Lesson 05 Demo 01

Setting Up Jenkins

Objective: To automate continuous integration, enable seamless code integration, and automate testing for accelerating software development and deployment processes

Tools required: JRE and Jenkins

Prerequisites: None

Steps to be followed:

1. Download the Java Runtime Environment
2. Download and install the Jenkins app

Step 1: Download the Java Runtime Environment

1.1 Open the terminal and run **sudo apt-get update** command to update the package lists

```
labsuser@ip-172-31-39-225:~$ sudo apt-get update
Hit:1 http://us-west-2.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://us-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://us-west-2.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:5 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:4 https://prod-cdn.packages.k8s.io/repositories/isv:/kubernetes:/core:/stable:/v1.28/deb  InRelease
Hit:6 https://ppa.launchpadcontent.net/mozillateam/ppa/ubuntu jammy InRelease
Reading package lists... Done
```

1.2 Run **sudo apt install default-jdk** command to install JDK

```
labsuser@ip-172-31-39-225:~$ sudo apt install default-jdk
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  ca-certificates-java default-jdk-headless default-jre default-jre-headless fonts-dejavu-extra java-common libatk-wrapper-java libatk-wrapper-java-jni libice-dev
  libpthread-stubs0-dev libsm-dev libx11-dev libxau-dev libxcb1-dev libxdmcp-dev libxt-dev openjdk-11-jdk openjdk-11-jdk-headless openjdk-11-jre
  openjdk-11-jre-headless x11proto-dev xorg-sgml-doctools xtrans-dev
Suggested packages:
  libice-doc libsm-doc libx11-doc libxcb-doc libxt-doc openjdk-11-demo openjdk-11-source visualvm fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei
  | fonts-wqy-zenhei
The following NEW packages will be installed:
```

1.3 Run the **java -version** command to verify the installation; it will print the JDK version as shown below:

```
labsuser@ip-172-31-39-225:~$ java -version
openjdk version "11.0.21" 2023-10-17
OpenJDK Runtime Environment (build 11.0.21+9-post-Ubuntu-0ubuntu122.04)
OpenJDK 64-Bit Server VM (build 11.0.21+9-post-Ubuntu-0ubuntu122.04, mixed mode, sharing)
labsuser@ip-172-31-39-225:~$ 
```

Step 2: Download and install the Jenkins app

2.1 Open the terminal and execute the following command:
   sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key

```
labsuser@ip-172-31-39-225:~$ sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
--2024-01-25 06:40:00--  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
Resolving pkg.jenkins.io (pkg.jenkins.io)... 151.101.22.133, 2a04:4e42:7a::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|151.101.22.133|: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-keyring.asc        100%[====================================================================================================>]   3.10K  --.-KB/s    in 0s

2024-01-25 06:40:00 (33.6 MB/s) - '/usr/share/keyrings/jenkins-keyring.asc' saved [3175/3175]

labsuser@ip-172-31-39-225:~$ 
```

2.2 Execute the following command to add the Jenkins repository to the system list:
   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

```
labsuser@ip-172-31-39-225:~$ 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
labsuser@ip-172-31-39-225:~$ 
```

2.3 Run **sudo apt-get update** command to update the local package index on a Debian-based system

```
labsuser@ip-172-31-39-225:~$ sudo apt-get update
Hit:1 http://us-west-2.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://us-west-2.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://us-west-2.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:5 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:4 https://prod-cdn.packages.k8s.io/repositories/isv:/kubernetes:/core:/stable:/v1.28/deb  InRelease
Hit:6 https://ppa.launchpadcontent.net/mozillateam/ppa/ubuntu jammy InRelease
Reading package lists... Done
```

2.4 Run **sudo apt-get install jenkins** command to install Jenkins

```
labsuser@ip-172-31-39-225:~$ sudo apt-get install jenkins
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
jenkins is already the newest version (2.426.2).
0 upgraded, 0 newly installed, 0 to remove and 69 not upgraded.
labsuser@ip-172-31-39-225:~$
```
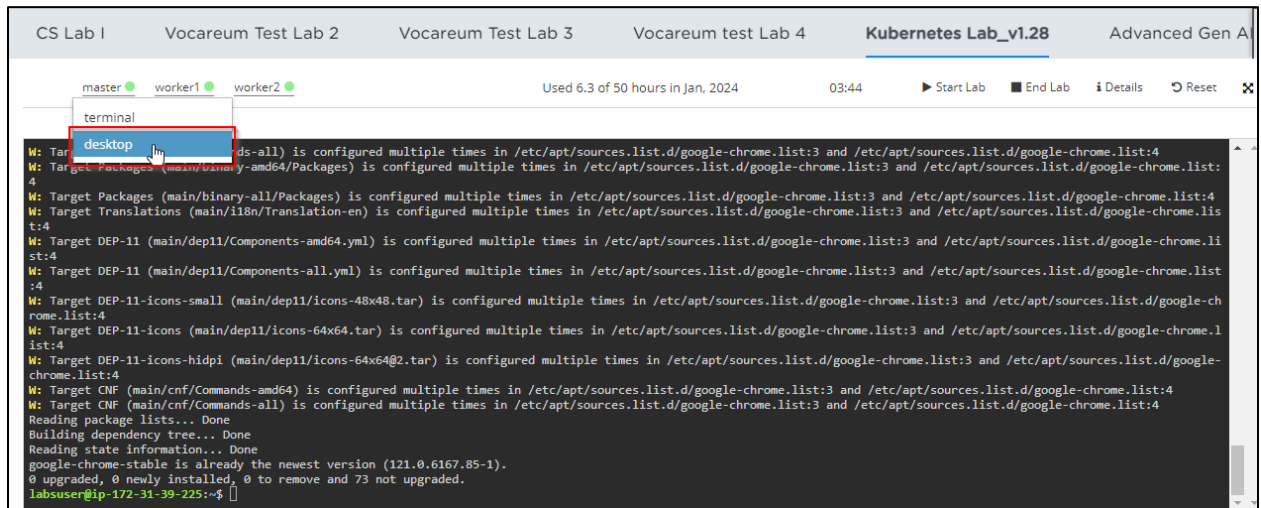
2.5 Run the **sudo service jenkins status** command to check the status of the installation. Once you verify the status as active, press the **Ctrl+z** keys to exit the process.

```
labsuser@ip-172-31-39-225:~$ sudo service jenkins status
• jenkins.service - Jenkins Continuous Integration Server
     Loaded: loaded (/lib/systemd/system/jenkins.service; enabled; vendor preset: enabled)
     Active: active (running) since Wed 2024-01-24 10:41:52 UTC; 48min ago
   Main PID: 57495 (java)
      Tasks: 46 (limit: 4598)
     Memory: 1.3G
        CPU: 2min 24.329s
     CGroup: /system.slice/jenkins.service
             └─57495 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080

Jan 24 11:16:33 ip-172-31-39-225 jenkins[57495]: 2024-01-24 11:16:33.077+0000 [id=256]      INFO      jenkins.InitReactorRunner$1#onAttained: Listed all plugins
Jan 24 11:16:33 ip-172-31-39-225 jenkins[57495]: 2024-01-24 11:16:33.077+0000 [id=256]      INFO      jenkins.InitReactorRunner$1#onAttained: Prepared all plugins
Jan 24 11:16:33 ip-172-31-39-225 jenkins[57495]: 2024-01-24 11:16:33.230+0000 [id=258]      INFO      jenkins.InitReactorRunner$1#onAttained: Started all plugins
Jan 24 11:16:33 ip-172-31-39-225 jenkins[57495]: 2024-01-24 11:16:33.237+0000 [id=255]      INFO      jenkins.InitReactorRunner$1#onAttained: Augmented all extensions
Jan 24 11:16:33 ip-172-31-39-225 jenkins[57495]: 2024-01-24 11:16:33.309+0000 [id=258]      INFO      jenkins.InitReactorRunner$1#onAttained: System config loaded
Jan 24 11:16:33 ip-172-31-39-225 jenkins[57495]: 2024-01-24 11:16:33.312+0000 [id=258]      INFO      jenkins.InitReactorRunner$1#onAttained: System config adapted
Jan 24 11:16:33 ip-172-31-39-225 jenkins[57495]: 2024-01-24 11:16:33.373+0000 [id=256]      INFO      jenkins.InitReactorRunner$1#onAttained: Loaded all jobs
Jan 24 11:16:33 ip-172-31-39-225 jenkins[57495]: 2024-01-24 11:16:33.379+0000 [id=256]      INFO      jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs updated
Jan 24 11:16:34 ip-172-31-39-225 jenkins[57495]: 2024-01-24 11:16:34.388+0000 [id=258]      INFO      jenkins.InitReactorRunner$1#onAttained: Completed initialization
Jan 24 11:16:34 ip-172-31-39-225 jenkins[57495]: 2024-01-24 11:16:34.394+0000 [id=77]       INFO      h.m.UpdateCenter$CompleteBatchJob#run: Completed installation of 84 plugins in 1s
lines 1-20/20 (END)
```

2.6 Run the following commands to start Jenkins:

sudo systemctl start jenkins

sudo systemctl status jenkins
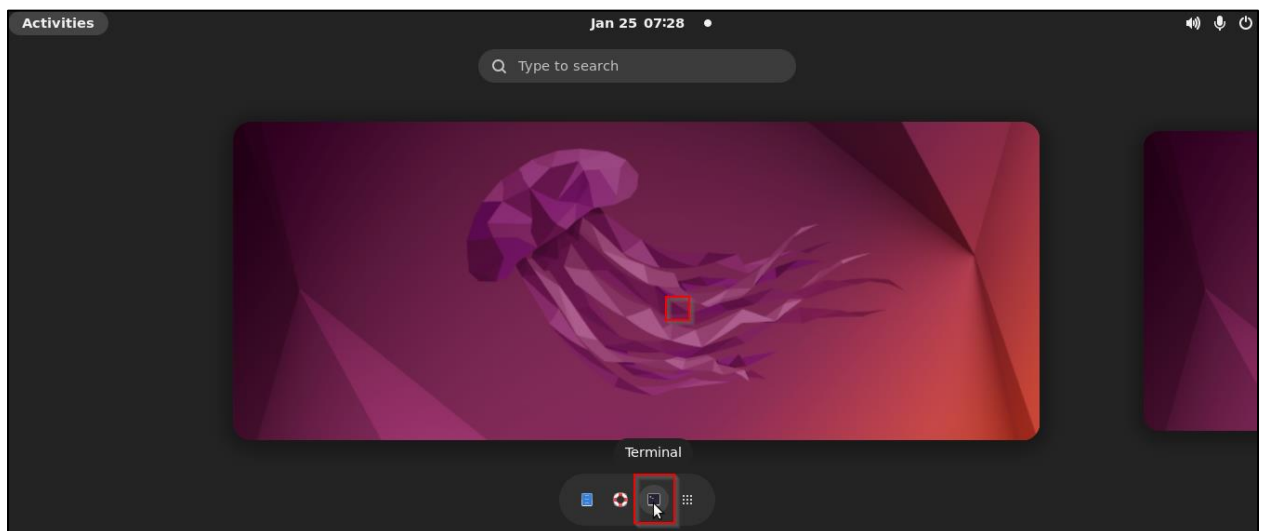

2.7 Click on the **master** button

2.8 Click on the **desktop** option as shown in the below screenshot:

2.9 Click on the **Activities** button
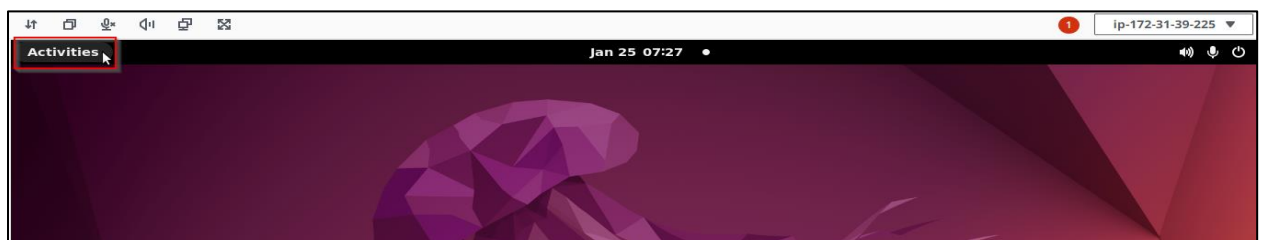
2.10 Click on the icon at the bottom to open the terminal as shown in the screenshot below:

2.11 Run the following commands to install Chrome:

#Download the Google Chrome signing key

wget -q -O - https://dl-ssl.google.com/linux/linux_signing_key.pub | sudo apt-key add –

#Add the Google Chrome repository to your sources list
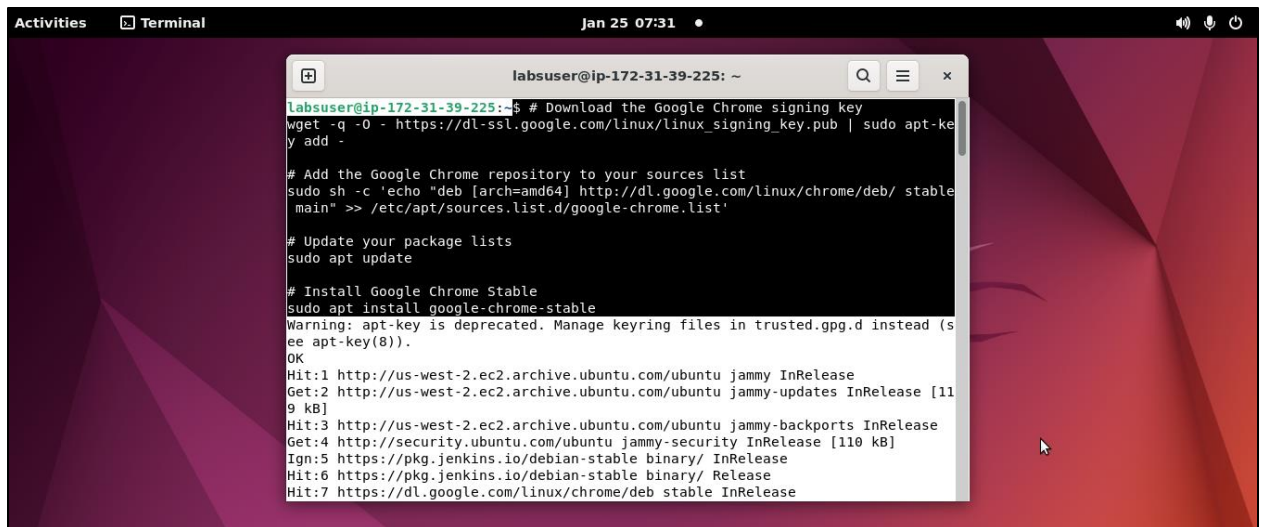
sudo sh -c 'echo "deb [arch=amd64] http://dl.google.com/linux/chrome/deb/ stable main" >> /etc/apt/sources.list.d/google-chrome.list'

#Update your package lists

sudo apt update

#Install Google Chrome stable

sudo apt install google-chrome-stable

2.12 Run the following command to get the password:
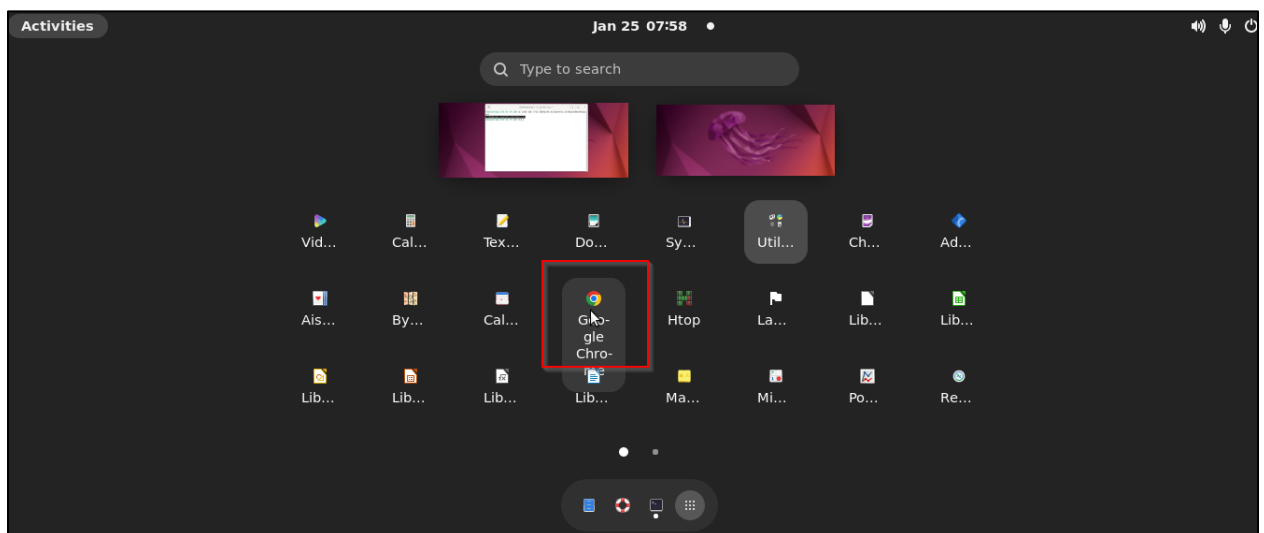
sudo cat /var/lib/jenkins/secrets/initialAdminPassword

2.13 Click on the below icon as shown in the screenshot below:
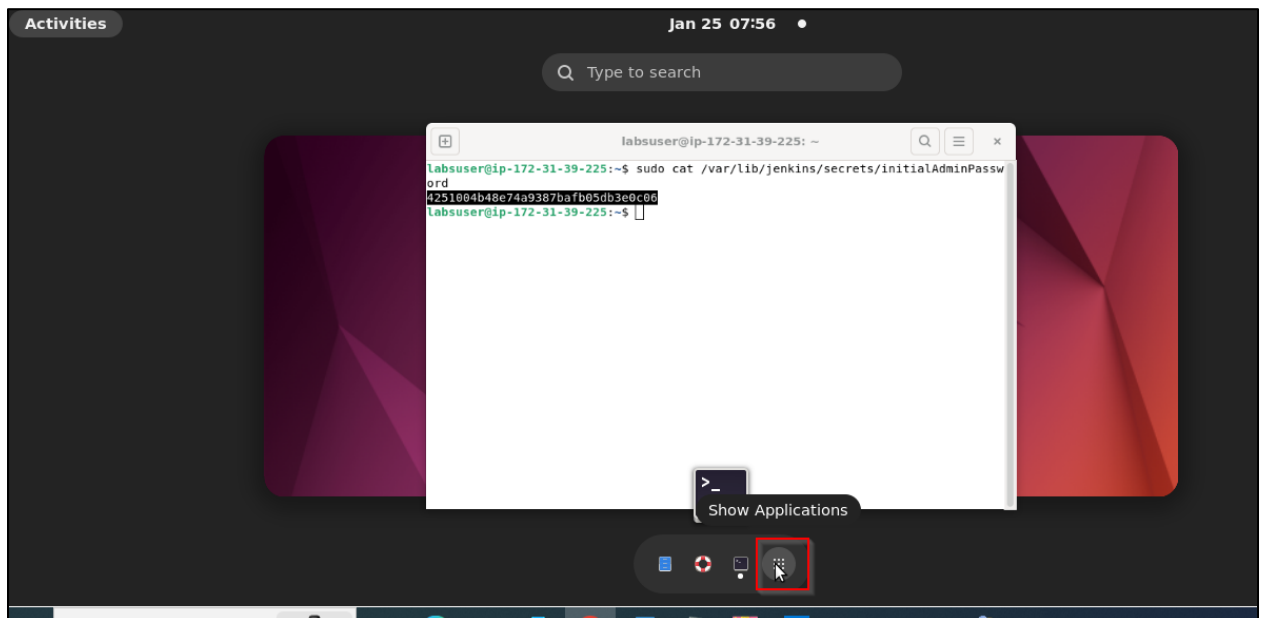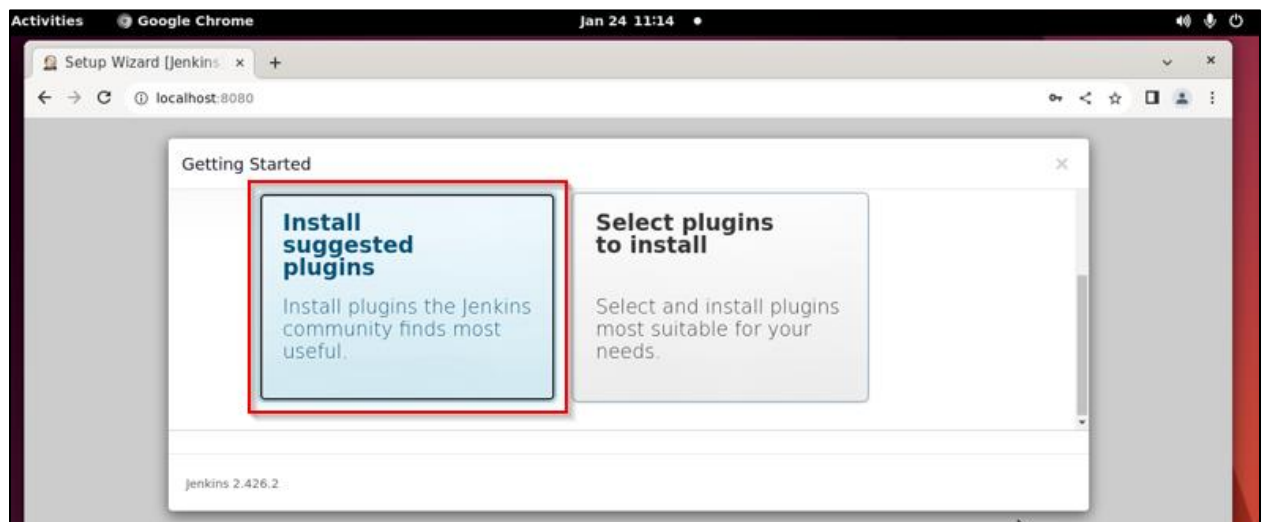

2.14 Click on the **Google Chrome** icon as shown in the below screenshot:

2.15 Open **localhost:8080** in the browser, enter the initial password, and then click on **Continue**
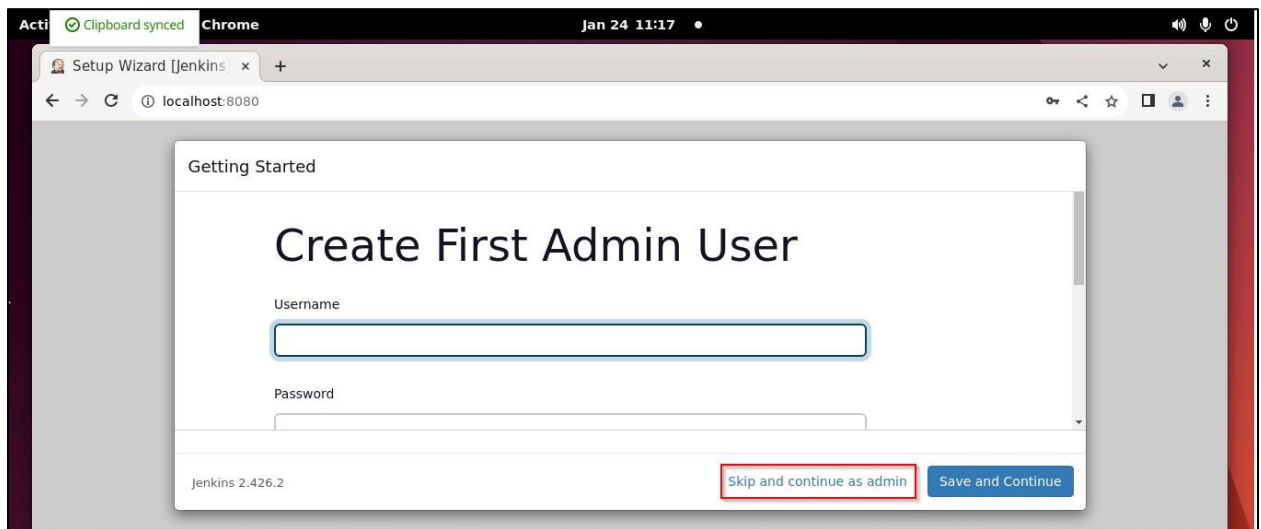

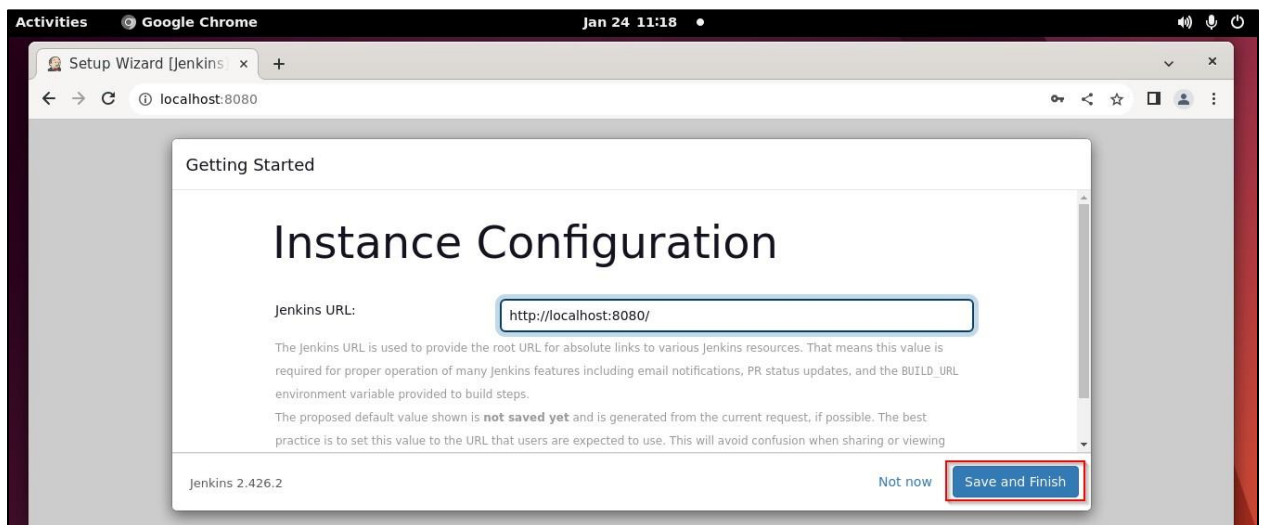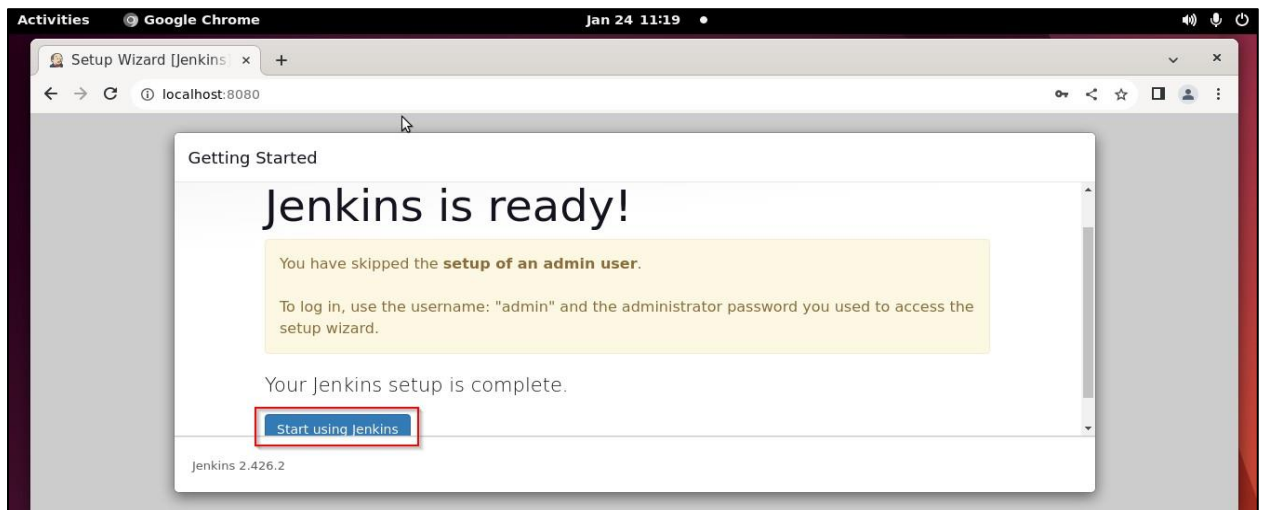2.16 Click on **Install suggested plugins** option
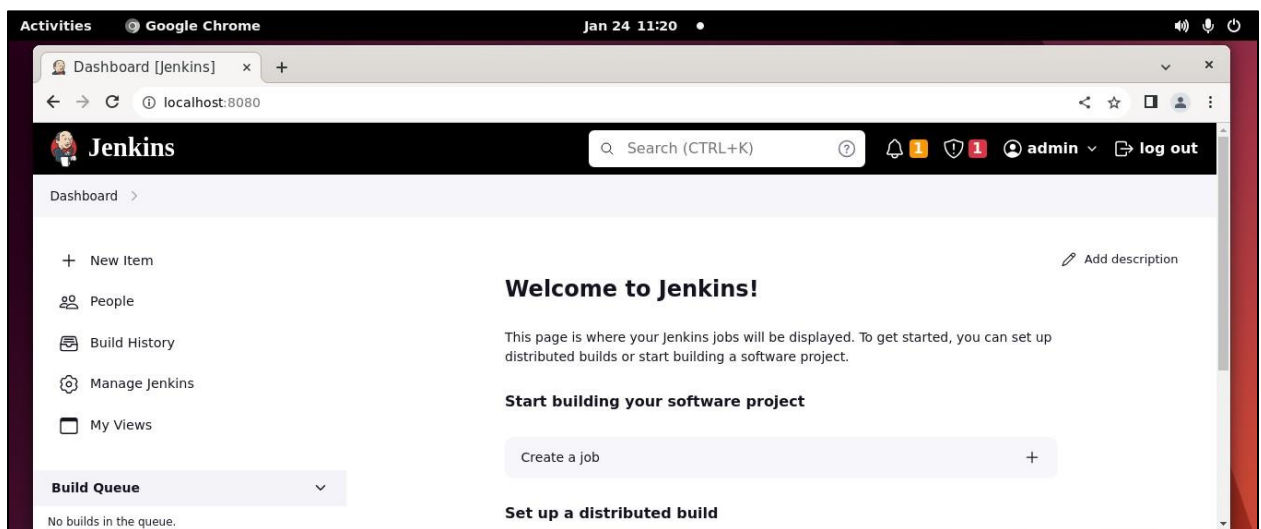
2.17 Click on the **Skip and continue as admin** button

2.18 Click on **Save and Finish** button

2.19 Click on **Start using Jenkins** button

Now, you may work with Jenkins as shown in the screenshot below:

By following these steps, you have successfully installed Jenkins for accelerating software development and deployment processes.