

DEVOPS TRAINING

DAY 1 TASK

Step 1:

(Installing Ubuntu)

The screenshot shows a Windows 10 desktop environment. In the foreground, a terminal window titled 'student@megastar: /mnt/c/...' is open. It shows the following commands and output:

```
Microsoft Windows [Version 10.0.22631.5839]
(c) Microsoft Corporation. All rights reserved.

C:\Users\sugus>wsl --install -d Ubuntu
Ubuntu is already installed.
Launching Ubuntu...

C:\Users\sugus>wsl --install -d Ubuntu
Ubuntu is already installed.
Launching Ubuntu...

C:\Users\sugus>wsl --install -d Ubuntu
Ubuntu is already installed.
Launching Ubuntu...

C:\Users\sugus>wsl.exe --update
Installing: Windows Subsystem for Linux
Windows Subsystem for Linux has been installed.

C:\Users\sugus>wsl --install -d Ubuntu
Downloading: Ubuntu
Installing: Ubuntu
Distribution successfully installed. It can be launched via 'wsl.exe -d Ubuntu'

C:\Users\sugus>wsl.exe -d Ubuntu
Provisioning the new WSL instance Ubuntu
This might take a while...
Create a default Unix user account: student
New password:
Retype new password:
```

In the background, a web browser window is open to the Microsoft documentation page for WSL installation. The page title is 'Manual installation steps for older versions of Windows' and the URL is 'https://learn.microsoft.com/en-us/windows/wsl/install-manual'. The page content includes a section titled 'Step 4 - Download the Linux kernel update package'.

The Windows taskbar at the bottom shows the date and time as 21:06 on 17-03-2025, along with various system icons and the Start button.

Step 2:

(Set New Password)

```
student@megastar:/mnt/c/U X + v
C:\Users\sugus>wsl --install -d Ubuntu
Downloading: Ubuntu
Installing: Ubuntu
Distribution successfully installed. It can be launched via 'wsl.exe -d Ubuntu'

C:\Users\sugus>wsl.exe -d Ubuntu
Provisioning the new WSL instance Ubuntu
This might take a while...
Create a default Unix user account: student
New password:
Retype new password:
passwd: password updated successfully
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 5.15.167.4-microsoft-standard-WSL2 x86_64)

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

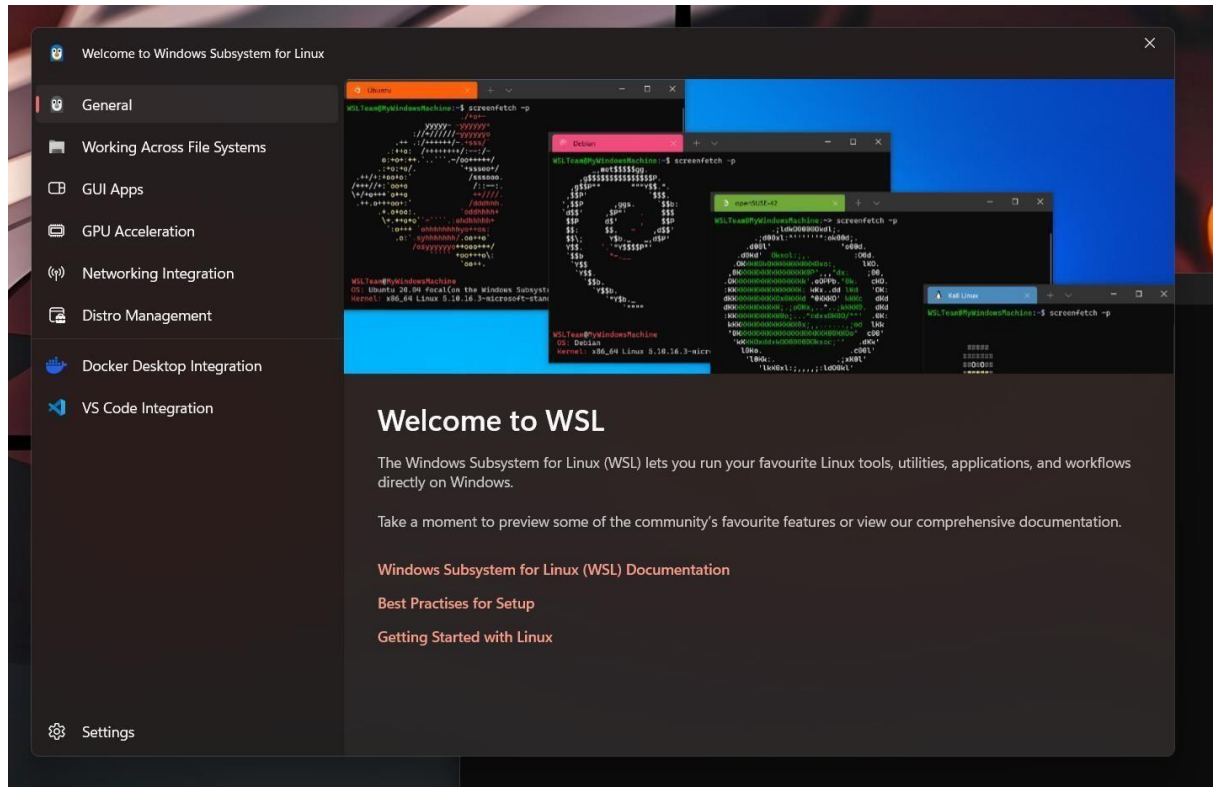
System information as of Mon Mar 17 15:36:24 UTC 2025

System load:  0.12          Processes:      32
Usage of /:   0.1% of 1006.85GB  Users logged in: 0
Memory usage: 5%           IPv4 address for eth0: 172.18.198.50
Swap usage:  0%

This message is shown once a day. To disable it please create the
/home/student/.hushlogin file.
```

Step 3:

(New WSL Window Will Open)



Step 4:

(Check JDK Version) If not available install it .

```
[sudo] password for student:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  alsa-topology-conf alsa-ucm-conf ca-certificates-java fonts-dejavu-extra
  java-common libasound2-data libasound2t64 libatk-wrapper-java
  libatk-wrapper-java-jni libgif7 libice-dev libice6 libnspr4 libnss3
  libpcsc-lite libpthread-stubs0-dev libsm-dev libsm6 libx11-dev
  libxau-dev libxaw7 libxcb-shape0 libxcb1-dev libxdmcp-dev libxft2
  libxkbfile1 libxmu6 libxpm4 libxt-dev libxt6t64 libxv1 libxxf86dgal
  openjdk-17-jdk-headless openjdk-17-jre openjdk-17-jre-headless x11-utils
  x11proto-dev xorg-sgml-doctools xtrans-dev
Suggested packages:
  default-jre alsa-utils libasound2-plugins libice-doc pcscd libsm-doc
  libx11-doc libxcb-doc libxt-doc openjdk-17-demo openjdk-17-source
  visualvm libnss-mdns fonts-ipafont-gothic fonts-ipafont-mincho
  fonts-wqy-microhei | fonts-wqy-zenhei fonts-indic mesa-utils
Recommended packages:
  luit
The following NEW packages will be installed:
  alsa-topology-conf alsa-ucm-conf ca-certificates-java fonts-dejavu-extra
  java-common libasound2-data libasound2t64 libatk-wrapper-java
  libatk-wrapper-java-jni libgif7 libice-dev libice6 libnspr4 libnss3
  libpcsc-lite libpthread-stubs0-dev libsm-dev libsm6 libx11-dev
  libxau-dev libxaw7 libxcb-shape0 libxcb1-dev libxdmcp-dev libxft2
  libxkbfile1 libxmu6 libxpm4 libxt-dev libxt6t64 libxv1 libxxf86dgal
  openjdk-17-jdk openjdk-17-jdk-headless openjdk-17-jre
  openjdk-17-jre-headless x11-utils x11proto-dev xorg-sgml-doctools
  xtrans-dev
0 upgraded, 40 newly installed, 0 to remove and 0 not upgraded.
```

Instead of using apt-key add, store the key in /usr/share/keyrings:

```
wget -q -O- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo tee /usr/share/keyrings/jenkins-keyring.asc > /dev/null
```

Add the Jenkins Repository

Now, add the Jenkins repository using the new method:

```
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
```

```
# Install Jenkins
sudo apt update -y
sudo apt install -y jenkins
# Start and enable Jenkins service
sudo systemctl start jenkins
```

Step-by-step guide to creating a Freestyle Job in Jenkins
to install Nginx on a local Ubuntu VM

```
sudo systemctl enable jenkins
# Check Jenkins status
sudo systemctl status jenkins
```

Step 5:

(Installing Packages)

```
student@LAPTOP-INTAVHGL:~$ sudo apt-get update
Get:13 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [16.9 kB]
Get:14 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [726 kB]
Get:15 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [146 kB]
Get:16 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:17 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 c-n-f Metadata [432 B]
Get:18 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [26.2 kB]
Get:19 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [4892 B]
Get:20 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Get:21 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [448 B]
Get:22 http://archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:23 http://archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
90% [23 Components-amd64 2155 kB/3871 kB 56%]
Get:24 http://archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [381 kB]
Get:25 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:26 http://archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:27 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:28 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:29 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [921 kB]
Get:30 http://archive.ubuntu.com/ubuntu noble-updates/main Translation-en [209 kB]
Get:31 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [151 kB]
Get:32 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata [13.4 kB]
Get:33 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1040 kB]
Get:34 http://archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [262 kB]
Get:35 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [364 kB]
Get:36 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [25.8 kB]
Get:37 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [799 kB]
Get:38 http://archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [153 kB]
Get:39 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:40 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata [464 B]
Get:41 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [30.1 kB]
Get:42 http://archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [5884 B]
Get:43 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Get:44 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [656 B]
Get:45 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [208 B]
Get:46 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B]
Get:47 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [14.2 kB]
Get:48 http://archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [12.1 kB]
Get:49 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [20.0 kB]
Get:50 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 c-n-f Metadata [1256 B]
Get:51 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:52 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]
Get:53 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Get:54 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 c-n-f Metadata [116 B]
Fetched 32.8 MB in 19s (1707 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
96 packages can be upgraded. Run 'apt list --upgradable' to see them.
student@LAPTOP-INTAVHGL:~$
```

```
student@LAPTOP-INTAVHGL:~$ sudo apt-get install openjdk-17-jdk
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/serialver to provide /usr/bin/serialver (serialver) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jhshdb to provide /usr/bin/jhshdb (jhshdb) in auto mode
Setting up openjdk-17-jdk:amd64 (17.0.14+7-1-24.04) ...
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jconsole to provide /usr/bin/jconsole (jconsole) in auto mode
student@LAPTOP-INTAVHGL:~$ java -version
openjdk version "17.0.14" 2025-01-21
OpenJDK Runtime Environment (build 17.0.14+7-Ubuntu-124.04)
student@LAPTOP-INTAVHGL:~$ wget -q -O- https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key add
add
wget: missing URL
Usage: wget [OPTION]... [URL]...

Try 'wget --help' for more options.
Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).
gpg: no valid OpenPGP data found.
student@LAPTOP-INTAVHGL:~$ wget -q -O- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo tee /usr/share/keyrings/jenkins-keyring.asc >/dev/null
sudo: tee /usr/share/keyrings/jenkins-keyring.asc: command not found
student@LAPTOP-INTAVHGL:~$ wget -q -O- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo tee /usr/share/keyrings/jenkins-keyring.asc >/dev/null
wget: missing URL
Usage: wget [OPTION]... [URL]...

Try 'wget --help' for more options.
sudo: tee /usr/share/keyrings/jenkins-keyring.asc: command not found
student@LAPTOP-INTAVHGL:~$ wget -q -O- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo tee /usr/share/keyrings/jenkins-keyring.asc >/dev/null
sudo: tee /usr/share/keyrings/jenkins-keyring.asc: command not found
student@LAPTOP-INTAVHGL:~$ wget -q -O- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo tee /usr/share/keyrings/jenkins-keyring.asc >/dev/null
student@LAPTOP-INTAVHGL:~$ 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
student@LAPTOP-INTAVHGL:~$ sudo apt update -y
Ign1 https://pkg.jenkins.io/debian-stable binary/ InRelease
Get:2 https://pkg.jenkins.io/debian-stable binary/ Release [2044 B]
Get:3 https://pkg.jenkins.io/debian-stable binary/ Release.gpg [833 B]
Get:4 https://pkg.jenkins.io/debian-stable binary/ Packages [28.7 kB]
Hit:5 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:6 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:7 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:8 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Fetched 31.6 kB in 2s (17.6 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
96 packages can be upgraded. Run 'apt list --upgradable' to see them.
student@LAPTOP-INTAVHGL:~$
```

Step 6:

(Installing Jenkins)

```
student@LAPTOP-INTAVHGL: ~  
wget: missing URL  
Usage: wget [OPTION]... [URL]...  
  
Try 'wget --help' for more options.  
sudo: tee/usr/share/keyrings/jenkins-keyring.asc: command not found  
student@LAPTOP-INTAVHGL:~$ wget -q -O- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo t  
ee/usr/share/keyrings/jenkins-keyring.asc</dev/null  
sudo: tee/usr/share/keyrings/jenkins-keyring.asc: command not found  
student@LAPTOP-INTAVHGL:~$ wget -q -O- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo t  
ee /usr/share/keyrings/jenkins-keyring.asc</dev/null  
student@LAPTOP-INTAVHGL:~$ 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  
student@LAPTOP-INTAVHGL:~$ sudo apt update -y  
Ign:1 https://pkg.jenkins.io/debian-stable binary/ InRelease  
Get:2 https://pkg.jenkins.io/debian-stable binary/ Release [2044 B]  
Get:3 https://pkg.jenkins.io/debian-stable binary/ Release.gpg [833 B]  
Get:4 https://pkg.jenkins.io/debian-stable binary/ Packages [20.7 kB]  
Hit:5 http://security.ubuntu.com/ubuntu noble-security InRelease  
Hit:6 http://archive.ubuntu.com/ubuntu noble InRelease  
Hit:7 http://archive.ubuntu.com/ubuntu noble-updates InRelease  
Hit:8 http://archive.ubuntu.com/ubuntu noble-backports InRelease  
Fetched 31.6 kB in 2s (17.6 kB/s)  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
56 packages can be upgraded. Run 'apt list --upgradable' to see them.  
student@LAPTOP-INTAVHGL:~$ sudo apt install -y jenkins  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following additional packages will be installed:  
  net-tools  
The following NEW packages will be installed:  
  jenkins net-tools  
0 upgraded, 2 newly installed, 0 to remove and 56 not upgraded.  
Need to get 95.0 MB of archives.  
After this operation, 97.6 MB of additional disk space will be used.  
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 net-tools amd64 2.10-0.1ubuntu4 [204 kB]  
Get:2 https://pkg.jenkins.io/debian-stable binary/ jenkins 2.492.2 [94.8 MB]  
100% [2 jenkins 20.7 MB/94.8 MB 30%]  
  
2852 kB/s 23s
```

Step 7:

```
student@LAPTOP-INTAVHGL:~$ sudo systemctl status jenkins
jenkins.service - Jenkins Continuous Integration Server
Loaded: loaded (/usr/lib/systemd/system/jenkins.service; enabled; preset: enabled)
Active: active (running) since Mon 2025-03-17 17:37:50 UTC; 3min 55s ago
Main PID: 2392 (java)
Tasks: 58 (limit: 9090)
Memory: 949.5M ()
CGroup: /system.slice/jenkins.service
└─2392 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war

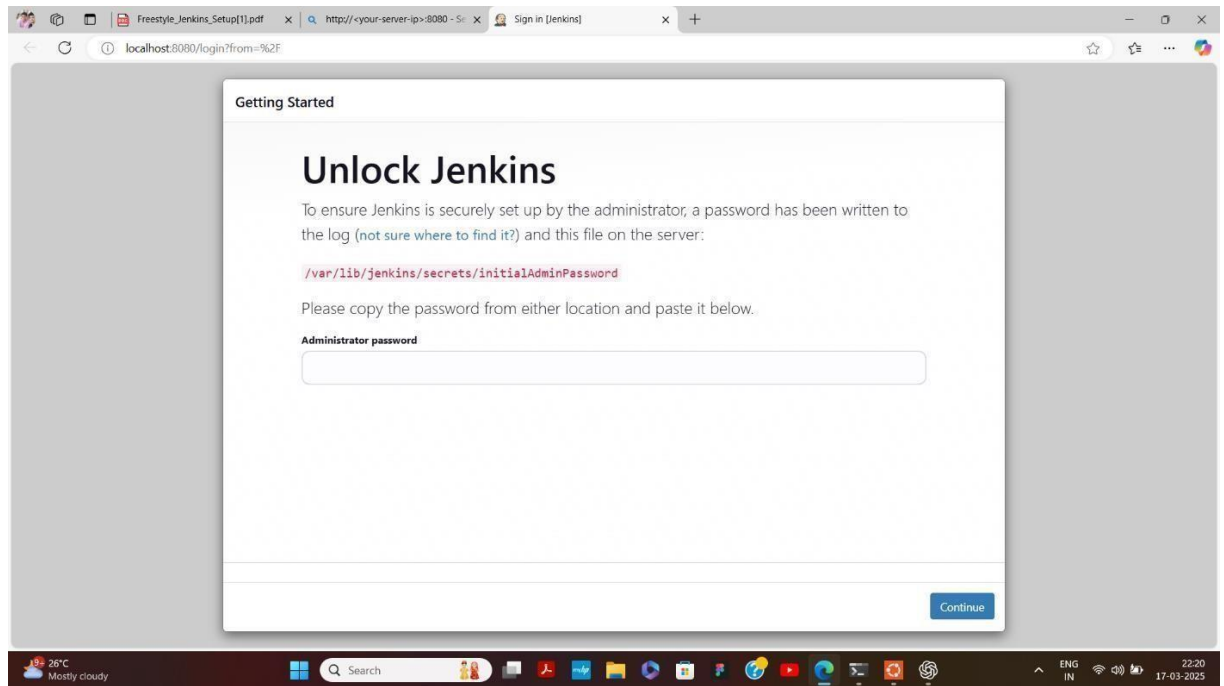
Mar 17 17:37:41 LAPTOP-INTAVHGL jenkins[2392]: 6513675f53d24271bfec2b0a9121d66e
Mar 17 17:37:41 LAPTOP-INTAVHGL jenkins[2392]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Mar 17 17:37:41 LAPTOP-INTAVHGL jenkins[2392]: *****
Mar 17 17:37:41 LAPTOP-INTAVHGL jenkins[2392]: *****
Mar 17 17:37:41 LAPTOP-INTAVHGL jenkins[2392]: *****
Mar 17 17:37:50 LAPTOP-INTAVHGL jenkins[2392]: 2025-03-17 17:37:50.706+0000 [id=55] INFO
Mar 17 17:37:50 LAPTOP-INTAVHGL jenkins[2392]: 2025-03-17 17:37:50.736+0000 [id=33] INFO
Mar 17 17:37:50 LAPTOP-INTAVHGL system[1]: Started jenkins.service - Jenkins Continuous Integration Server
Mar 17 17:37:53 LAPTOP-INTAVHGL jenkins[2392]: 2025-03-17 17:37:53.053+0000 [id=87] INFO
Mar 17 17:37:53 LAPTOP-INTAVHGL jenkins[2392]: 2025-03-17 17:37:53.055+0000 [id=87] INFO

lines 1-19/19 (END)
jenkins.service - Jenkins Continuous Integration Server
Loaded: loaded (/usr/lib/systemd/system/jenkins.service; enabled; preset: enabled)
Active: active (running) since Mon 2025-03-17 17:37:50 UTC; 3min 55s ago
Main PID: 2392 (java)
Tasks: 58 (limit: 9090)
Memory: 949.5M ()
CGroup: /system.slice/jenkins.service
└─2392 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080

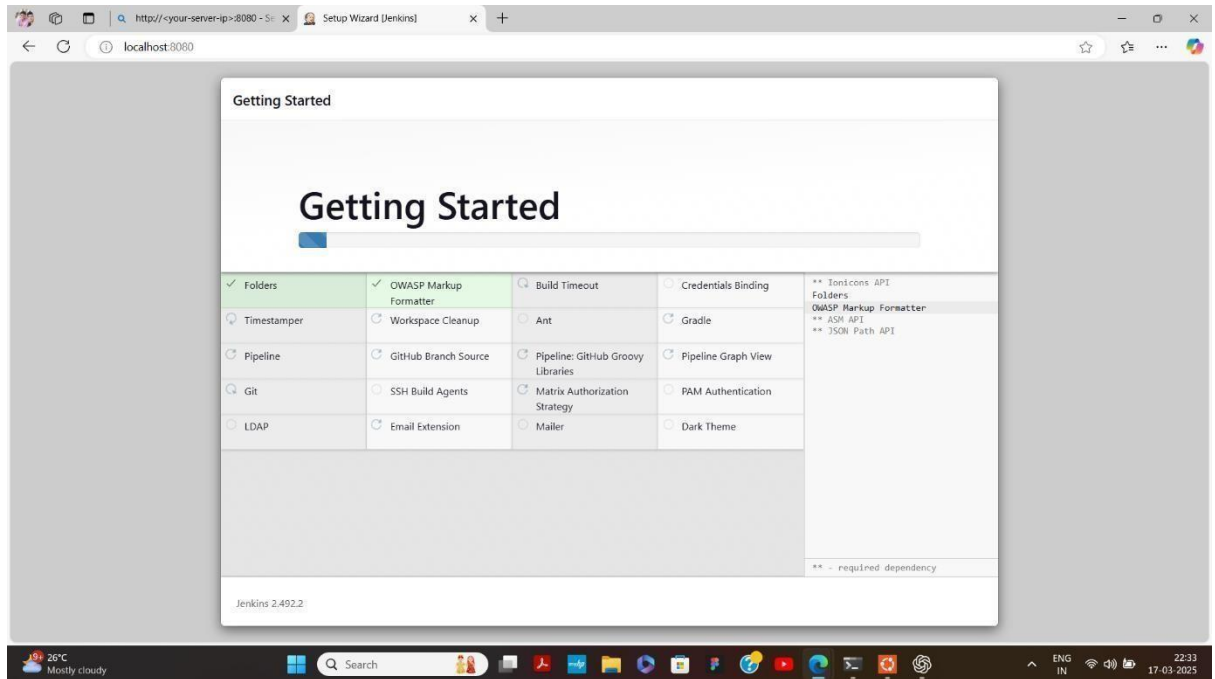
Mar 17 17:37:41 LAPTOP-INTAVHGL jenkins[2392]: 6513675f53d24271bfec2b0a9121d66e
Mar 17 17:37:41 LAPTOP-INTAVHGL jenkins[2392]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Mar 17 17:37:41 LAPTOP-INTAVHGL jenkins[2392]: *****
Mar 17 17:37:41 LAPTOP-INTAVHGL jenkins[2392]: *****
Mar 17 17:37:41 LAPTOP-INTAVHGL jenkins[2392]: *****
Mar 17 17:37:50 LAPTOP-INTAVHGL jenkins[2392]: 2025-03-17 17:37:50.706+0000 [id=55] INFO jenkins.InitReactorRunner$1#onAttained: Completed initialization
Mar 17 17:37:50 LAPTOP-INTAVHGL jenkins[2392]: 2025-03-17 17:37:50.736+0000 [id=33] INFO hudson.lifecycle.LifecycleReady: Jenkins is fully up and running
Mar 17 17:37:50 LAPTOP-INTAVHGL system[1]: Started jenkins.service - Jenkins Continuous Integration Server
Mar 17 17:37:53 LAPTOP-INTAVHGL jenkins[2392]: 2025-03-17 17:37:53.053+0000 [id=87] INFO hudson.DownloadService$DownloadableLoad: Obtained the updated data file for hudson.tasks.Maven.MavenInstaller
Mar 17 17:37:53 LAPTOP-INTAVHGL jenkins[2392]: 2025-03-17 17:37:53.055+0000 [id=87] INFO hudson.util.Retrier$start: Performed the action check updates server successfully at the attempt #1
```

Step 8:

(Enter the Administrator Password)

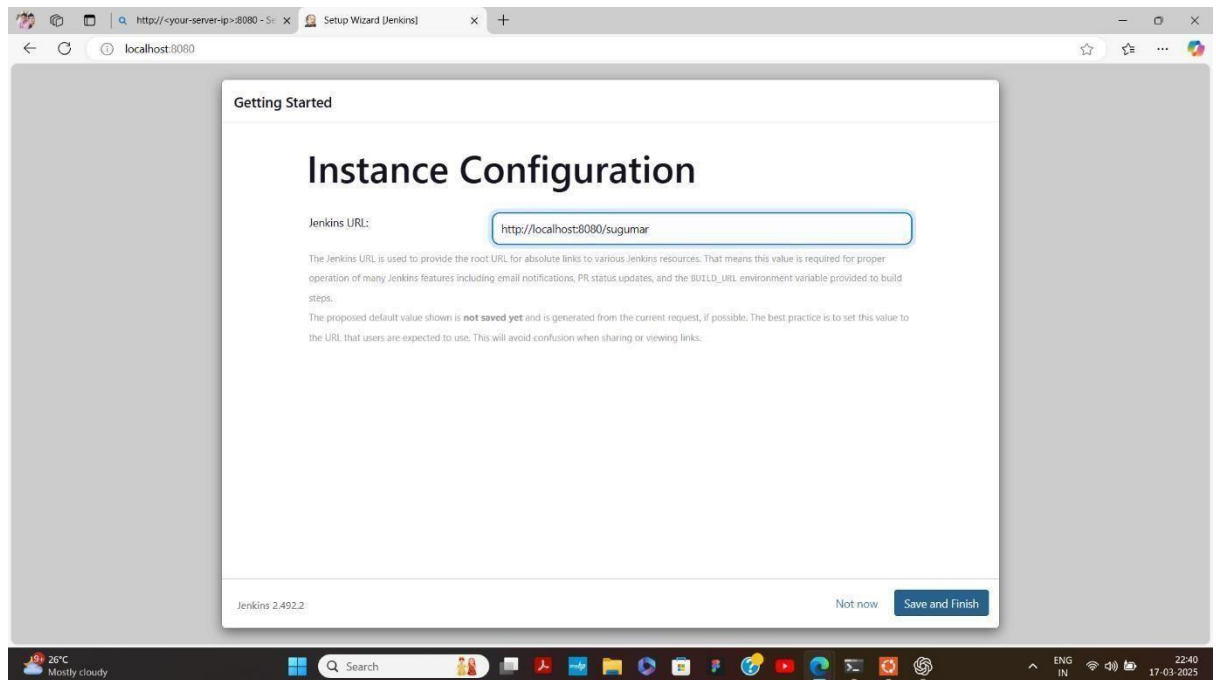


Step 9:



Step 10:

(Enter the URL)



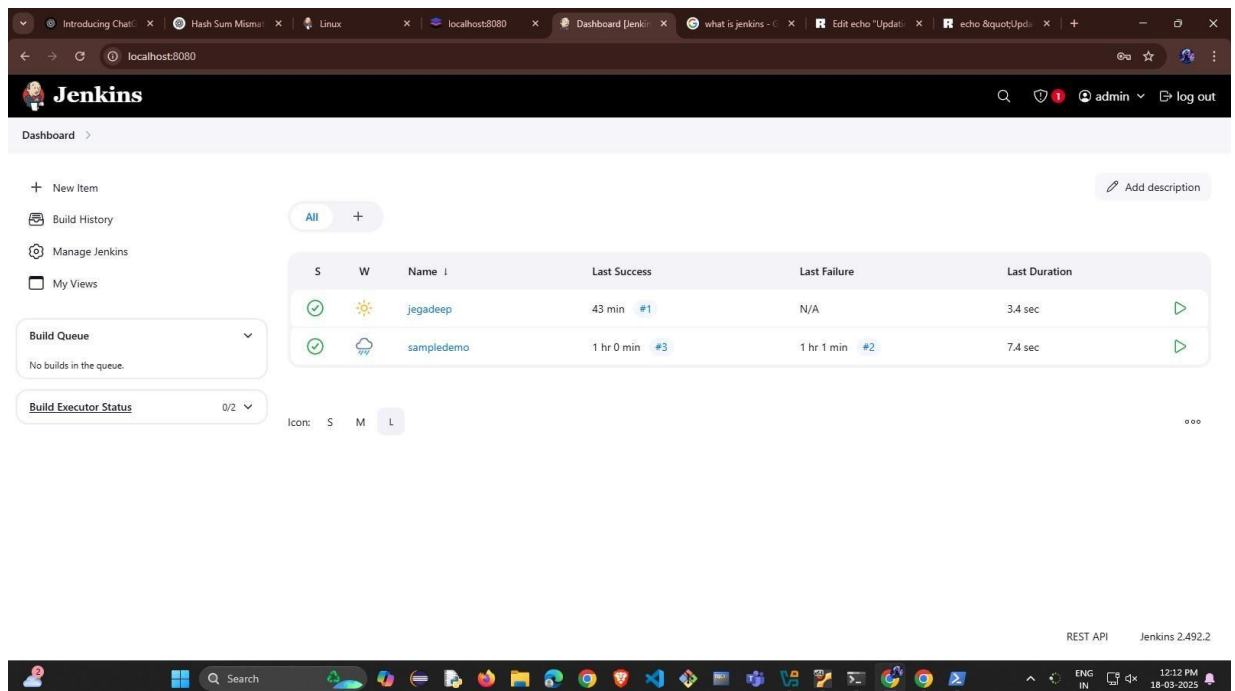
Step 12:

(Create an Project ex:ms)

(In Configure build and Select Execute shell)

(Build the Project)

SELECT BUILD NOW



The screenshot shows the Jenkins Dashboard interface. The top navigation bar includes the Jenkins logo, a search icon, a shield icon, a user profile icon labeled 'admin', and a 'log out' button. The main content area displays a table of builds with columns for status (S), weather icon (W), name (Name), last success (Last Success), last failure (Last Failure), and last duration (Last Duration). The table lists two builds: 'jegadeep' and 'sampledemo'. The 'jegadeep' build has a success status, a sun icon, and a duration of 43 min. The 'sampledemo' build has a success status, a cloud icon, and a duration of 1 hr 0 min. The bottom of the dashboard shows the 'Build Queue' and 'Build Executor Status' sections. The 'Build Queue' section indicates 'No builds in the queue.' The 'Build Executor Status' section shows '0/2' executors. The bottom status bar displays 'REST API', 'Jenkins 2.492.2', and the system clock '12:12 PM 18-03-2025'.

S	W	Name	Last Success	Last Failure	Last Duration
✓	☀️	jegadeep	43 min #1	N/A	3.4 sec
✓	☁️	sampledemo	1 hr 0 min #3	1 hr 1 min #2	7.4 sec

Step 13:

(We can check the output in console output)

