

CI/CD Pipeline Project

Problem statement

Create an end-to-end CI/CD pipeline in AWS platform using Jenkins as the orchestration tool, Github as the SCM, Maven as the Build tool, deploy in a docker instance and create a Docker image, Store the docker image in ECR, Achieve Kubernetes deployment using the ECR image.

Build a sample java web app using maven.

Approach:

Requirements:

- CI/CD Pipeline system**
- Git – local version control system**
- Github-As Distributed Version control system**
- Jenkins – Continuous Integration tool**
- Maven-Java application build tool**
- Docker-containerization**
- Kubernetes-As Container Management tool**

Step-1

- Create an separate EC2 instance for Github , Jenkins and Tomcat**
- Setup Jenkins and install necessary plugins**
- Setup and Configure maven by installing necessary plugins in the Jenkins**

- Setup Tomcat server by changing necessary permissions in console
- Integrate Github, Maven , Tomcat server using Jenkins
- Build a new Maven project in Jenkins
- After that test the server by changing server content in github and check whether its updating in server

Developer Server

Provide port 8080 to all the machines within the security group settings.

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-0ccd3d36c3441da4f	Custom TCP	TCP	8080	Cus... ▾	0.0.0.0/0 X
sgr-0c6f9b74f4cea13e2	SSH	TCP	22	Cus... ▾	0.0.0.0/0 X

[Add rule](#)

First install git

```
[ec2-user@ip-172-31-33-120 ~]$ sudo su
[root@ip-172-31-33-120 ec2-user]# cd
[root@ip-172-31-33-120 ~]# yum install git -
Last metadata expiration check: 0:04:01 ago on Sat Sep 21 04:00:22 2024.
Dependencies resolved.
=====
Package           Architecture      Version       Repository      Size
=====
Installing:
git              x86_64          2.40.1-1.amzn2023.0.3   amazonlinux    54 k
Installing dependencies:
git-core          x86_64          2.40.1-1.amzn2023.0.3   amazonlinux    4.3 M
git-core-doc      noarch          2.40.1-1.amzn2023.0.3   amazonlinux    2.6 M
perl-Error        noarch          1:0.17029-5.amzn2023.0.2   amazonlinux    41 k
perl-File-Find    noarch          1.37-477.amzn2023.0.6   amazonlinux    26 k
perl-Git          noarch          2.40.1-1.amzn2023.0.3   amazonlinux    42 k
perl-TermReadKey x86_64          2.38-9.amzn2023.0.2     amazonlinux    36 k
perl-lib          x86_64          0.65-477.amzn2023.0.6   amazonlinux    15 k
Transaction Summary
=====
Install 8 Packages

Total download size: 7.1 M
Installed size: 34 M
Downloading Packages:
(1/8): git-2.40.1-1.amzn2023.0.3.x86_64.rpm          862 kB/s |  54 kB   00:00
(2/8): perl-Error-0.17029-5.amzn2023.0.2.noarch.rpm  2.1 MB/s |  41 kB   00:00
(3/8): git-core-2.40.1-1.amzn2023.0.3.x86_64.rpm     33 MB/s | 4.3 MB   00:00
(4/8): perl-File-Find-1.37-477.amzn2023.0.6.noarch.rpm 509 kB/s | 26 kB   00:00
(5/8): git-core-doc-2.40.1-1.amzn2023.0.3.noarch.rpm   17 MB/s | 2.6 MB   00:00
(6/8): perl-Git-2.40.1-1.amzn2023.0.3.noarch.rpm     1.4 MB/s | 42 kB   00:00
```

Change hostname to dev-server and do ssh-keygen

```
[root@ip-172-31-33-120 ~]# hostnamectl set-hostname dev-server
[root@ip-172-31-33-120 ~]# bash
[root@dev-server ~]# ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa
Your public key has been saved in /root/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:y0s4ke3SggwSUqCunKA9681rgRtaWtut05YBGxYPLB0 root@dev-server
The key's randomart image is:
+---[RSA 3072]---+
|.....oE.
|... + .
|+ + +
|o. + .o
|o..o +oS
|=**oo..*
|oBo=o+=o*
|o o+= ==
| .o. ==
+---[SHA256]---+
[root@dev-server ~]# cd .ssh
[root@dev-server .ssh]# ll
total 12
-rw-----. 1 root root 554 Sep 21 04:00 authorized_keys
-rw-----. 1 root root 2602 Sep 21 04:09 id_rsa
-rw-r--r--. 1 root root 569 Sep 21 04:09 id_rsa.pub
[root@dev-server .ssh]# cat id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAAQCrDirM6jj5Ohm5byfiUJWUf7x5F5leuWqVGvCW4ATTInKgRcqeo00SB6bcKB6dNjtkllXMjecwNQsAGy2ULD5VvIzx1wMisw
8iFsdpCV0b377QC5EDEPKATsMevUQ3Uj0JCcpPswde8BNd4gAblicYJoymajmCCuFoMZ9pe3i/9L/vFGMI5MMZglnxKK/nIno5K1rejq
HNLgLrSkWSpx/uU2Zg2oCfibSyWm710dF6dkle5HzKS9vy5YGPExL/yr5do1RcNz/aME7GZ5pb8U6nm+VVOVaE4YyarIB5TFSxx5sL+sVeIm3axTEsNm2A8s22voshJ/028+9E4XETPWImqSLpTTus2muJypWotzu
10dF6dkTe5HzKS9vy5YGPExL/yr5do1RcNz/aME7GZ5pb8U6nm+VVOVaE4YyarIB5TFSxx5sL+sVeIm3axTEsNm2A8s22voshJ/028+9E4XETPWImqSLpTTus2muJypWotzu
```

Paste it's public key on git authentication

Add new SSH Key

Title

Key type

Key

```
ssh-rsa
AAAAB3NzaC1yc2EAAAQABAAAQCrDirM6jj5Ohm5byfiUJWUf7x5F5leuWqVGvCW4ATTInKgRcqeo00SB6bcKB6dNjtkllXMjecwNQsAGy2ULD
5Vvzx1wMisw8iFsdpCV0b377QC5EDEPKATsMevUQ3Uj0JCcpPswde8BNd4gAblicYJoymajmCCuFoMZ9pe3i/9L/vFGMI5MMZglnxKK/nIno5K1rejq
HNLgLrSkWSpx/uU2Zg2oCfibSyWm710dF6dkle5HzKS9vy5YGPExL/yr5do1RcNz/aME7GZ5pb8U6nm+VVOVaE4YyarIB5TFSxx5sL+sVeIm3axTEsNm2A8s22voshJ/028+9E4XETPWImqSLpTTus2muJypWotzu
10dF6dkTe5HzKS9vy5YGPExL/yr5do1RcNz/aME7GZ5pb8U6nm+VVOVaE4YyarIB5TFSxx5sL+sVeIm3axTEsNm2A8s22voshJ/028+9E4XETPWImqSLpTTus2muJypWotzu
```

```
[root@dev-server .ssh]# cd
[root@dev-server ~]# git clone https://github.com/sanjayguruji/ci-cd-k8s-project.git
Cloning into 'ci-cd-k8s-project'...
remote: Enumerating objects: 207, done.
remote: Counting objects: 100% (207/207), done.
remote: Compressing objects: 100% (89/89), done.
remote: Total 207 (delta 83), reused 189 (delta 77), pack-reused 0 (from 0)
Receiving objects: 100% (207/207), 38.11 KiB | 5.44 MiB/s, done.
Resolving deltas: 100% (83/83), done.
[root@dev-server ~]# ll
total 0
drwxr-xr-x. 5 root root 115 Sep 21 04:19 ci-cd-k8s-project
[root@dev-server ~]# cd ci-cd-k8s-project
[root@dev-server ci-cd-k8s-project]# git init
Reinitialized existing Git repository in /root/ci-cd-k8s-project/.git/
[root@dev-server ci-cd-k8s-project]# git add .
```

Add your name and email address in global configuration.

```
[root@dev-server ci-cd-k8s-project]# git config --global user.email "Abhinav.Gupta4@LTIMindtree.com"
```

After that you will commit your project on main branch and then.

The command `git remote remove origin` will remove the remote repository named “origin” from your local Git repository. This means that your local repository will no longer be connected to the remote repository, and you won’t be able to push your changes to or pull update from it.

And then

The command `git remote add origin <REMOTE_URL>` is used to add a remote repository to your local Git repository. Here’s what it does:

1. **Adds a Remote Repository:** It associates a remote URL with a name, typically `origin`. This name is an alias for the remote repository URL.
2. **Facilitates Collaboration:** By adding a remote, you can push and pull changes between your local repository and the remote repository.
3. **Default Naming:** The term `origin` is a convention used to refer to the main remote repository, usually the one you cloned from.

And Then

The command `git branch -M main` is used to **rename the current branch to “main”**. Here’s a breakdown of what it does:

- `-M`: This option stands for “move” and is used to rename the branch. The `-M` flag will force the rename even if a branch named “`main`” already exists.
- `main`: This is the new name for the branch.

So, if you are currently on a branch named “`master`” and you run `git branch -M main`, it will rename the “`master`” branch to “`main`”.

And then

The command `git push origin main` is used to upload the changes from your local repository to the remote repository. Here’s a breakdown of what each part of the command does:

- `git push`: This command is used to upload your local repository content to a remote repository.
- `origin`: This is the default name for the remote repository that you cloned your local repository from. It acts as a reference to that remote repository.

- main: This specifies the branch you want to push your changes to. In this case, it is the main branch, which is often the default branch in many repositories.

So, when you run `git push origin main`, you are pushing the commits from your local main branch to the main branch on the remote repository named origin.

```
[root@dev-server ci-cd-k8s-project]# git config --global user.name "voyag3r"
[root@dev-server ci-cd-k8s-project]# git commit -m "first commit"
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
[root@dev-server ci-cd-k8s-project]# git remote remove origin
[root@dev-server ci-cd-k8s-project]# git remote add origin git@github.com:voyag3r/MS2project.git
[root@dev-server ci-cd-k8s-project]# git branch -M main
[root@dev-server ci-cd-k8s-project]# git push origin main
The authenticity of host 'github.com (20.207.73.82)' can't be established.
ED25519 key fingerprint is SHA256:+DiY3vvvV6TuJhbhpZisF/ZLDA0zPMsvHdkx4UvC0qu.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'github.com' (ED25519) to the list of known hosts.
Enumerating objects: 207, done.
Counting objects: 100% (207/207), done.
Compressing objects: 100% (83/83), done.
Writing objects: 100% (207/207), 38.11 KiB | 7.62 MiB/s, done.
Total 207 (delta 83), reused 207 (delta 83), pack-reused 0
remote: Resolving deltas: 100% (83/83), done.
To github.com:voyag3r/MS2project.git
 * [new branch]      main -> main
```

Check your repository on github now,

The screenshot shows a GitHub repository page for 'voyag3r / MS2project'. The repository is public and contains several commits:

- sanjayguruji Update index.jsp 6370736 · 19 hours ago
- server Add files via upload last year
- webapp Update index.jsp 19 hours ago
- Dockerfile Update Dockerfile last year
- Jenkinsfile Update Jenkinsfile last year
- README.md test last year
- pom.xml Add files via upload last year

The 'About' section of the repository page includes the following information:

- created a new repository for my MS2project
- Readme
- Activity
- 0 stars
- 1 watching
- 0 forks

There are no releases published, and a link to 'Create a new release' is provided.

Jenkins Server

First connect to the newly created machine for Jenkins server and rename it to Jenkins-server.

```
PS C:\Users\10747883\Downloads> ssh -i "mumbai.pem" ec2-user@ec2-65-2-148-80.ap-south-1.compute.amazonaws.com
The authenticity of host 'ec2-65-2-148-80.ap-south-1.compute.amazonaws.com' (65.2.148.80) can't be established.
ED25519 key fingerprint is SHA256:3Xc0f3azIOCuyGr7K1K0KUuLZ1I2S3YipvYB2ci5q1s.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-65-2-148-80.ap-south-1.compute.amazonaws.com' (ED25519) to the list of known hosts.

          _#
 ~\_\_ #####_      Amazon Linux 2023
 ~~ \_\#####\
 ~~  \|##|
 ~~   \#/ --_ https://aws.amazon.com/linux/amazon-linux-2023
 ~~    \~' '-->
 ~~~   /
 ~~- .-. /-
 _/ _/
 _/m/' 

[ec2-user@ip-172-31-38-117 ~]$ sudo su
[root@ip-172-31-38-117 ec2-user]# cd
[root@ip-172-31-38-117 ~]# hostnamectl set-hostname jenkins-server
[root@ip-172-31-38-117 ~]# bash
[root@jenkins-server ~]# dnf update
Last metadata expiration check: 0:03:25 ago on Sat Sep 21 05:08:42 2024.
Dependencies resolved.
Nothing to do.
Complete!
```

Now first install java on this machine so that we can install Jenkins.

```
[root@jenkins-server ~]# dnf install java-17-amazon-corretto -y
Last metadata expiration check: 0:06:54 ago on Sat Sep 21 05:08:42 2024.
Dependencies resolved.
=====
 Package          Arch    Version           Repository      Size
=====
Installing:
 java-17-amazon-corretto      x86_64  1:17.0.12+7-1.amzn2023.1  amazonlinux   187 k
Installing dependencies:
 alsa-lib                  x86_64  1.2.7.2-1.amzn2023.0.2  amazonlinux   504 k
 cairo                     x86_64  1.17.6-2.amzn2023.0.1  amazonlinux   684 k
 dejavu-sans-fonts          noarch  2.37-16.amzn2023.0.2   amazonlinux   1.3 M
 dejavu-sans-mono-fonts     noarch  2.37-16.amzn2023.0.2   amazonlinux   467 k
 dejavu-serif-fonts         noarch  2.37-16.amzn2023.0.2   amazonlinux   1.0 M
 fontconfig                 x86_64  2.13.94-2.amzn2023.0.2  amazonlinux   273 k
 fonts-filesystem           noarch  1:2.0.5-12.amzn2023.0.2  amazonlinux   9.5 k
 freetype                   x86_64  2.13.2-5.amzn2023.0.1  amazonlinux   423 k
 giflib                     x86_64  5.2.1-9.amzn2023.0.1   amazonlinux   49 k
 google-noto-fonts-common   noarch  20201206-2.amzn2023.0.2  amazonlinux   15 k
 google-noto-sans-vf-fonts  noarch  20201206-2.amzn2023.0.2  amazonlinux   492 k
 graphite2                  x86_64  1.3.14-7.amzn2023.0.2  amazonlinux   97 k
 harfbuzz                   x86_64  7.0.0-2.amzn2023.0.1   amazonlinux   868 k
 java-17-amazon-corretto-headless x86_64  1:17.0.12+7-1.amzn2023.1  amazonlinux   91 M
 javapackages-filesystem     noarch  6.0.0-7.amzn2023.0.6   amazonlinux   12 k
 langpacks-core-font-en     noarch  3.0-21.amzn2023.0.4   amazonlinux   10 k
 libICE                      x86_64  1.0.10-6.amzn2023.0.2  amazonlinux   71 k
 libSM                      x86_64  1.2.3-8.amzn2023.0.2  amazonlinux   42 k
 libX11                     x86_64  1.7.2-3.amzn2023.0.4   amazonlinux   657 k
 libX11-common               noarch  1.7.2-3.amzn2023.0.4   amazonlinux   152 k
 libXau                     x86_64  1.0.9-6.amzn2023.0.2  amazonlinux   31 k
 libXext                     x86_64  1.3.4-6.amzn2023.0.2  amazonlinux   41 k
 libXi                      x86_64  1.7.10-6.amzn2023.0.2  amazonlinux   40 k
 libXinerama                x86_64  1.1.4-8.amzn2023.0.2  amazonlinux   15 k
```

Now add the Jenkins repository to the local system.

Import a key file from the Jenkin-CI to enable installation of the package.

Finally, we can install Jenkins.

```
Complete!
[root@jenkins-server ~]# wget -O /etc/yum.repos.d/jenkins.repo \
    https://pkg.jenkins.io/redhat-stable/jenkins.repo
--2024-09-21 05:17:22-- https://pkg.jenkins.io/redhat-stable/jenkins.repo
Resolving pkg.jenkins.io (pkg.jenkins.io)... 151.101.154.133, 2a04:4e42:24::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|151.101.154.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 85
Saving to: '/etc/yum.repos.d/jenkins.repo'

/etc/yum.repos.d/jenk 100%[=====]     85  --.-KB/s   in 0s

2024-09-21 05:17:22 (5.69 MB/s) - '/etc/yum.repos.d/jenkins.repo' saved [85/85]

[root@jenkins-server ~]# rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io-20
23.key
[root@jenkins-server ~]# sudo dnf install jenkins -y
Jenkins-stable                               274 kB/s | 29 kB     00:00
Last metadata expiration check: 0:00:01 ago on Sat Sep 21 05:18:58 2024.
Dependencies resolved.
=====
Package           Architecture      Version       Repository      Size
=====
Installing:
  jenkins        noarch          2.462.2-1.1   jenkins        89 M

Transaction Summary
=====
Install 1 Package

Total download size: 89 M
Installed size: 89 M
```

And finally, we can enable and start Jenkins.

```
Complete!
[root@jenkins-server ~]# sudo systemctl enable jenkins
Created symlink /etc/systemd/system/multi-user.target.wants/jenkins.service → /usr/lib/s
ystemd/system/jenkins.service.
[root@jenkins-server ~]# sudo systemctl start jenkins
```

Now open your Jenkins on web with dns public ip.

Getting Started

Unlock Jenkins

To ensure Jenkins is securely set up by the administrator, a password has been written to the log ([not sure where to find it?](#)) and this file on the server:

```
/var/lib/jenkins/secrets/initialAdminPassword
```

Please copy the password from either location and paste it below.

Administrator password

Continue

Do as what is mentioned above on the tab

```
[root@jenkins-server ~]# cat /var/lib/jenkins/secrets/initialAdminPassword  
c6014109b75b48dca2bae9b0df9d3b04
```

And paste this password on the above Jenkins tab and finally install suggested plugins.

Getting Started

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 2.462.2

Getting Started

Getting Started

✓ F			
Timestamper	Workspace Cleanup	Ant	Gradle
Pipeline	Github Branch Source	Pipeline: GitHub Groovy Libraries	Pipeline Graph View
Git	SSH Build Agents	Matrix Authorization	PAM Authentication
** Ionicons API Folders OWASP Markup Formatter ** ASM API ** JSON Path API			

** - required dependency

Jenkins 2.462.2

And now create admin user.

Getting Started

Create First Admin User

Username

Password

Confirm password

Jenkins 2.462.2

[Skip and continue as admin](#)

[Save and Continue](#)

Save and continue

Getting Started

Instance Configuration

Jenkins URL:

<http://ec2-65-2-148-80.ap-south-1.compute.amazonaws.com:8080>

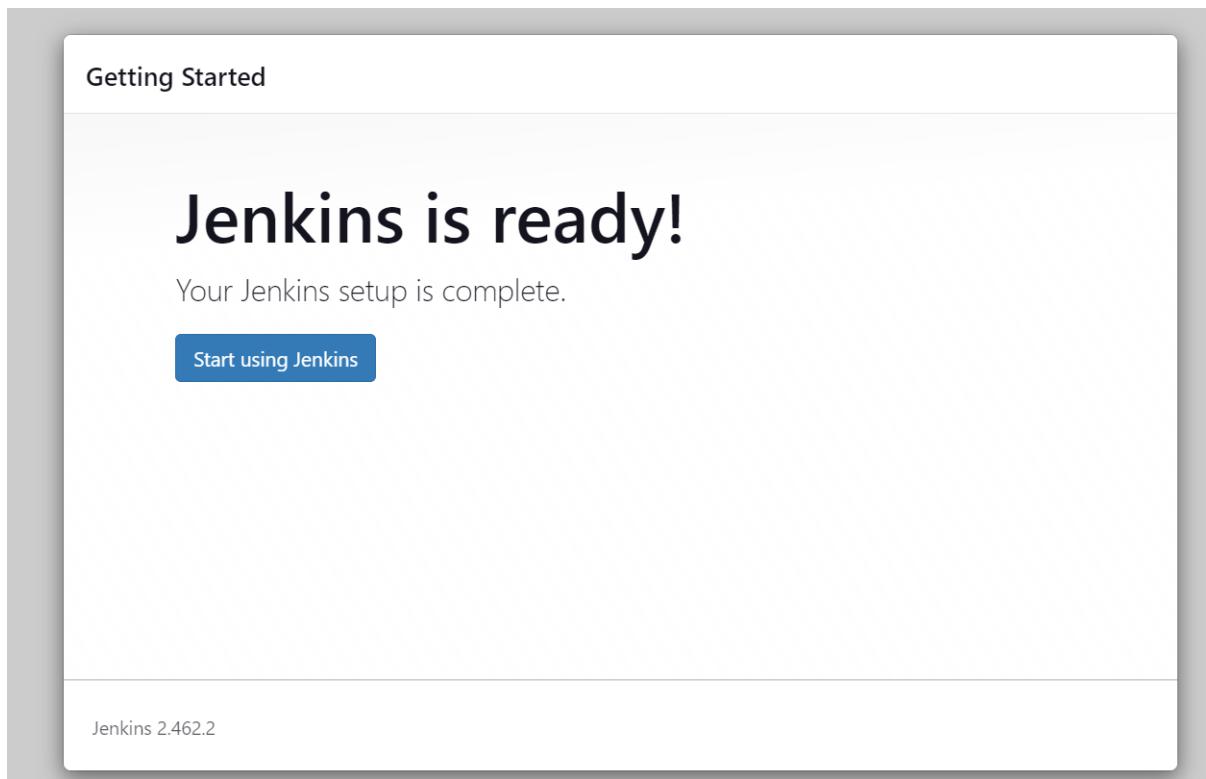
The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the `BUILD_URL` environment variable provided to build steps.

The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

Jenkins 2.462.2

[Not now](#)

[Save and Finish](#)



Finally we can see our Jenkins is configured.

The screenshot shows the Jenkins Dashboard. At the top, there's a navigation bar with the Jenkins logo, a search bar, and user information (admin). Below the bar, a 'Dashboard >' link is visible. On the left, there's a sidebar with links for 'New Item', 'Build History', 'Manage Jenkins', and 'My Views'. The main content area has a title 'Welcome to Jenkins!' and a message: 'This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.' Below this, a 'Start building your software project' section contains three buttons: 'Create a job' (with a '+' icon), 'Set up a distributed build' (with a computer monitor icon), and 'Set up an agent' (with a monitor icon). On the far right, there's a 'Configure a cloud' button (with a cloud icon). At the bottom left, there are two sections: 'Build Queue' (showing 'No builds in the queue.') and 'Build Executor Status' (showing '1 Idle' and '2 Idle').

Now generate token

Dashboard > admin > Configure

Credentials

Plain text [Preview](#)

API Token

Current token(s) [?](#)

Token created on 2024-09-21T05:43:35.8 11cea9da5daf84212373e88c88fcdeee57 [Copy](#) [Delete](#)

⚠️ Copy this token now, because it cannot be recovered in the future.

Add new Token

Console URL Provider

[Save](#) [Apply](#)

Now we will connect Jenkins to github with webhook for that we need to install git on Jenkins-server as well.

```
[root@jenkins-server ~]# cd
[root@jenkins-server ~]# yum install git
Last metadata expiration check: 0:27:12 ago on Sat Sep 21 05:18:58 2024.
Dependencies resolved.
=====
Package           Architecture      Version       Repository      Size
=====
Installing:
git              x86_64          2.40.1-1.amzn2023.0.3   amazonlinux    54 k
Installing dependencies:
git-core          x86_64          2.40.1-1.amzn2023.0.3   amazonlinux    4.3 M
git-core-doc      noarch          2.40.1-1.amzn2023.0.3   amazonlinux    2.6 M
perl-Error        noarch          1:0.17029-5.amzn2023.0.2   amazonlinux    41 k
perl-File-Find    noarch          1.37-477.amzn2023.0.6    amazonlinux    26 k
perl-Git          noarch          2.40.1-1.amzn2023.0.3    amazonlinux    42 k
perl-TermReadKey x86_64          2.38-9.amzn2023.0.2     amazonlinux    36 k
perl-lib          x86_64          0.65-477.amzn2023.0.6    amazonlinux    15 k

Transaction Summary
=====
Install 8 Packages

Total download size: 7.1 M
Installed size: 34 M
Is this ok [y/N]: y
Downloading Packages:
(1/8): git-2.40.1-1.amzn2023.0.3.x86_64.rpm          757 kB/s | 54 kB  00:00
(2/8): perl-Error-0.17029-5.amzn2023.0.2.noarch.rpm   2.2 MB/s | 41 kB  00:00
(3/8): perl-File-Find-1.37-477.amzn2023.0.6.noarch.rpm 1.6 MB/s | 26 kB  00:00
(4/8): git-core-doc-2.40.1-1.amzn2023.0.3.noarch.rpm   19 MB/s | 2.6 MB  00:00
(5/8): perl-Git-2.40.1-1.amzn2023.0.3.noarch.rpm      1.3 MB/s | 42 kB  00:00
(6/8): perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64.rpm 2.0 MB/s | 36 kB  00:00
(7/8): perl-lib-0.65-477.amzn2023.0.6.x86_64.rpm      837 kB/s | 15 kB  00:00

[11:16 21-09-2024]
```

The screenshot shows a Jenkins dashboard with a modal window for configuring a webhook. The payload URL is set to `http://ec2-65-2-148-80.ap-south-1.compute.amazonaws.com:8080/github-webhook/`. The content type is set to `application/json`. The SSL verification option is selected. A tooltip provides information about memory usage (91.8 MB) and describes the events that can be subscribed to.

Now install maven in Jenkins server

```
[root@jenkins-server ~]# yum install maven -y
Last metadata expiration check: 1:29:19 ago on Sat Sep 21 05:18:58 2024.
Dependencies resolved.
=====
Package           Architecture Version      Repository   Size
=====
maven            noarch     1:3.8.4-3.amzn2023.0.5 amazonlinux 18 k
=====
Installing:
=====
maven
Installing dependencies:
apache-commons-cli           noarch    1.5.0-3.amzn2023.0.3   amazonlinux 76 k
apache-commons-codec          noarch    1.15-6.amzn2023.0.3   amazonlinux 303 k
apache-commons-io             noarch    1:2.8.0-7.amzn2023.0.4  amazonlinux 284 k
apache-commons-lang3          noarch    3.12.0-7.amzn2023.0.3   amazonlinux 559 k
atinject                  noarch    1.0.5-3.amzn2023.0.3   amazonlinux 23 k
cdi-api                    noarch    2.0.2-6.amzn2023.0.3   amazonlinux 54 k
google-guice                noarch    4.2.3-8.amzn2023.0.6   amazonlinux 473 k
guava                      noarch    31.0.1-3.amzn2023.0.6   amazonlinux 2.4 M
httpcomponents-client        noarch    4.5.13-4.amzn2023.0.4   amazonlinux 657 k
httpcomponents-core          noarch    4.4.13-6.amzn2023.0.3   amazonlinux 632 k
jakarta-annotations         noarch    1.3.5-13.amzn2023.0.3  amazonlinux 46 k
jansi                      x86_64    2.4.0-3.amzn2023.0.3   amazonlinux 113 k
java-17-amazon-corretto-devel x86_64    1:17.0.12+7-1.amzn2023.1 amazonlinux 142 k
jcl-over-slf4j               noarch    1.7.32-3.amzn2023.0.4   amazonlinux 25 k
jsoup                      noarch    1.13.1-9.amzn2023.0.5   amazonlinux 377 k
jsr-305                     noarch    3.0.2-5.amzn2023.0.4   amazonlinux 32 k
maven-amazon-corretto17      noarch    1:3.8.4-3.amzn2023.0.5  amazonlinux 9.4 k
maven-lib                   noarch    1:3.8.4-3.amzn2023.0.5  amazonlinux 1.5 M
maven-resolver              noarch    1:1.7.3-3.amzn2023.0.4   amazonlinux 557 k
maven-shared-utils           noarch    3.3.4-4.amzn2023.0.3   amazonlinux 152 k
maven-wagon                 noarch    3.4.2-6.amzn2023.0.4   amazonlinux 113 k
plexus-cipher               noarch    1.8-3.amzn2023.0.3   amazonlinux 27 k
plexus-classworlds          noarch    2.6.0-10.amzn2023.0.4  amazonlinux 61 k
plexus-containers-component-annotations noarch    2.1.0-9.amzn2023.0.4  amazonlinux 19 k
```

```
[root@jenkins-server ~]# mvn -v
Apache Maven 3.8.4 (Red Hat 3.8.4-3.amzn2023.0.5)
Maven home: /usr/share/maven
Java version: 17.0.12, vendor: Amazon.com Inc., runtime: /usr/lib/jvm/java-17-amazon-corretto.x86_64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "6.1.109-118.189.amzn2023.x86_64", arch: "amd64", family: "unix"
[root@jenkins-server ~]#
```

The screenshot shows the Jenkins 'Tools' configuration page under 'Manage Jenkins'. A new Maven installation is being created with the name 'maven' and MAVEN_HOME set to '/usr/share/maver'. The 'Install automatically' checkbox is checked. Buttons for 'Save' and 'Apply' are visible at the bottom.

After all configuration we will build our git project and Console output is displayed here.

The screenshot shows the Jenkins 'Console Output' page for job #2. The log displays the Maven build process, starting with 'BUILD SUCCESS' and ending with 'channel stopped' and 'Finished: SUCCESS'. The log also includes Jenkins-specific archiving steps for webapp and server projects.

```
[INFO] Server ..... SUCCESS [ 5.268 s]
[INFO] Webapp ..... SUCCESS [ 2.797 s]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 12.652 s
[INFO] Finished at: 2024-09-21T07:08:18Z
[INFO] -----
[JENKINS] Archiving /var/lib/jenkins/workspace/new-ravi/webapp/pom.xml to com.example.maven-project/webapp/1.0-SNAPSHOT/webapp-1.0-SNAPSHOT.pom
[JENKINS] Archiving /var/lib/jenkins/workspace/new-ravi/webapp/target/webapp.war to com.example.maven-project/webapp/1.0-SNAPSHOT/webapp-1.0-SNAPSHOT.war
[JENKINS] Archiving /var/lib/jenkins/workspace/new-ravi/server/pom.xml to com.example.maven-project/server/1.0-SNAPSHOT/server-1.0-SNAPSHOT.pom
[JENKINS] Archiving /var/lib/jenkins/workspace/new-ravi/server/target/server.jar to com.example.maven-project/server/1.0-SNAPSHOT/server-1.0-SNAPSHOT.jar
[JENKINS] Archiving /var/lib/jenkins/workspace/new-ravi/pom.xml to com.example.maven-project/maven-project/1.0-SNAPSHOT/maven-project-1.0-SNAPSHOT.pom
channel stopped
Finished: SUCCESS
```

Tomcat:

AWS CloudWatch Metrics console showing metrics for EC2 instances. The left sidebar shows 'Metrics' and 'Logs'. The main pane displays a table of metrics for three instances: Tomcat-server, developer-server, and jenkins-server. The Tomcat-server instance has a value of 1.000000.

```

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\10747883> cd Downloads
PS C:\Users\10747883\Downloads> ssh -i "mumbai.pem" ec2-user@ec2-13-234-116-103.ap-south-1.compute.amazonaws.com
The authenticity of host 'ec2-13-234-116-103.ap-south-1.compute.amazonaws.com (13.234.116.103)' can't be established.
ED25519 key fingerprint is SHA256:3VsudtOfY+R0TahA1UU33l+Ex46P/lzH6FUUhvpA5U.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-13-234-116-103.ap-south-1.compute.amazonaws.com' (ED25519) to the list of known hosts.

#_
~\_ #####_      Amazon Linux 2023
~~ \_#####\_
~~ \###|
~~ \#/ _-->
~~ \~` _-->
~~ .-` _/`_
~~ /_`_/
~/`_/
/_m`_/

[ec2-user@ip-172-31-34-221 ~]$ sudo su
[root@ip-172-31-34-221 ec2-user]# cd
[root@ip-172-31-34-221 ~]# hostnamectl set-hostname tomcat-server
[root@ip-172-31-34-221 ~]# basj
bash: basj: command not found
[root@ip-172-31-34-221 ~]# basj
bash: basj: command not found
[root@ip-172-31-34-221 ~]# bash
[root@tomcat-server ~]#

```

Install java

```
[root@tomcat-server ~]# yum install java*
Last metadata expiration check: 0:03:26 ago on Sat Sep 21 07:14:56 2024.
Dependencies resolved.
=====
Package           Architecture Version      Repository  Size
=====
java-1.8.0-amazon-corretto x86_64       1:1.8.0.422.b05-1.amzn2023 amazonlinux 38 M
java-1.8.0-amazon-corretto-devel x86_64       1:1.8.0.422.b05-1.amzn2023 amazonlinux 63 M
java-11-amazon-corretto x86_64       1:11.0.24+8-1.amzn2023 amazonlinux 197 k
java-11-amazon-corretto-devel x86_64       1:11.0.24+8-1.amzn2023 amazonlinux 211 k
java-11-amazon-corretto-javadoc x86_64       1:11.0.24+8-1.amzn2023 amazonlinux 13 M
java-11-amazon-corretto-jmods x86_64       1:11.0.24+8-1.amzn2023 amazonlinux 71 M
java-17-amazon-corretto x86_64       1:17.0.12+7-1.amzn2023.1 amazonlinux 187 k
java-17-amazon-corretto-javadoc x86_64       1:17.0.12+7-1.amzn2023.1 amazonlinux 12 M
java-17-amazon-corretto-jmods x86_64       1:17.0.12+7-1.amzn2023.1 amazonlinux 69 M
java-21-amazon-corretto x86_64       1:21.0.4+7-1.amzn2023.1 amazonlinux 213 k
java-21-amazon-corretto-devel x86_64       1:21.0.4+7-1.amzn2023.1 amazonlinux 150 k
java-21-amazon-corretto-javadoc x86_64       1:21.0.4+7-1.amzn2023.1 amazonlinux 13 M
java-21-amazon-corretto-jmods x86_64       1:21.0.4+7-1.amzn2023.1 amazonlinux 75 M
java-22-amazon-corretto x86_64       1:22.0.2+9-1.amzn2023.1 amazonlinux 213 k
java-22-amazon-corretto-devel x86_64       1:22.0.2+9-1.amzn2023.1 amazonlinux 150 k
java-22-amazon-corretto-javadoc x86_64       1:22.0.2+9-1.amzn2023.1 amazonlinux 13 M
java-22-amazon-corretto-jmods x86_64       1:22.0.2+9-1.amzn2023.1 amazonlinux 74 M
java_cup noarch     1:0.11b-21.amzn2023.0.3 amazonlinux 129 k
java_cup-javadoc noarch     1:0.11b-21.amzn2023.0.3 amazonlinux 163 k
java_cup-manual noarch     1:0.11b-21.amzn2023.0.3 amazonlinux 32 k
javacc noarch     7.0.4-11.amzn2023.0.1 amazonlinux 606 k
javacc-demo noarch     7.0.4-11.amzn2023.0.1 amazonlinux 95 k
javacc-javadoc noarch     7.0.4-11.amzn2023.0.1 amazonlinux 229 k
javacc-manual noarch     7.0.4-11.amzn2023.0.1 amazonlinux 84 k
javacc-maven-plugin noarch     2.6-35.amzn2023.0.1 amazonlinux 77 k
javacc-maven-plugin-javadoc noarch     2.6-35.amzn2023.0.1 amazonlinux 126 k
```

Now install tomcat

```
Complete!
[root@tomcat-server ~]# wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.95/bin/apache-tomcat-9.0.95.tar.gz
--2024-09-21 07:24:36-- https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.95/bin/apache-tomcat-9.0.95.tar.gz
Resolving dlcdn.apache.org (dlcdn.apache.org)... 151.101.2.132, 2a04:4e42::644
Connecting to dlcdn.apache.org (dlcdn.apache.org)|151.101.2.132|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 12715996 (12M) [application/x-gzip]
Saving to: 'apache-tomcat-9.0.95.tar.gz'

apache-tomcat-9.0.95.tar.gz      100%[=====] 12.13M --.-KB/s   in 0.09s

2024-09-21 07:24:36 (130 MB/s) - 'apache-tomcat-9.0.95.tar.gz' saved [12715996/12715996]

[root@tomcat-server ~]# tar -zvxf apache-tomcat-9.0.95.tar.gz
apache-tomcat-9.0.95/conf/
apache-tomcat-9.0.95/conf/catalina.policy
apache-tomcat-9.0.95/conf/catalina.properties
apache-tomcat-9.0.95/conf/context.xml
apache-tomcat-9.0.95/conf/jaspic-providers.xml
apache-tomcat-9.0.95/conf/jaspic-providers.xsd
apache-tomcat-9.0.95/conf/logging.properties
apache-tomcat-9.0.95/conf/server.xml
apache-tomcat-9.0.95/conf/tomcat-users.xml
apache-tomcat-9.0.95/conf/tomcat-users.xsd
apache-tomcat-9.0.95/conf/web.xml
apache-tomcat-9.0.95/bin/
apache-tomcat-9.0.95/lib/
apache-tomcat-9.0.95/Logs/
apache-tomcat-9.0.95/temp/
apache-tomcat-9.0.95/webapps/
apache-tomcat-9.0.95/webapps/ROOT/
apache-tomcat-9.0.95/webapps/ROOT/WEB-INF/
apache-tomcat-9.0.95/webapps/docs/
```

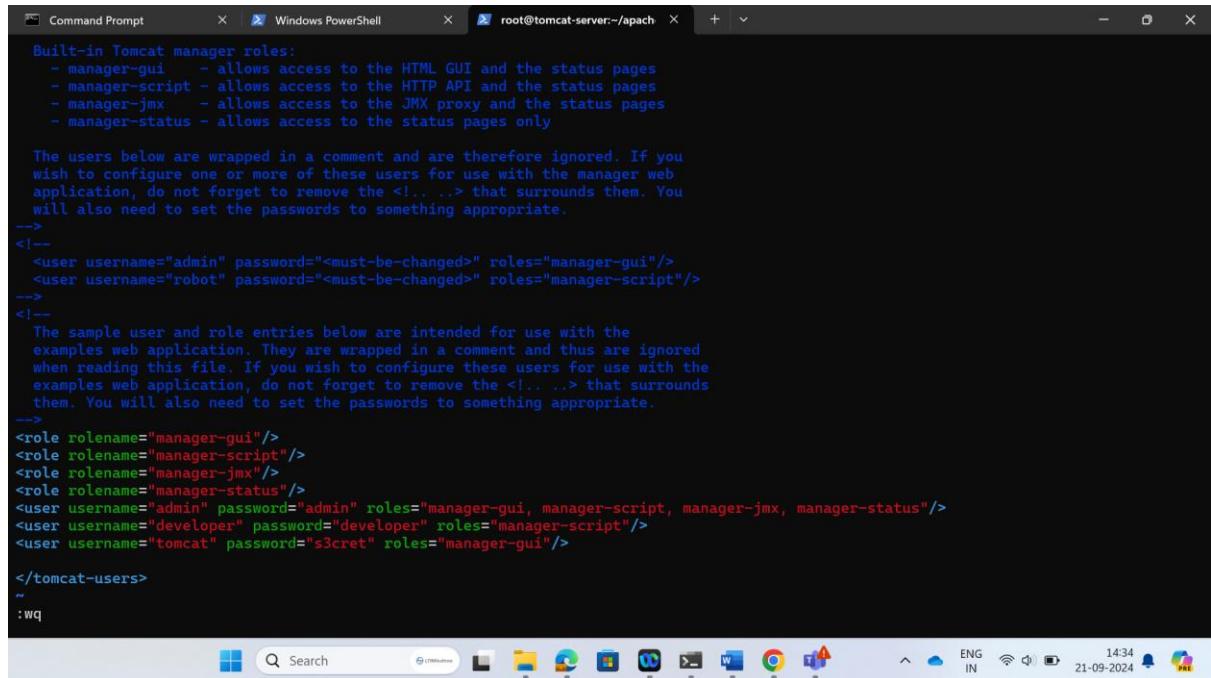
Unzip the apache tomcat folder. Enter in apache-tomcat folder. Open the bin file and find the path of all context.xml files.

```
[root@tomcat-server bin]# find / -name context.xml
/root/apache-tomcat-9.0.95/conf/context.xml
/root/apache-tomcat-9.0.95/webapps/docs/META-INF/context.xml
/root/apache-tomcat-9.0.95/webapps/examples/META-INF/context.xml
/root/apache-tomcat-9.0.95/webapps/host-manager/META-INF/context.xml
/root/apache-tomcat-9.0.95/webapps/manager/META-INF/context.xml
```

Change the last two files and comment out valve

```
<Context antiResourceLocking="false" privileged="true" >
    <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
        sameSiteCookies="strict" />
    <!-- <Valve className="org.apache.catalina.valves.RemoteAddrValve"
        allow="127\\.\\d+\\.\\d+\\.\\d+:1|0:0:0:0:0:1" />-->
    <Manager sessionAttributeValueClassNameFilter="java\\.lang\\.\\(?:Boolean|Integer|L
srfPreventionFilter\\$LruCache(?:\\$1)?|java\\.util\\.\\(?:Linked)?HashMap"/>
    <!-->
```

Open the conf/ tomcat-users.xml file and add users:

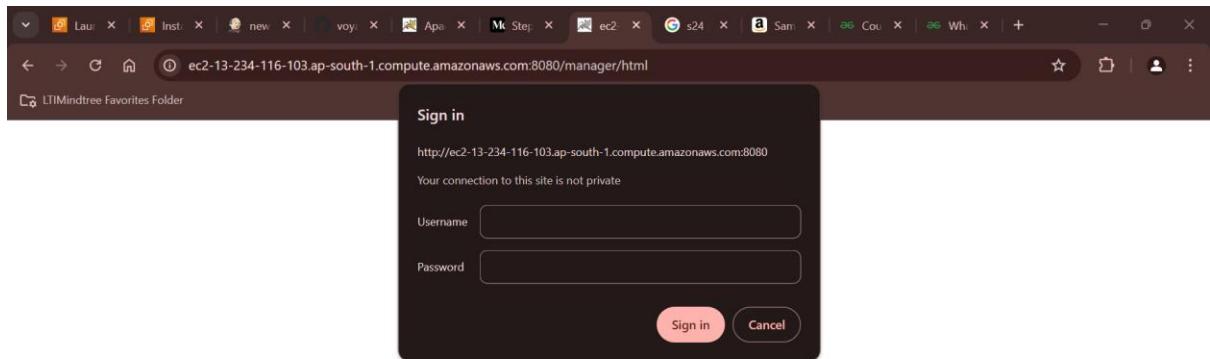


```
Command Prompt      X  Windows PowerShell      X  root@tomcat-server:~/apach      X  +  -
Built-in Tomcat manager roles:
- manager-gui      - allows access to the HTML GUI and the status pages
- manager-script   - allows access to the HTTP API and the status pages
- manager-jmx      - allows access to the JMX proxy and the status pages
- manager-status   - allows access to the status pages only

The users below are wrapped in a comment and are therefore ignored. If you
wish to configure one or more of these users for use with the manager web
application, do not forget to remove the <!...> that surrounds them. You
will also need to set the passwords to something appropriate.
-->
<!--
<user username="admin" password="<must-be-changed>" roles="manager-gui"/>
<user username="robot" password="<must-be-changed>" roles="manager-script"/>
-->
<!--
The sample user and role entries below are intended for use with the
examples web application. They are wrapped in a comment and thus are ignored
when reading this file. If you wish to configure these users for use with the
examples web application, do not forget to remove the <!...> that surrounds
them. You will also need to set the passwords to something appropriate.
-->
<role rolename="manager-gui"/>
<role rolename="manager-script"/>
<role rolename="manager-jmx"/>
<role rolename="manager-status"/>
<user username="admin" password="admin" roles="manager-gui, manager-script, manager-jmx, manager-status"/>
<user username="developer" password="developer" roles="manager-script"/>
<user username="tomcat" password="s3cret" roles="manager-gui"/>

</tomcat-users>
~
:WD
```

Start tomcat



The screenshot displays a Windows desktop environment with two browser windows open. The top browser window shows a 'Sign in' dialog box for the URL <http://ec2-13-234-116-103.ap-south-1.compute.amazonaws.com:8080/manager/html>. The dialog box contains fields for 'Username' and 'Password' with 'Sign in' and 'Cancel' buttons. A message at the top states 'Your connection to this site is not private'. The bottom browser window shows the 'Tomcat Web Application Manager' interface. It features a logo of a yellow cat and the Apache Software Foundation logo. The main area lists three applications: 'Welcome to Tomcat', 'Tomcat Documentation', and 'Servlet and JSP Examples'. Each application entry includes a 'Commands' section with buttons for 'Start', 'Stop', 'Reload', and 'Undeploy', along with session expiration controls. The desktop taskbar at the bottom shows various pinned icons and the system tray indicates the date and time as 21-09-2024.

Now go to credentials

The screenshot shows the Jenkins Manage Jenkins dashboard. In the top right corner, there is a link labeled "Appearance". Below it, under the "Security" heading, there are two main sections: "Security" and "Credentials". The "Security" section includes a lock icon and a brief description: "Secure Jenkins; define who is allowed to access/use the system.". The "Credentials" section is highlighted with a blue border and includes a key icon and a brief description: "Configure credentials". At the bottom of the screen, a Windows taskbar is visible with various pinned icons.

Then system > Global credential and then add credential

The screenshot shows the Jenkins Manage Jenkins dashboard with the path "Manage Jenkins > Credentials > System > Global credentials (unrestricted)". A search bar at the top of the form contains the text "Global (Jenkins, nodes, items, all child items, etc)". The form fields include:

- Username**: developer
- Treat username as secret**:
- Password**: (containing "*****")
- ID**: tomcat
- Description**: (empty)

A blue "Create" button is located at the bottom left of the form. The Windows taskbar is visible at the bottom of the screen.

>Create new item

> type name

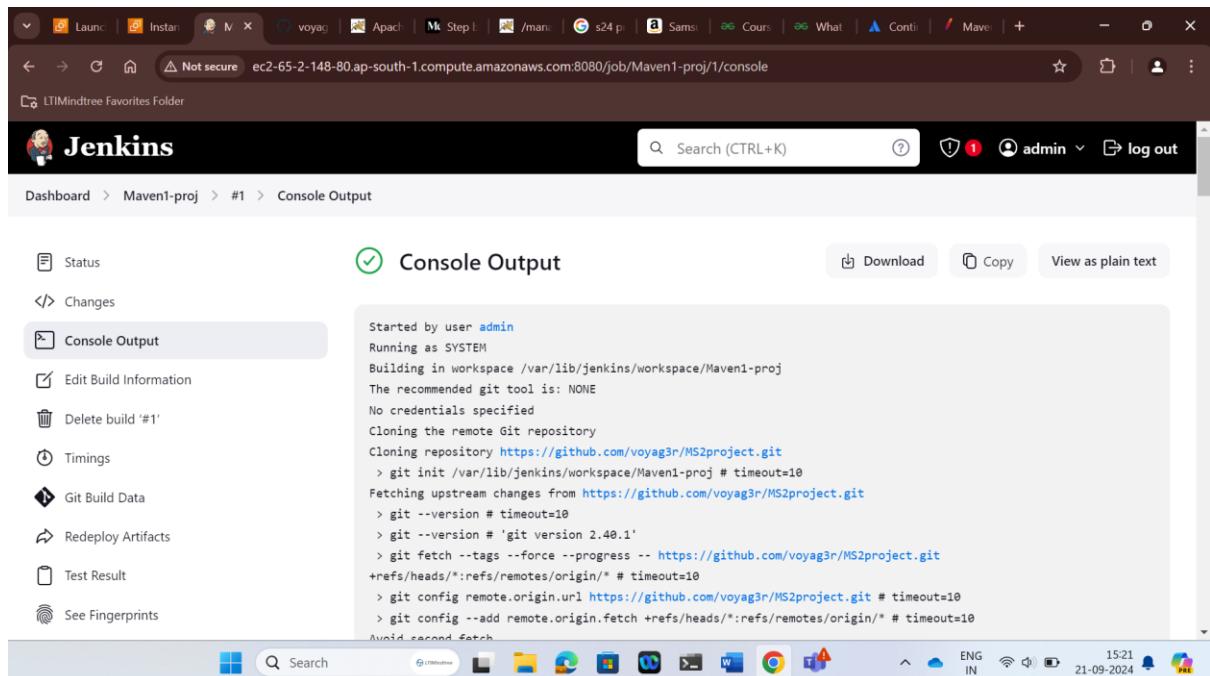
> select maven project

> add git repository link

> change branch to main

- > Build trigger
- > Go to add post built action
- > deploy ear/war to a container
- > Save and apply > Build now

And finally we can see the build is successful

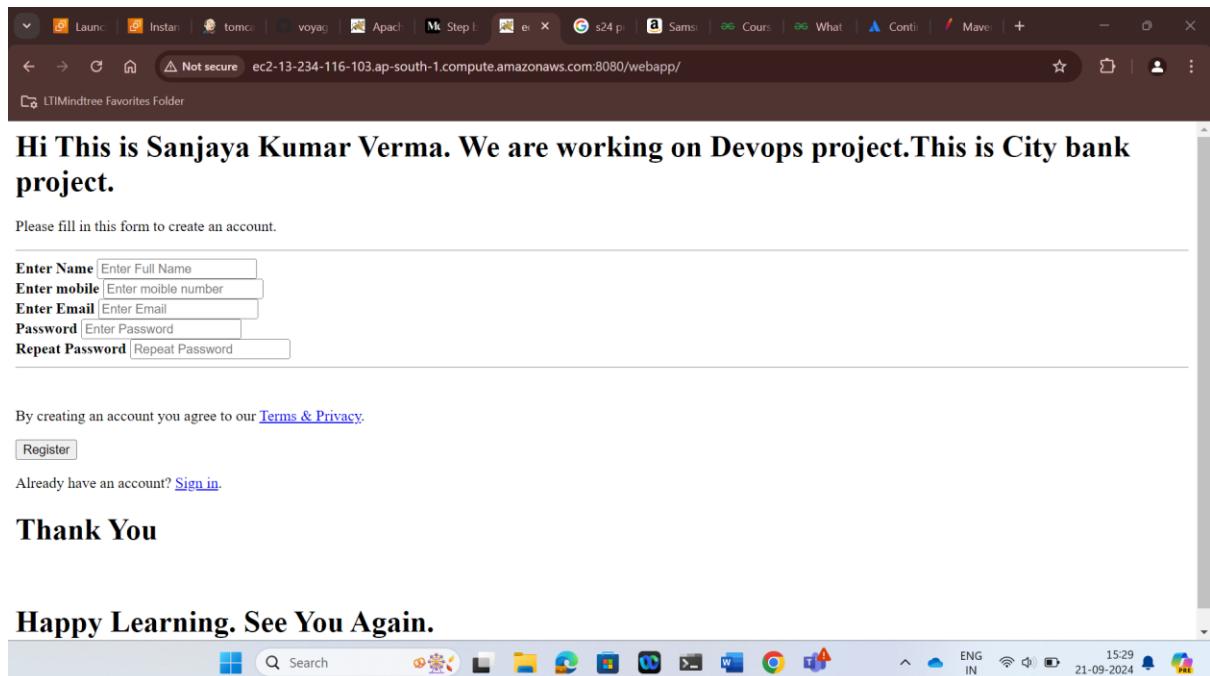


The screenshot shows a Jenkins console output for a Maven project. The left sidebar has a 'Console Output' tab selected. The main area displays the build logs:

```

Started by user admin
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/Maven1-proj
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
  Cloning repository https://github.com/voyag3r/MS2project.git
    > git init /var/lib/jenkins/workspace/Maven1-proj # timeout=10
    Fetching upstream changes from https://github.com/voyag3r/MS2project.git
      > git --version # timeout=10
      > git --version # 'git version 2.40.1'
      > git fetch --tags --force --progress -- https://github.com/voyag3r/MS2project.git
        +refs/heads/*:refs/remotes/origin/*
      > git config remote.origin.url https://github.com/voyag3r/MS2project.git # timeout=10
      > git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
      Avoid second fetch

```



The screenshot shows a web application with a registration form. The page title is 'Hi This is Sanjaya Kumar Verma. We are working on Devops project.This is City bank project.' Below the title, there is a message: 'Please fill in this form to create an account.' The form contains fields for 'Enter Name', 'Enter mobile', 'Enter Email', 'Password', and 'Repeat Password'. At the bottom, there is a note: 'By creating an account you agree to our [Terms & Privacy](#)'. There are 'Register' and 'Sign in' buttons.

Thank You

Happy Learning. See You Again.

Configure

General

Source Code Management

Build Triggers

Build Environment

Pre Steps

Build

Post Steps

Build Settings

Post-build Actions

Save Apply

Dashboard > tomcat > Configuration

Build after other projects are built ?

Build periodically ?

GitHub hook trigger for GITScm polling ?

Poll SCM ?

Schedule ?

⚠️ Do you really mean "every minute" when you say * * * * *? Perhaps you meant "H * * * * * to poll once per hour

Would last have run at Saturday, September 21, 2024 at 10:00:06 AM Coordinated Universal Time; would next run at Saturday, September 21, 2024 at 10:00:06 AM Coordinated Universal Time.

Ignore post-commit hooks ?

After updation we can see the results as well.

Commit changes

Commit message

Update index.jsp

Extended description

Add an optional extended description..

Commit directly to the main branch

Create a new branch for this commit and start a pull request [Learn more about pull requests](#)

Cancel Commit changes...

Code 55% faster with GitHub Copilot

1 <form action="action_page.php">

2 <div class="container">

3 <h1>Hi This is Abhinav Gupta. We are working</h1>

4 <p>Please fill in this form to create an account</p>

5 <hr>

6 <label for="Name">Enter Name</label>

7 <input type="text" placeholder="Enter Full Name" name="Name" />

8

9 <label for="mobile">Enter mobile</label>

10 <input type="text" placeholder="Enter mobile number" name="mobile" />

11

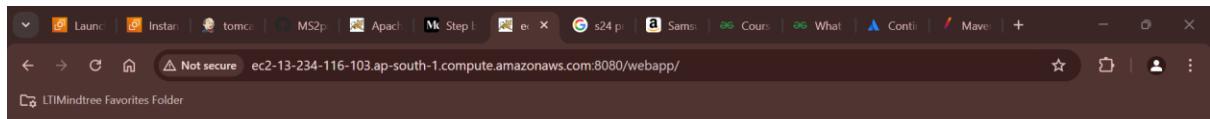
12 <label for="email">Enter Email</label>

13 <input type="text" placeholder="Enter Email" name="email" />

14

15

Use Control + Shift + M to toggle the tab key moving focus. Alternatively, use esc then tab to move to the next interactive element on the page.



Hi This is Abhinav Gupta. We are working on Devops project.This is City bank project.

Please fill in this form to create an account.

Enter Name	Enter Full Name
Enter mobile	Enter mobile number
Enter Email	Enter Email
Password	Enter Password
Repeat Password	Repeat Password

By creating an account you agree to our [Terms & Privacy](#).

[Register](#)

Already have an account? [Sign in](#).

Thank You

Happy Learning. See You Again.



Here we can see successful integration.

STEP 2:

- Created an Docker instance
- Jenkins and Docker is connected to Jenkins SSH Server Via Public IP
- Docker is connected to Jenkins via Public Ip
- Docker image is generated
- To push the Docker image to Amazon ECR we are giving push commands in Jenkins which automatically push the docker image to ECR

Docker Server:

First install docker

```
PS Command Prompt      X  Windows PowerShell      X  root@tomcat-server:~      X  root@ip-172-31-34-227:~      +  -  15:36
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\10747883> cd Downloads
PS C:\Users\10747883\Downloads> ssh -i "mumbai.pem" ec2-user@ec2-13-233-110-120.ap-south-1.compute.amazonaws.com
The authenticity of host 'ec2-13-233-110-120.ap-south-1.compute.amazonaws.com (13.233.110.120)' can't be established.
ED25519 key fingerprint is SHA256:xSw2PIFlDZ8h4bH5B9RoqBY5zGoeDVuRwdAbfmBYGNI.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-13-233-110-120.ap-south-1.compute.amazonaws.com' (ED25519) to the list of known hosts.

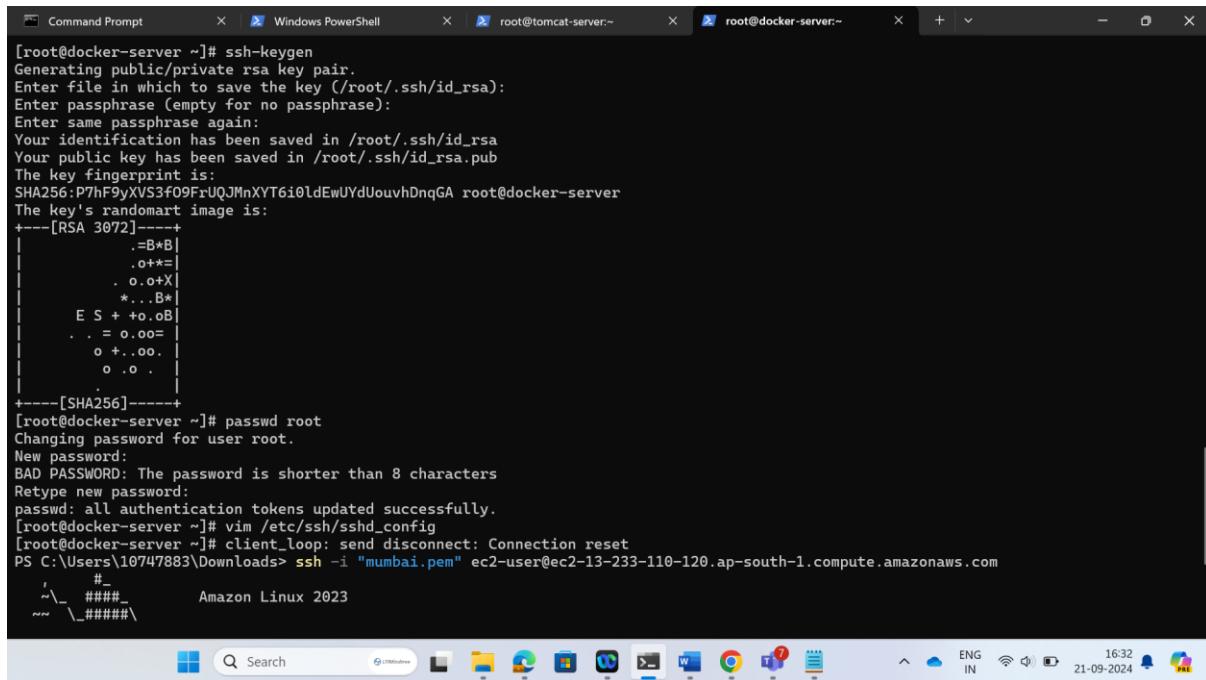
#_
#_ _###_ Amazon Linux 2023
#_ \_###_\
#_ \###|
#_   '#/ ___ https://aws.amazon.com/linux/amazon-linux-2023
#_     V~! `-->
#_     /
#_   .-. / \
#_   _/_/
#_ /m/`[ec2-user@ip-172-31-34-227 ~]$ sudo su
[root@ip-172-31-34-227 ec2-user]# cd
[root@ip-172-31-34-227 ~]# hostnamectl set-hostname docker-server
[root@ip-172-31-34-227 ~]# bash
[root@docker-server ~]#
```

```
[root@docker-server ~]# yum install docker
Last metadata expiration check: 0:13:44 ago on Sat Sep 21 10:04:43 2024.
Dependencies resolved.
=====
 Package           Architecture   Version      Repository  Size
=====
Installing:
 docker            x86_64        25.0.6-1.amzn2023.0.2    amazonlinux 44 M
Installing dependencies:
 containerd         x86_64        1.7.20-1.amzn2023.0.1    amazonlinux 35 M
 iptables-libs     x86_64        1.8.8-3.amzn2023.0.2    amazonlinux 401 k
 iptables-nft      x86_64        1.8.8-3.amzn2023.0.2    amazonlinux 183 k
 libcgroup          x86_64        3.0-1.amzn2023.0.1     amazonlinux 75 k
 libnetfilter_conntrack x86_64        1.0.8-2.amzn2023.0.2    amazonlinux 58 k
 libnftnetlink     x86_64        1.0.1-19.amzn2023.0.2   amazonlinux 30 k
 libnftnl          x86_64        1.2.2-2.amzn2023.0.2   amazonlinux 84 k
 pigz              x86_64        2.5-1.amzn2023.0.3     amazonlinux 83 k
 runc              x86_64        1.1.13-1.amzn2023.0.1   amazonlinux 3.2 M

Transaction Summary
=====
Install 10 Packages

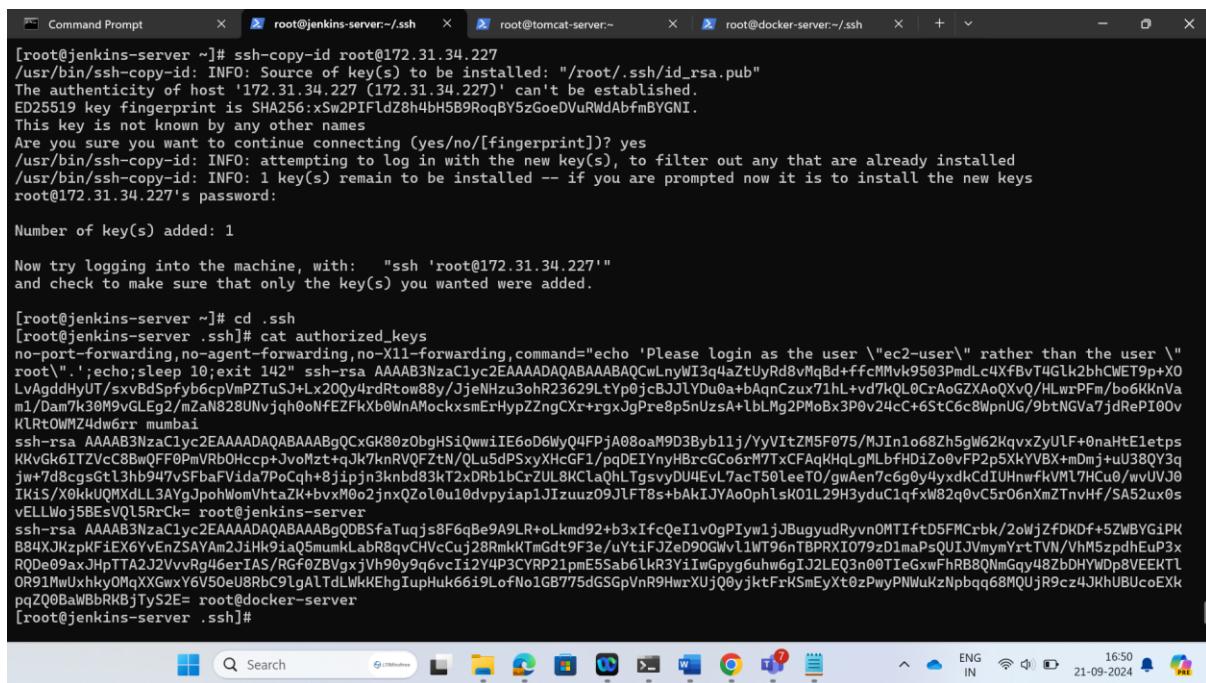
Total download size: 84 M
Installed size: 317 M
Is this ok [y/N]: y
Downloading Packages:
(1/10): iptables-libs-1.8.8-3.amzn2023.0.2.x86_64.rpm      4.9 MB/s | 401 kB  00:00
(2/10): iptables-nft-1.8.8-3.amzn2023.0.2.x86_64.rpm       6.0 MB/s | 183 kB  00:00
(3/10): libcgroup-3.0-1.amzn2023.0.1.x86_64.rpm          4.1 MB/s |  75 kB  00:00
(4/10): libnetfilter_conntrack-1.0.8-2.amzn2023.0.2.x86_64.rpm 3.8 MB/s |  58 kB  00:00
(5/10): libnftnetlink-1.0.1-19.amzn2023.0.2.x86_64.rpm     628 kB/s |  30 kB  00:00
(6/10): libnftnl-1.2.2-2.amzn2023.0.2.x86_64.rpm          4.6 MB/s |  84 kB  00:00
```

create sshkey



```
[root@docker-server ~]# ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa
Your public key has been saved in /root/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:P7hf9yXV3f09FrUQJMnYT6i0ldEwUYdUouvhDnqGA root@docker-server
The key's randomart image is:
+---[RSA 3072]---+
| .B+B |
| .o++= |
| . o+oX |
| *...B* |
| E S + +o.oB |
| . . = o..o= |
| o +...oo. |
| o .o . |
| . . |
+---[SHA256]---+
[root@docker-server ~]# passwd root
Changing password for user root.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@docker-server ~]# vim /etc/ssh/sshd_config
[root@docker-server ~]# client_loop: send disconnect: Connection reset
PS C:\Users\10747883\Downloads> ssh -i "mumbai.pem" ec2-user@ec2-13-233-110-120.ap-south-1.compute.amazonaws.com
# 
Amazon Linux 2023
```

Exchange ssh keys between Jenkins and docker.



```
[root@jenkins-server ~]# ssh-copy-id root@172.31.34.227
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
The authenticity of host '172.31.34.227' ('172.31.34.227') can't be established.
ED25519 key fingerprint is SHA256::xSw2PIfIdZ8h4bH5B9RqoBqY5zGoeDVuRwdAbfMnBYGNI.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
root@172.31.34.227's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'root@172.31.34.227'"
and check to make sure that only the key(s) you wanted were added.

[root@jenkins-server ~]# cd .ssh
[root@jenkins-server .ssh]# cat authorized_keys
no-port-forwarding,no-agent-forwarding,no-X11-forwarding,command="echo 'Please login as the user \"ec2-user\" rather than the user \"root\"'";echo "10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600 5700 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800 7900 8000 8100 8200 8300 8400 8500 8600 8700 8800 8900 9000 9100 9200 9300 9400 9500 9600 9700 9800 9900 10000 11000 12000 13000 14000 15000 16000 17000 18000 19000 20000 21000 22000 23000 24000 25000 26000 27000 28000 29000 30000 31000 32000 33000 34000 35000 36000 37000 38000 39000 40000 41000 42000 43000 44000 45000 46000 47000 48000 49000 50000 51000 52000 53000 54000 55000 56000 57000 58000 59000 60000 61000 62000 63000 64000 65000 66000 67000 68000 69000 70000 71000 72000 73000 74000 75000 76000 77000 78000 79000 80000 81000 82000 83000 84000 85000 86000 87000 88000 89000 90000 91000 92000 93000 94000 95000 96000 97000 98000 99000 100000 110000 120000 130000 140000 150000 160000 170000 180000 190000 200000 210000 220000 230000 240000 250000 260000 270000 280000 290000 300000 310000 320000 330000 340000 350000 360000 370000 380000 390000 400000 410000 420000 430000 440000 450000 460000 470000 480000 490000 500000 510000 520000 530000 540000 550000 560000 570000 580000 590000 600000 610000 620000 630000 640000 650000 660000 670000 680000 690000 700000 710000 720000 730000 740000 750000 760000 770000 780000 790000 800000 810000 820000 830000 840000 850000 860000 870000 880000 890000 900000 910000 920000 930000 940000 950000 960000 970000 980000 990000 1000000 1100000 1200000 1300000 1400000 1500000 1600000 1700000 1800000 1900000 2000000 2100000 2200000 2300000 2400000 2500000 2600000 2700000 2800000 2900000 3000000 3100000 3200000 3300000 3400000 3500000 3600000 3700000 3800000 3900000 4000000 4100000 4200000 4300000 4400000 4500000 4600000 4700000 4800000 4900000 5000000 5100000 5200000 5300000 5400000 5500000 5600000 5700000 5800000 5900000 6000000 6100000 6200000 6300000 6400000 6500000 6600000 6700000 6800000 6900000 7000000 7100000 7200000 7300000 7400000 7500000 7600000 7700000 7800000 7900000 8000000 8100000 8200000 8300000 8400000 8500000 8600000 8700000 8800000 8900000 9000000 9100000 9200000 9300000 9400000 9500000 9600000 9700000 9800000 9900000 10000000 11000000 12000000 13000000 14000000 15000000 16000000 17000000 18000000 19000000 20000000 21000000 22000000 23000000 24000000 25000000 26000000 27000000 28000000 29000000 30000000 31000000 32000000 33000000 34000000 35000000 36000000 37000000 38000000 39000000 40000000 41000000 42000000 43000000 44000000 45000000 46000000 47000000 48000000 49000000 50000000 51000000 52000000 53000000 54000000 55000000 56000000 57000000 58000000 59000000 60000000 61000000 62000000 63000000 64000000 65000000 66000000 67000000 68000000 69000000 70000000 71000000 72000000 73000000 74000000 75000000 76000000 77000000 78000000 79000000 80000000 81000000 82000000 83000000 84000000 85000000 86000000 87000000 88000000 89000000 90000000 91000000 92000000 93000000 94000000 95000000 96000000 97000000 98000000 99000000 100000000 110000000 120000000 130000000 140000000 150000000 160000000 170000000 180000000 190000000 200000000 210000000 220000000 230000000 240000000 250000000 260000000 270000000 280000000 290000000 300000000 310000000 320000000 330000000 340000000 350000000 360000000 370000000 380000000 390000000 400000000 410000000 420000000 430000000 440000000 450000000 460000000 470000000 480000000 490000000 500000000 510000000 520000000 530000000 540000000 550000000 560000000 570000000 580000000 590000000 600000000 610000000 620000000 630000000 640000000 650000000 660000000 670000000 680000000 690000000 700000000 710000000 720000000 730000000 740000000 750000000 760000000 770000000 780000000 790000000 800000000 810000000 820000000 830000000 840000000 850000000 860000000 870000000 880000000 890000000 900000000 910000000 920000000 930000000 940000000 950000000 960000000 970000000 980000000 990000000 1000000000 1100000000 1200000000 1300000000 1400000000 1500000000 1600000000 1700000000 1800000000 1900000000 2000000000 2100000000 2200000000 2300000000 2400000000 2500000000 2600000000 2700000000 2800000000 2900000000 3000000000 3100000000 3200000000 3300000000 3400000000 3500000000 3600000000 3700000000 3800000000 3900000000 4000000000 4100000000 4200000000 4300000000 4400000000 4500000000 4600000000 4700000000 4800000000 4900000000 5000000000 5100000000 5200000000 5300000000 5400000000 5500000000 5600000000 5700000000 5800000000 5900000000 6000000000 6100000000 6200000000 6300000000 6400000000 6500000000 6600000000 6700000000 6800000000 6900000000 7000000000 7100000000 7200000000 7300000000 7400000000 7500000000 7600000000 7700000000 7800000000 7900000000 8000000000 8100000000 8200000000 8300000000 8400000000 8500000000 8600000000 8700000000 8800000000 8900000000 9000000000 9100000000 9200000000 9300000000 9400000000 9500000000 9600000000 9700000000 9800000000 9900000000 1000000000 1100000000 1200000000 1300000000 1400000000 1500000000 1600000000 1700000000 1800000000 1900000000 2000000000 2100000000 2200000000 2300000000 2400000000 2500000000 2600000000 2700000000 2800000000 2900000000 3000000000 3100000000 3200000000 3300000000 3400000000 3500000000 3600000000 3700000000 3800000000 3900000000 4000000000 4100000000 4200000000 4300000000 4400000000 4500000000 4600000000 4700000000 4800000000 4900000000 5000000000 5100000000 5200000000 5300000000 5400000000 5500000000 5600000000 5700000000 5800000000 5900000000 6000000000 6100000000 6200000000 6300000000 6400000000 6500000000 6600000000 6700000000 6800000000 6900000000 7000000000 7100000000 7200000000 7300000000 7400000000 7500000000 7600000000 7700000000 7800000000 7900000000 8000000000 8100000000 8200000000 8300000000 8400000000 8500000000 8600000000 8700000000 8800000000 8900000000 9000000000 9100000000 9200000000 9300000000 9400000000 9500000000 9600000000 9700000000 9800000000 9900000000 1000000000 1100000000 1200000000 1300000000 1400000000 1500000000 1600000000 1700000000 1800000000 1900000000 2000000000 2100000000 2200000000 2300000000 2400000000 2500000000 2600000000 2700000000 2800000000 2900000000 3000000000 3100000000 3200000000 3300000000 3400000000 3500000000 3600000000 3700000000 3800000000 3900000000 4000000000 4100000000 4200000000 4300000000 4400000000 4500000000 4600000000 4700000000 4800000000 4900000000 5000000000 5100000000 5200000000 5300000000 5400000000 5500000000 5600000000 5700000000 5800000000 5900000000 6000000000 6100000000 6200000000 6300000000 6400000000 6500000000 6600000000 6700000000 6800000000 6900000000 7000000000 7100000000 7200000000 7300000000 7400000000 7500000000 7600000000 7700000000 7800000000 7900000000 8000000000 8100000000 8200000000 8300000000 8400000000 8500000000 8600000000 8700000000 8800000000 8900000000 9000000000 9100000000 9200000000 9300000000 9400000000 9500000000 9600000000 9700000000 9800000000 9900000000 1000000000 1100000000 1200000000 1300000000 1400000000 1500000000 1600000000 1700000000 1800000000 1900000000 2000000000 2100000000 2200000000 2300000000 2400000000 2500000000 2600000000 2700000000 2800000000 2900000000 3000000000 3100000000 3200000000 3300000000 3400000000 3500000000 3600000000 3700000000 3800000000 3900000000 4000000000 4100000000 4200000000 4300000000 4400000000 4500000000 4600000000 4700000000 4800000000 4900000000 5000000000 5100000000 5200000000 5300000000 5400000000 5500000000 5600000000 5700000000 5800000000 5900000000 6000000000 6100000000 6200000000 6300000000 6400000000 6500000000 6600000000 6700000000 6800000000 6900000000 7000000000 7100000000 7200000000 7300000000 7400000000 7500000000 7600000000 7700000000 7800000000 7900000000 8000000000 8100000000 8200000000 8300000000 8400000000 8500000000 8600000000 8700000000 8800000000 8900000000 9000000000 9100000000 9200000000 9300000000 9400000000 9500000000 9600000000 9700000000 9800000000 9900000000 1000000000 1100000000 1200000000 1300000000 1400000000 1500000000 1600000000 1700000000 1800000000 1900000000 2000000000 2100000000 2200000000 2300000000 2400000000 2500000000 2600000000 2700000000 2800000000 2900000000 3000000000 3100000000 3200000000 3300000000 3400000000 3500000000 3600000000 3700000000 3800000000 3900000000 4000000000 4100000000 4200000000 4300000000 4400000000 4500000000 4600000000 4700000000 4800000000 4900000000 5000000000 5100000000 5200000000 5300000000 5400000000 5500000000 5600000000 5700000000 5800000000 5900000000 6000000000 6100000000 6200000000 6300000000 6400000000 6500000000 6600000000 6700000000 6800000000 6900000000 7000000000 7100000000 7200000000 7300000000 7400000000 7500000000 7600000000 7700000000 7800000000 7900000000 8000000000 8100000000 8200000000 8300000000 8400000000 8500000000 8600000000 8700000000 8800000000 8900000000 9000000000 9100000000 9200000000 9300000000 9400000000 9500000000 9600000000 9700000000 9800000000 9900000000 1000000000 1100000000 1200000000 1300000000 1400000000 1500000000 1600000000 1700000000 1800000000 1900000000 2000000000 2100000000 2200000000 2300000000 2400000000 2500000000 2600000000 2700000000 2800000000 2900000000 3000000000 3100000000 3200000000 3300000000 3400000000 3500000000 3600000000 3700000000 3800000000 3900000000 4000000000 4100000000 4200000000 4300000000 4400000000 4500000000 4600000000 4700000000 4800000000 4900000000 5000000000 5100000000 5200000000 5300000000 5400000000 5500000000 5600000000 5700000000 5800000000 5900000000 6000000000 6100000000 6200000000 6300000000 6400000000 6500000000 6600000000 6700000000 6800000000 6900000000 7000000000 7100000000 7200000000 7300000000 7400000000 7500000000 7600000000 7700000000 7800000000 7900000000 8000000000 81000000
```

```

[root@docker-server ~]# aws configure
AWS Access Key ID [None]: AKIATDMK5P026RGZ2AV3
AWS Secret Access Key [None]: /e9WcmJSbZL0nVBl2y/eIfc+JhvQbR6UvcTNLTRP
Default region name [None]: ap-south-1
Default output format [None]:
[root@docker-server ~]# ssh-copy-id root@172.31.38.117
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
The authenticity of host '172.31.38.117 (172.31.38.117)' can't be established.
ED25519 key fingerprint is SHA256:3Xc0f3azIOcuyGr7K1K0KUuLZ1I2S3YipvYB2ci5qls.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
root@172.31.38.117's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'root@172.31.38.117'"
and check to make sure that only the key(s) you wanted were added.

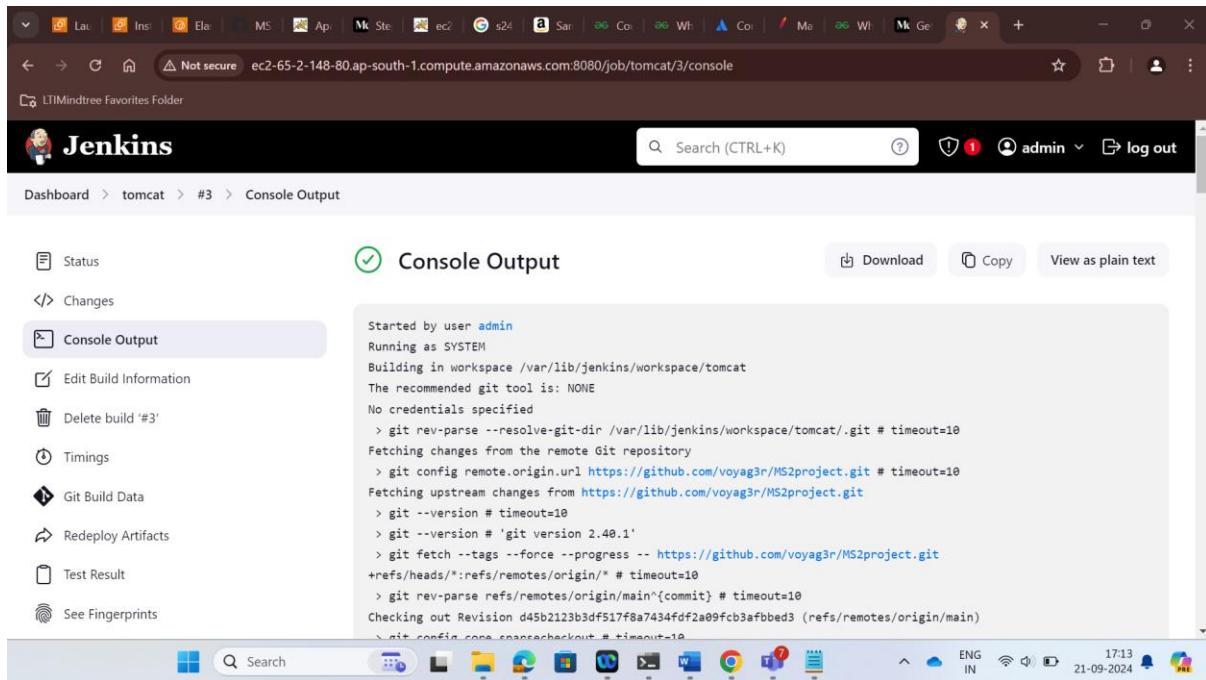
[root@docker-server ~]# cd .ssh
[root@docker-server .ssh]# cat authorized_keys
no-port-forwarding,no-agent-forwarding,no-X11-forwarding,command="echo 'Please login as the user \"ec2-user\" rather than the user \"root\".';echo;sleep 10;exit 142" ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQAwLnyWI3q4aZtUyRd8vMqBd+fffcMMvk503PmdLc4XFbVt4G1k2bhCWET9p+XO
LvAgddHyUT/sxv8dSpfybcpVmPTuSJ4Lx20Qy4xdRtw88y/JjeNHzu3ohR23629LtYp0jcBjJLYdu0a+bAqnCzux7lhL+vd7kQL9CrAoGZXaoQxv0/HLwv2Fm/b06KkNva
m1/Dam7k30M9vgLeg2/mZaNS28UVjqh0oNfEZFKxb0WnAMockxsMrHypZZngCx+xrgxJgPre85nUzsA+lLMg2PMoBx3P0v24cC+6StC6c8WpnUG/9btNGVa7jdRePI00v
KLrt0WMZ4dw6rr numba
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQBgCxGK80zObgHSiQwwIE6oD6WYQ4FPjA08oaM9D3Byb11j/YyVtZM5F075/MJInlo68Zh5gW62kqvxFyUf+0naHtElets
KKvGkGITZVcC88wQFF0PmVRb0Hccp+JvoMzt+qJk7knRVQFZtN/QLu5dPSxyXhcGf1/pqDEIYnyHBrxCo6rM7TxCFAqKHqLgMLbfHDiz0vFP2p5XkYVBX+mDmj+uU380Y3q
jw-7d8cgsGtl3hb947vSFbavFida7PoCqh+8jipjn3knbd83kT2xDRb1bCrZUL8KClaQhLTgsvyDU4EvL7acT50leeeTO/gwAen7c6g0y4yxdkCdIUHnwfkVML7HCu0/wvUVJ0
IKs5/X0kkUOMXdLL3AYgJphbWmVhtaZh+bvxM0o2jnxQzolul0dvpviaplJIZuu09JLFT8s+bAKIYAOphlsK01L29H3yduClqfxW82q0vC5r06nXm2TnvHf/SA52ux0s
vELLWojs5BEsVQ15RtCk= root@jenkins-server
[root@docker-server .ssh]#

```

Update docker ip in ssh server.

Name	Value
Name	docker
Hostname	172.31.34.227
Username	root
Remote Directory	/root
Avoid sending files that have not changed	<input type="checkbox"/>

Check the build



STEP 3:

- Here we created a new instance for Kubernetes
- Then we created SSH key in Kubernetes to connect with Docker via public key
- EKS Cluster is created to manage and monitor Docker image and deploy to web server
- Node groups are created manage the EKS cluster
- Deployment and Service file are created
- Kubernetes is configured with Jenkins via public ip of Kubernetes and deployment and service file creation command are fed into Jenkins which automatically does that job
- Now the server is accessible by image url on port 8080/webapp

EKS cluster:

Create EKS cluster then node groups

```
[root@ip-172-31-46-187 ~]# kubectl version --client
Client Version: v1.31.0
Kustomize Version: v5.4.2
[root@ip-172-31-46-187 ~]# eksctl create cluster --name newMS2-cluster --region ap-south-1 --version 1.29 --vpc-public-subnets subne
t-0ee841e73824361 [ℹ️] eksctl version 0fb603f894ee740b1 --without-nodegroup
2024-09-21 11:50:49 [ℹ️] eksctl version 1.29
2024-09-21 11:50:49 [ℹ️] using region ap-south-1
2024-09-21 11:50:50 [ℹ️] using existing VPC (vpc-04880a66c6cf9d586) and subnets (private:map[] public:map[ap-south-1a:{subnet-0ee841e73824361 ap-south-1a 172.31.32.0/20 0 } ap-south-1b:{subnet-0fb603f894ee740b1 ap-south-1b 172.31.0.0/20 0 }])
2024-09-21 11:50:50 [ℹ️] custom VPC/subnets will be used; if resulting cluster doesn't function as expected, make sure to review the configuration of VPC/subnets
2024-09-21 11:50:50 [ℹ️] using Kubernetes version 1.29
2024-09-21 11:50:50 [ℹ️] creating EKS cluster "newMS2-cluster" in "ap-south-1" region with
2024-09-21 11:50:50 [ℹ️] if you encounter any issues, check CloudFormation console or try 'eksctl utils describe-stacks --region=ap-south-1 --cluster=newMS2-cluster'
2024-09-21 11:50:50 [ℹ️] Kubernetes API endpoint access will use default of {publicAccess=true, privateAccess=false} for cluster "newMS2-cluster" in "ap-south-1"
2024-09-21 11:50:50 [ℹ️] CloudWatch logging will not be enabled for cluster "newMS2-cluster" in "ap-south-1"
2024-09-21 11:50:50 [ℹ️] you can enable it with 'eksctl utils update-cluster-logging --enable-types={SPECIFY-YOUR-LOG-TYPES-HERE (e.g.
. all)} --region=ap-south-1 --cluster=newMS2-cluster'
2024-09-21 11:50:50 [ℹ️] default addons vpc-cni, kube-proxy, coredns were not specified, will install them as EKS addons
2024-09-21 11:50:50 [ℹ️]
2 sequential tasks: { create cluster control plane "newMS2-cluster",
  2 sequential sub-tasks: {
    1 task: { create addons },
    wait for control plane to become ready,
  }
}
2024-09-21 11:50:50 [ℹ️] building cluster stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:50:50 [ℹ️] deploying stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:51:20 [ℹ️] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:51:50 [ℹ️] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
```

```
Command Prompt      x  root@jenkins-server:~/.  x  Windows PowerShell  x  rroot@docker-server:~  x  root@ip-172-31-46-187  x  +  -  17:33 21-09-2024
}
2024-09-21 11:50:50 [!] building cluster stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:50:50 [!] deploying stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:51:20 [!] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:51:50 [!] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:52:50 [!] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:53:50 [!] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:54:50 [!] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:55:50 [!] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:56:50 [!] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:57:50 [!] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:58:50 [!] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
2024-09-21 11:59:50 [!] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
2024-09-21 12:00:50 [!] waiting for CloudFormation stack "eksctl-newMS2-cluster-cluster"
2024-09-21 12:00:51 [!] recommended policies were found for "vpc-cni" addon, but since OIDC is disabled on the cluster, eksctl cannot configure the requested permissions; the recommended way to provide IAM permissions for "vpc-cni" addon is via pod identity associations; after addon creation is completed, add all recommended policies to the config file, under 'addon.PodIdentityAssociations', and run 'eksctl update addon'
2024-09-21 12:00:51 [!] creating addon
2024-09-21 12:00:51 [!] successfully created addon
2024-09-21 12:00:52 [!] creating addon
2024-09-21 12:00:52 [!] successfully created addon
2024-09-21 12:00:52 [!] creating addon
2024-09-21 12:00:52 [!] successfully created addon
2024-09-21 12:02:53 [!] waiting for the control plane to become ready
2024-09-21 12:02:53 [!] saved kubeconfig as "/root/.kube/config"
2024-09-21 12:02:53 [!] no tasks
2024-09-21 12:02:53 [!] all EKS cluster resources for "newMS2-cluster" have been created
2024-09-21 12:02:53 [!] created 0 nodegroup(s) in cluster "newMS2-cluster"
2024-09-21 12:02:53 [!] created 0 managed nodegroup(s) in cluster "newMS2-cluster"
2024-09-21 12:02:54 [!] kubectl command should work with "/root/.kube/config", try 'kubectl get nodes'
2024-09-21 12:02:54 [!] EKS cluster "newMS2-cluster" in "ap-south-1" region is ready
[root@ip-172-31-46-187 ~]#
```

Create one deployment.yml file and service.yml file and paste image URL

Screenshot of the AWS Elastic Container Registry (ECR) console showing a private repository named "unique".

The ECR interface displays the following details for the repository:

Repository name	URI	Created at	Tag immutability	Encryption type
unique	213429091253.dkr.ecr.ap-southeast-1.amazonaws.com/unique	September 19, 2024, 18:32:47 (UTC+05:5)	Mutable	AES-256

Below the ECR interface, a terminal window shows the deployment configuration for a Kubernetes Deployment named "app-webapp". The configuration specifies 2 replicas, a selector matching "app: webapp", and a template with a single container named "webapp" running the specified ECR image.

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: app-webapp
  labels:
    app: webapp
spec:
  replicas: 2
  selector:
    matchLabels:
      app: webapp
  template:
    metadata:
      labels:
        app: webapp
    spec:
      containers:
        - name: webapp
          image: 213429091253.dkr.ecr.ap-southeast-1.amazonaws.com/somewhat:latest
          ports:
            - containerPort: 8080
-- INSERT --
```

```
apiVersion: v1
kind: Service
metadata:
  name: app-service
  labels:
    app: webapp
spec:
  selector:
    app: webapp
  ports:
    - port: 8080
      targetPort: 8080
  type: LoadBalancer
```

Update ssh server configuration in systems and see if it's successful.

Name ?
Ekscluster

Hostname ?
172.31.29.83

Username ?
root

Remote Directory ?
/root

Avoid sending files that have not changed ?



Now update project configuration to

Name ?
kubernetes

Advanced ▾

Transfers

Transfer Set

Source files ?
[Empty input field]

Remove prefix ?
[Empty input field]

Remote directory ?
[Empty input field]

Exec command ?
kubectl delete deployment app-webapp
kubectl apply -f deployment.yml
kubectl apply -f service.yml

Use these commands to automatically deploy the instance

In the cluster server run kubectl get svc and paste the url

```
43/TCP      2d8h
unique-declarative LoadBalancer  10.100.111.223  aa623c7bd1fed4806a5a52d8db73f20a-1930532572.ap-southeast-1.elb.amazonaws.com  8
080:30114/TCP  2d4h
```

In this way we can use CI/CD to deploy our applications

```
Deploying [/var/lib/jenkins/workspace/new-mav-proj/webapp/target/webapp.war]
SSH: Connecting from host [jenkins-server]
SSH: Connecting with configuration [jenkins] ...
SSH: EXEC: completed after 601 ms
SSH: Disconnecting configuration [jenkins] ...
SSH: Transferred 0 file(s)
SSH: Connecting from host [jenkins-server]
SSH: Connecting with configuration [docker] ...
SSH: EXEC: completed after 2,803 ms
SSH: Disconnecting configuration [docker] ...
SSH: Transferred 0 file(s)
SSH: Connecting from host [jenkins-server]
SSH: Connecting with configuration [Ekscluster] ...
SSH: EXEC: completed after 2,005 ms
SSH: Disconnecting configuration [Ekscluster] ...
SSH: Transferred 0 file(s)
Finished: SUCCESS
```



Hi This is Abhinav Gupta. We are working on Devops project.This is City bank project.

Please fill in this form to create an account.

Enter Name	Enter Full Name
Enter mobile	Enter mobile number
Enter Email	Enter Email
Password	Enter Password
Repeat Password	Repeat Password

By creating an account you agree to our [Terms & Privacy](#).

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Already have an account? [Sign in](#).

Thank You

Happy Learning. See You Again.

By Abhinav Gupta , 10747883