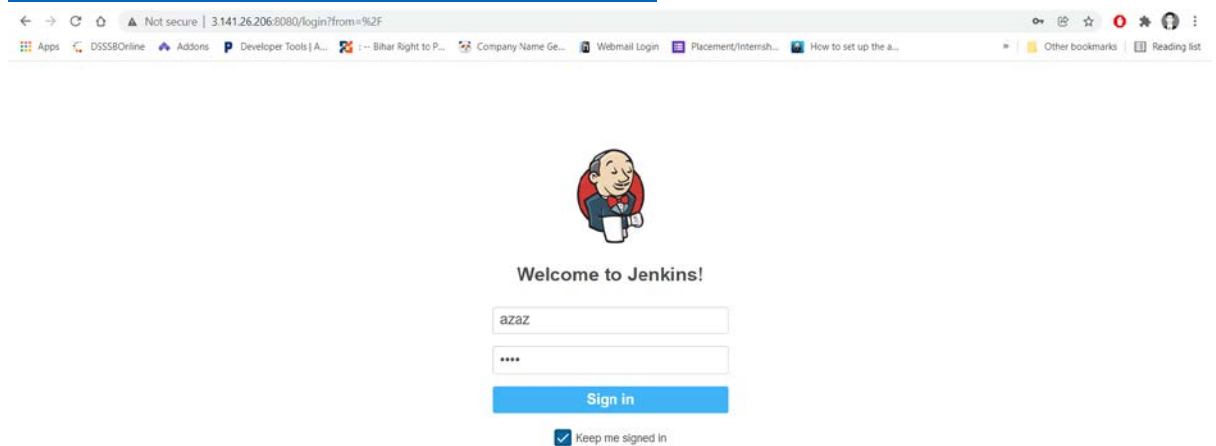
3. Github (Sample Spring boot application)



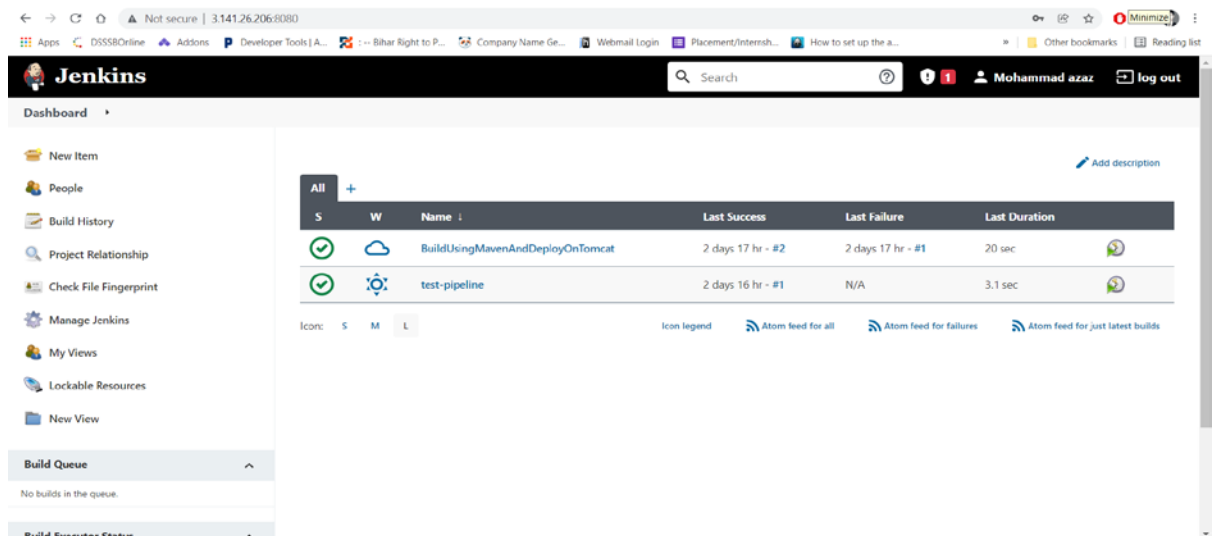
4. Jenkins Setup

Access using ec2 public ip:8080 port

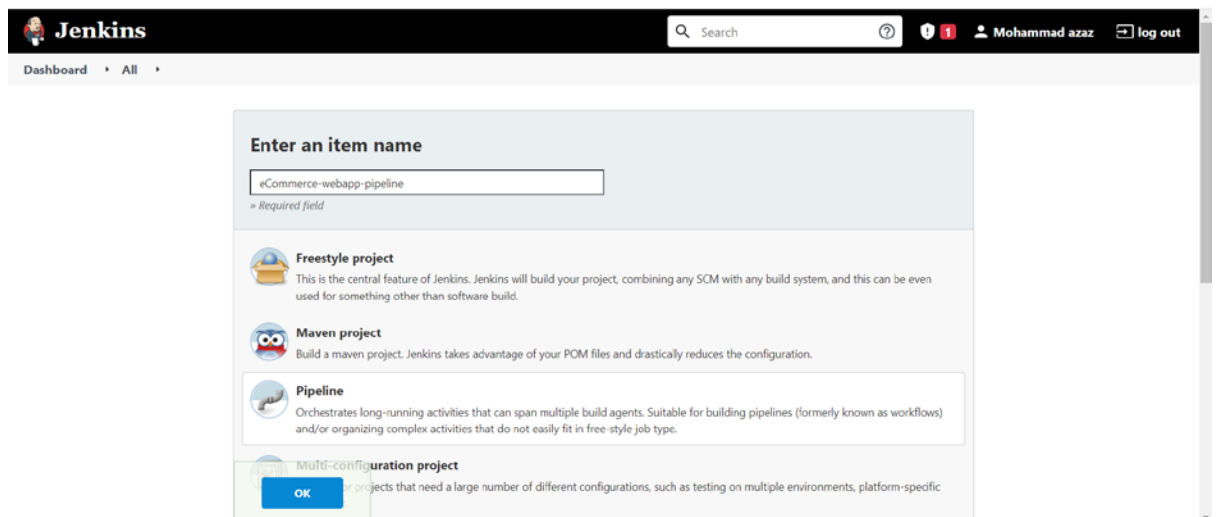
<http://3.141.26.206:8080/login?from=%2F>



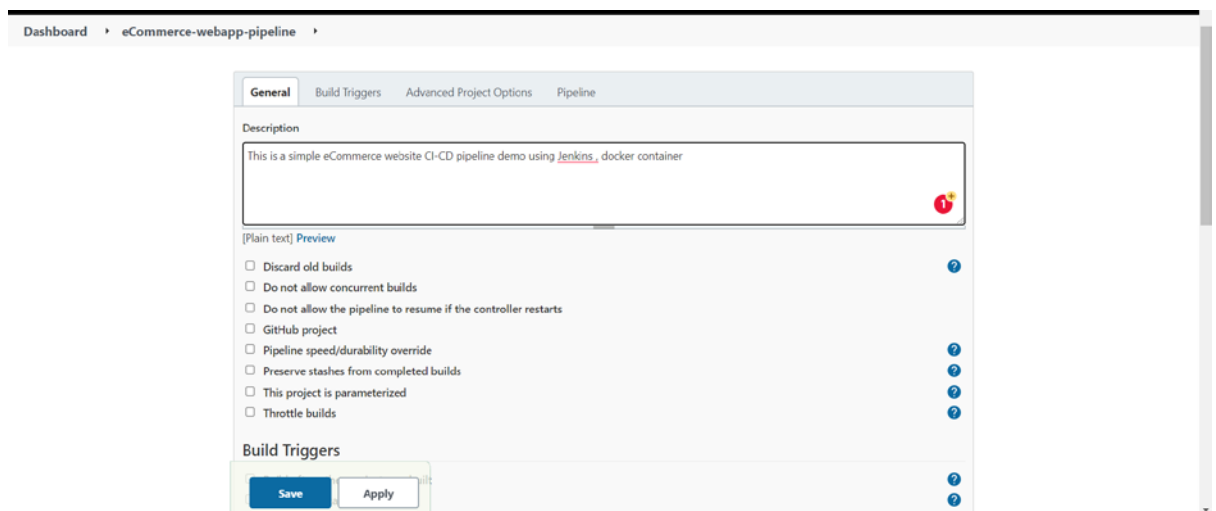
once login it will show dashboard page



Click on new item to add new Pipeline



Enter the name and select pipeline project below.



Enter description

Dashboard » eCommerce-webapp-pipeline » Pipeline

Pipeline

Definition

Pipeline script from SCM

SCM

Git

Repositories

Repository URL

<https://github.com/mdazaz/Simplilearn-Phase5-CI-CD-deployment.git>

Credentials

- none -

Add

Advanced...

Add Repository

Save Apply

Branch Specifier (blank for 'any')

Select Pipeline script from SCM , select git and enter git url

Dashboard » eCommerce-webapp-pipeline » Pipeline

Pipeline

Branches to build

Branch Specifier (blank for 'any')

*/master

Add Branch

Repository browser

(Auto)

Additional Behaviours

Add

Script Path

jenkinsfile

☒ Lightweight checkout

Pipeline Syntax

Save Apply

Specify Branch and jenkins script file in Script Path text box. And click on Apply and Save button.

Jenkins Scripts

```
pipeline
{
    agent any

    triggers {
        pollSCM(* * * * *)
    }

    // Got permission denied while trying to connect to the Docker daemon socket at unix.
    // sudo usermod -a -G docker jenkins
    // restart jenkins server -> sudo service jenkins restart

    stages {
```

```
stage('Maven Compile') {
    steps {
        echo '----- This is a compile phase -----'
        sh 'mvn clean compile'
    }
}

stage('Maven Test') {
    steps {
        echo '----- This is a Test phase -----'
        sh 'mvn clean test'
    }
}

stage('Maven Build') {
    steps {
        echo '----- This is a build phase -----'
        sh 'mvn clean package -DskipTests'
    }
}

stage('Docker Build') {
    steps {
        echo '----- This is a build docker image phase -----'
        sh '''
            docker image build -t ecom-web-service .
        '''
    }
}

stage('Docker Deploy') {
    steps {
        echo '----- This is a docker deployment phase -----'
        sh '''
            (if [ $(docker ps -a | grep ecom-web-service | cut -d " " -f1) ]; then \
                echo $(docker rm -f ecom-web-service); \
                echo "----- successfully removed ecom-web-service -----"
            else \
                echo OK: \
            fi);
            docker container run --restart always --name ecom-web-service -p 8081:8081 -d ecom-web-service
        '''
    }
}
}
```


After build it will show the progress in different phases as shown below

Pipeline eCommerce-webapp-pipeline
This is a simple eCommerce website CI-CD pipeline demo using Jenkins, docker container

Recent Changes

Stage View

	Declarative: Checkout SCM	Maven Compile	Maven Test	Maven Build	Docker Build	Docker Deploy
Average stage times: (Average full run time: ~18s)	308ms	3s	6s	4s	1s	821ms
#2 Jan 06 21:32 No Changes	218ms	3s	6s	4s	1s	822ms
#1 Jan 06 21:30 No Changes	398ms	3s	7s	4s	1s	821ms

Permalinks

- Last build (#2), 22 min ago
- Last stable build (#2), 22 min ago
- Last successful build (#2), 22 min ago
- Last completed build (#2), 22 min ago

Build History

Build History

Build Queue
No builds in the queue.

Build Executor Status
1 idle
2 idle

Build History Timeline

Build	Time Since	Status
eCommerce-webapp-pipeline #2	4 min 25 sec	stable
eCommerce-webapp-pipeline #1	6 min 40 sec	stable
test-pipeline #1	2 days 17 hr	stable
BuildUsingMavenAndDeployOnTomcat = Webapp #2	2 days 17 hr	stable
BuildUsingMavenAndDeployOnTomcat = Server #2	2 days 17 hr	stable
BuildUsingMavenAndDeployOnTomcat = Maven Project #2	2 days 17 hr	stable
BuildUsingMavenAndDeployOnTomcat #2	2 days 17 hr	back to normal
BuildUsingMavenAndDeployOnTomcat #1	2 days 17 hr	broken since this build

Icon: S M L
Icon legend
Atom feed for all
Atom feed for failures
Atom feed for just latest builds

Console Output

Dashboard

Back to Project

Status

Changes

Console Output

View as plain text

Edit Build Information

Delete build '#2'

Git Build Data

Restart from Stage

Replay

Pipeline Steps

Workspaces

Previous Build

✓

Console Output

Started by user Mohammad azaz
Obtained Jenkinsfile from git <https://github.com/mdazaz/Simplilearn-Phase5-CI-CD-deployment.git>
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/eCommerce-webapp-pipeline
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
Selected Git installation does not exist. Using Default
The recommended git tool is: NONE
No credentials specified
> git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/eCommerce-webapp-pipeline/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url <https://github.com/mdazaz/Simplilearn-Phase5-CI-CD-deployment.git> # timeout=10
Fetching upstream changes from <https://github.com/mdazaz/Simplilearn-Phase5-CI-CD-deployment.git>
> git --version # timeout=10
> git --version # 'git version 2.25.1'
> git fetch --tags --force --progress -- <https://github.com/mdazaz/Simplilearn-Phase5-CI-CD-deployment.git> --refs/heads/*:refs/remotes/origin/* # timeout=10
> git rev-parse refs/remotes/origin/master^{commit} # timeout=10
Checking out Revision df71198db86b56ff5c2126fb28a061199efdfa13 (refs/remotes/origin/master)
> git config core.sparsecheckout # timeout=10
> git checkout -f df71198db86b56ff5c2126fb28a061199efdfa13 # timeout=10
Commit message: "Update EcommerceResource.java"
> git rev-list --no-walk df71198db86b56ff5c2126fb28a061199efdfa13 # timeout=10
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Maven Compile)
[Pipeline] echo
----- This is a compile phase -----
[Pipeline] sh
+ mvn clean compile
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by com.google.inject.internal.cglib.core.\$ReflectUtils\$1 (file:/usr/share/naven/lib/guice.jar) to method
java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int,java.security.ProtectionDomain)
WARNING: Please consider reporting this to the maintainers of com.google.inject.internal.cglib.core.\$ReflectUtils\$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
[01:34mINFO][m] Scanning for projects...
[01:34mINFO][m] [01:34m-----< [0:36mecom.ecommerce.webapp:ecom-webservice[0;1m >-----][m]
[01:34mINFO][m] [01:34mBuilding ecom-webservice 0.0.1-SNAPSHOT[m]
[01:34mINFO][m] [01:34m-----[jar]-----[m]
[01:34mINFO][m]
[01:34mINFO][m] [01:34m--- [0:32maven-clean-plugin:3.1.0:clean[m] [01:34m(default-clean)[m] @ [0:36mecom-webservice[0;1m ---[m]
[01:34mINFO][m] Deleting /var/lib/jenkins/workspace/eCommerce-webapp-pipeline/target
[01:34mINFO][m]
[01:34mINFO][m] [01:34m--- [0:32maven-resources-plugin:3.2.0:resources[m] [01:34m(default-resources)[m] @ [0:36mecom-webservice[0;1m ---[m]
[01:34mINFO][m] Using 'UTF-8' encoding to copy filtered resources.
[01:34mINFO][m] Using 'UTF-8' encoding to copy filtered properties files.
[01:34mINFO][m] Copying 1 resource
[01:34mINFO][m] Copying 0 resource
[01:34mINFO][m] The encoding used to copy filtered properties files have not been set. This means that the same encoding will be used to copy filtered
properties files as when copying other filtered resources. This might not be what you want! Run your build with --debug to see which files might be
affected. Read more at <https://maven.apache.org/plugins/maven-resources-plugin/examples/filtering-properties-files.html>
[01:34mINFO][m]
[01:34mINFO][m] [01:34m--- [0:32maven-compiler-plugin:3.5.1:compile[m] [01:34m(default-compile)[m] @ [0:36mecom-webservice[0;1m ---[m]
[01:34mINFO][m] Changes detected - recompiling the module!
[01:34mINFO][m] Compiling 6 source files to /var/lib/jenkins/workspace/eCommerce-webapp-pipeline/target/classes
[01:34mINFO][m] [01:34m---[m]
[01:34mINFO][m] [01:32mBUILD SUCCESS[m]
[01:34mINFO][m] [01:34m-----[m]
[01:34mINFO][m] Total time: 1.751 s
[01:34mINFO][m] Finished at: 2022-01-06T16:02:42Z
[01:34mINFO][m] [01:34m-----[m]
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Maven Test)
[Pipeline] echo
----- This is a Test phase -----
[Pipeline] sh

[illegible]

Dashboard » eCommerce-webapp-pipeline » #2

```
[Pipeline] sh
+ mvn clean package -DskipTests
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by com.google.inject.internal.cglib.core.$ReflectUtils$1 (file:/usr/share/naven/lib/guice.jar) to method
java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int,java.security.ProtectionDomain)
WARNING: Please consider reporting this to the maintainers of com.google.inject.internal.cglib.core.$ReflectUtils$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
[01;34mINFO[m] Scanning for projects...
[01;34mINFO[m]
[01;34mINFO[m] [1m-----[ 0;36mecommerce.webapp:ecom-webservice@0;1m >-----[m
[01;34mINFO[m] [1mBuilding ecom-webservice 0.0.1-SNAPSHOT[m
[01;34mINFO[m] [1m-----[ jar ]-----[m
[01;34mINFO[m]
[01;34mINFO[m] [1m--- [0;32mmaven-clean-plugin:3.1.0:clean[m [1m(default-clean)[m @ [0;36mecom-webservice@0;1m ---[m
[01;34mINFO[m] Deleting /var/lib/jenkins/workspace/eCommerce-webapp-pipeline/target
[01;34mINFO[m]
[01;34mINFO[m] [1m--- [0;32mmaven-resources-plugin:3.2.0:resources[m [1m(default-resources)[m @ [0;36mecom-webservice@0;1m ---[m
[01;34mINFO[m] Using 'UTF-8' encoding to copy filtered resources.
[01;34mINFO[m] Using 'UTF-8' encoding to copy filtered properties files.
[01;34mINFO[m] Copying 1 resource
[01;34mINFO[m] Copying 0 resource
[01;34mINFO[m] The encoding used to copy filtered properties files have not been set. This means that the same encoding will be used to copy filtered
properties files as when copying other filtered resources. This might not be what you want! Run your build with --debug to see which files might be
affected. Read more at https://maven.apache.org/plugins/maven-resources-plugin/examples/filtering-properties-files.html
[01;34mINFO[m]
[01;34mINFO[m] [1m--- [0;32mmaven-compiler-plugin:3.5.1:compile[m [1m(default-compile)[m @ [0;36mecom-webservice@0;1m ---[m
[01;34mINFO[m] Changes detected - recompiling the module!
[01;34mINFO[m] Compiling 6 source files to /var/lib/jenkins/workspace/eCommerce-webapp-pipeline/target/classes
[01;34mINFO[m]
[01;34mINFO[m] [1m--- [0;32mmaven-resources-plugin:3.2.0:testResources[m [1m(default-testResources)[m @ [0;36mecom-webservice@0;1m ---[m
[01;34mINFO[m] Using 'UTF-8' encoding to copy filtered resources.
[01;34mINFO[m] Using 'UTF-8' encoding to copy filtered properties files.
[01;34mINFO[m] skip non existing resourceDirectory /var/lib/jenkins/workspace/eCommerce-webapp-pipeline/src/test/resources
[01;34mINFO[m]
[01;34mINFO[m] [1m--- [0;32mmaven-compiler-plugin:3.5.1:testCompile[m [1m(default-testCompile)[m @ [0;36mecom-webservice@0;1m ---[m
[01;34mINFO[m] Changes detected - recompiling the module!
[01;34mINFO[m] Compiling 1 source file to /var/lib/jenkins/workspace/eCommerce-webapp-pipeline/target/test-classes
[01;34mINFO[m]
[01;34mINFO[m] [1m--- [0;32mmaven-surefire-plugin:2.22.2:test[m [1m(default-test)[m @ [0;36mecom-webservice@0;1m ---[m
[01;34mINFO[m] Tests are skipped.
```

Dashboard » eCommerce-webapp-pipeline » #2

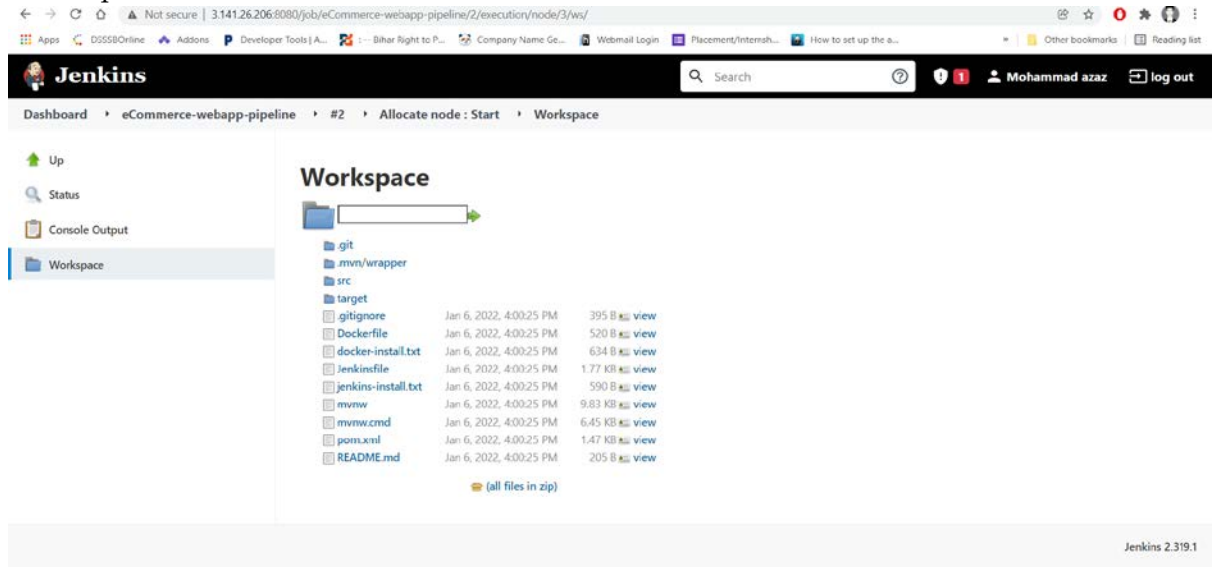
```
Step 1/4 : FROM openjdk:8-jdk
--> e24ac15e052e
Step 2/4 : COPY ./target/ecom-webservice-0.0.1-SNAPSHOT.jar ecom-webservice-0.0.1-SNAPSHOT.jar
--> 4687f2487137
Step 3/4 : CMD ["java", "-jar", "ecom-webservice-0.0.1-SNAPSHOT.jar"]
--> Running in 771bf5a30624
Removing intermediate container 771bf5a30624
--> 205f0e06e5af
Step 4/4 : RUN echo "jenkins ALL=(ALL) NOPASSWD: ALL" >> /etc/sudoers
--> Running in 7d76bdfc3940
Removing intermediate container 7d76bdfc3940
--> 1addcf8abc90
Successfully built 1addcf8abc90
Successfully tagged ecom-webservice:latest
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Docker Deploy)
[Pipeline] echo
----- This is a docker deployment phase -----
[Pipeline] sh
+ docker ps -a
+ cut -d -f1
+ grep ecom-webservice
+ [ fda390307142 ]
+ docker rm -f ecom-webservice
+ echo ecom-webservice
ecom-webservice
+ echo ----- successfully removed ecom-webservice -----
----- successfully removed ecom-webservice -----
+ docker container run --restart always --name ecom-webservice -p 8081:8081 -d ecom-webservice
e0614a3f13793b99764db574e1ac8bf7cb2353efb4fc73350ed1474743d955b
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

Deployed docker container can be viewed

```
ubuntu@ip-172-31-25-5:~$ sudo docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
e0614a3f1379	ecom-webservice	"java -jar ecom-webs..."	11 minutes ago	Up 11 minutes	0.0.0.0:8081->8081/tcp, :::8081->8081/tcp	ecom-webservice

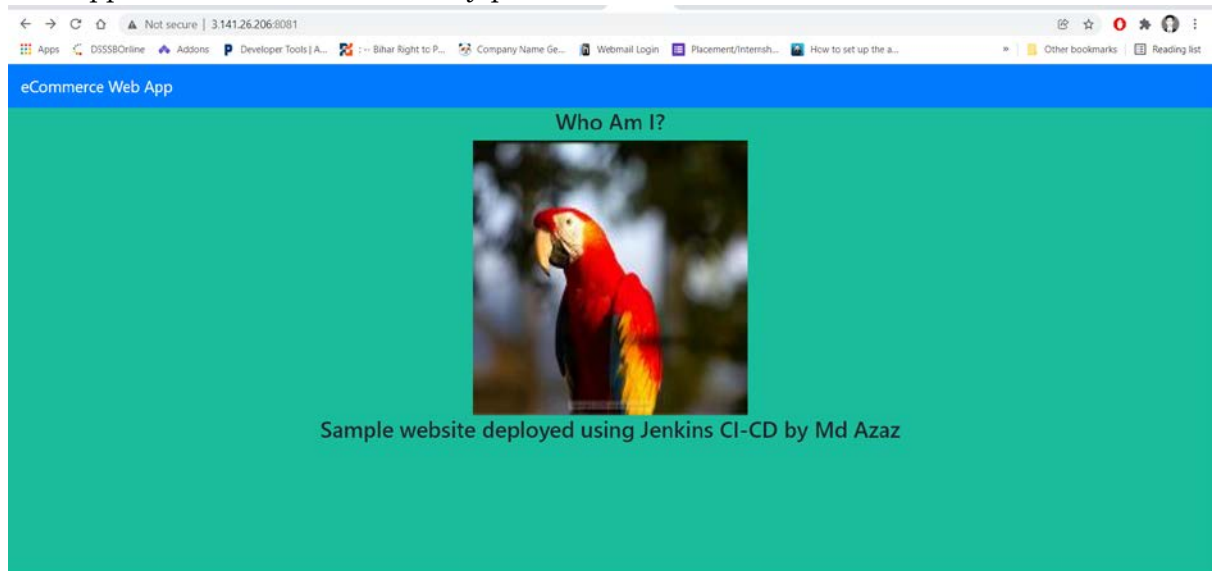
Workspace View



The screenshot shows the Jenkins workspace view for a job named 'eCommerce-webapp-pipeline'. The workspace contains several files and folders, including 'git', 'mvn/wrapper', 'src', 'target', 'gitignore', 'Dockerfile', 'docker-install.txt', 'jenkinsfile', 'jenkins-install.txt', 'mvnw', 'mvnw.cmd', 'pom.xml', and 'README.md'. Each file has a timestamp and size, and a 'view' link is provided for each file. The workspace is located at '3.141.26.206:8080/job/eCommerce-webapp-pipeline/2/execution/node/3/ws/'.

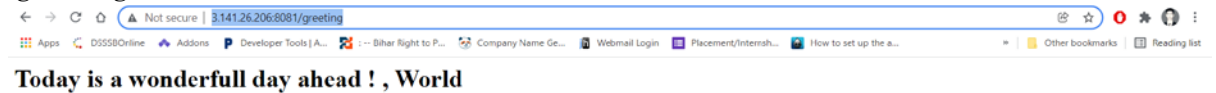
File	Timestamp	Size	Action
git	Jan 6, 2022, 4:00:25 PM	395 B	view
mvn/wrapper	Jan 6, 2022, 4:00:25 PM	520 B	view
src	Jan 6, 2022, 4:00:25 PM	634 B	view
target	Jan 6, 2022, 4:00:25 PM	1.77 KB	view
gitignore	Jan 6, 2022, 4:00:25 PM	590 B	view
Dockerfile	Jan 6, 2022, 4:00:25 PM	9.83 KB	view
docker-install.txt	Jan 6, 2022, 4:00:25 PM	6.45 KB	view
jenkinsfile	Jan 6, 2022, 4:00:25 PM	1.47 KB	view
jenkins-install.txt	Jan 6, 2022, 4:00:25 PM	205 B	view
mvnw	Jan 6, 2022, 4:00:25 PM		
mvnw.cmd	Jan 6, 2022, 4:00:25 PM		
pom.xml	Jan 6, 2022, 4:00:25 PM		
README.md	Jan 6, 2022, 4:00:25 PM		

WebApplication can be accessed by port 8081 as shown below:



The screenshot shows a web application titled 'eCommerce Web App'. The main content area has a teal background and features a central image of a red and yellow parrot. Above the image is the text 'Who Am I?' and below it is the text 'Sample website deployed using Jenkins CI-CD by Md Azaz'.

/greeting



The screenshot shows the response of the '/greeting' endpoint. The text displayed is 'Today is a wonderful day ahead ! , World'.

By Mohammad Azaz

git : <https://github.com/mdazaz/Simplilearn-Phase5-CI-CD-deployment.git>

/hello



Hello, wonderful job!