

Name: B. Bharanidharan [24MCR010]

Class: I – MCA – “A”

## TASK - 1

# DEVOPS TRAINING

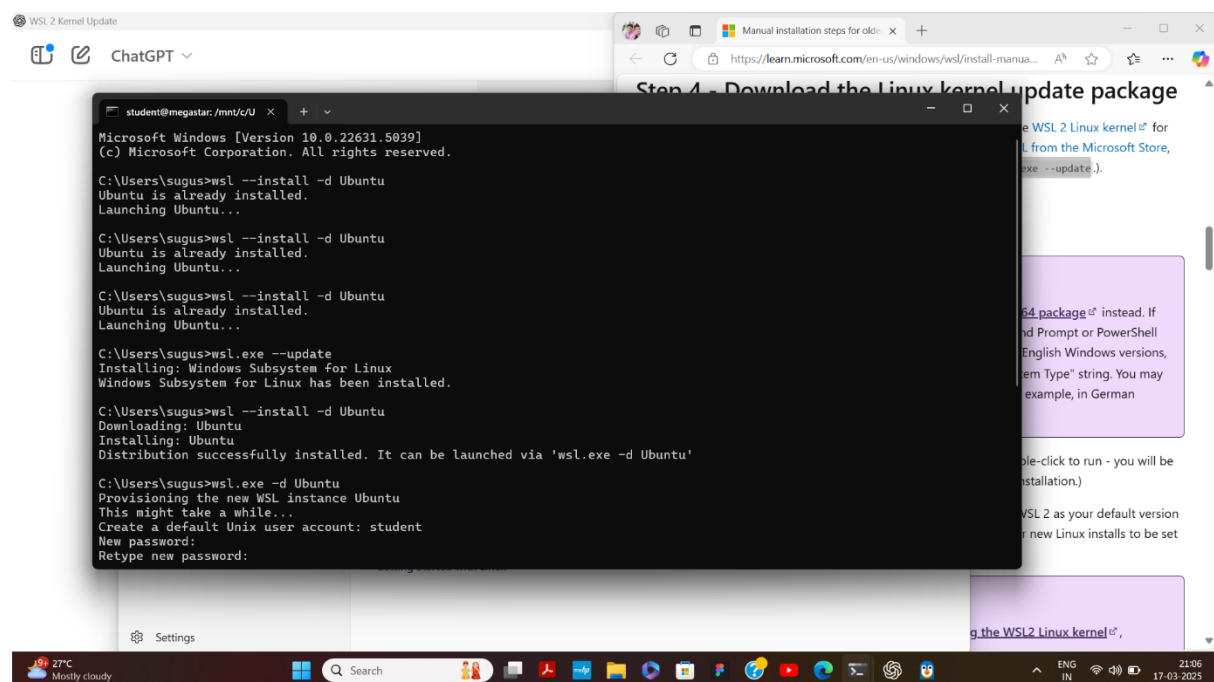
### Step 1: (Installing Ubuntu)

#### Enable WSL

Before installing Ubuntu, ensure that WSL is enabled on your Windows system.

#### Enable WSL Feature

1. Open **PowerShell** as Administrator and run:
2. `wsl --install`



### Step 2: (Set New Password) Set Up Ubuntu

When Ubuntu runs for the first time, it will ask you to create a new user account.

1. **Enter a username** (must start with a lowercase letter or underscore, and contain only lowercase letters, digits, underscores, and dashes).
2. **Set a password** (enter and confirm the password). If passwords do not match, you will need to retry.
3. Once successful, Ubuntu will be set up and ready to use.

```
student@megastar:/mnt/c/Windows/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

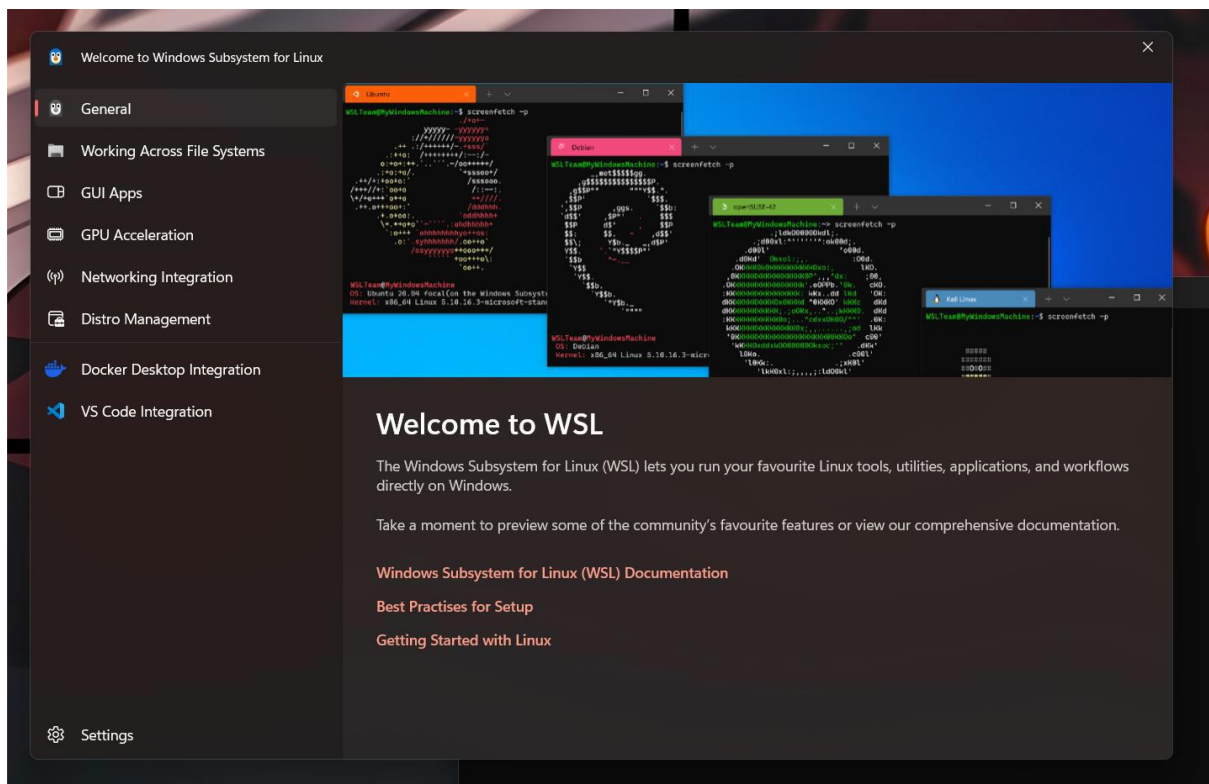
System information as of Mon Mar 17 15:36:24 UTC 2025

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.
student@megastar:/mnt/c/Windows/Users/sugus$
```

### Step 3:

(New WSL Window Will Open)



## Step 4:

(Check JDK Version) If not available install it .

### Install Jenkins on Ubuntu

# Update package lists

```
sudo apt update -y
```

# Install Java (Required for Jenkins) `sudo apt install -y openjdk-17-jdk`

#verify java version `java -version`

### Add Jenkins GPG Key

```
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

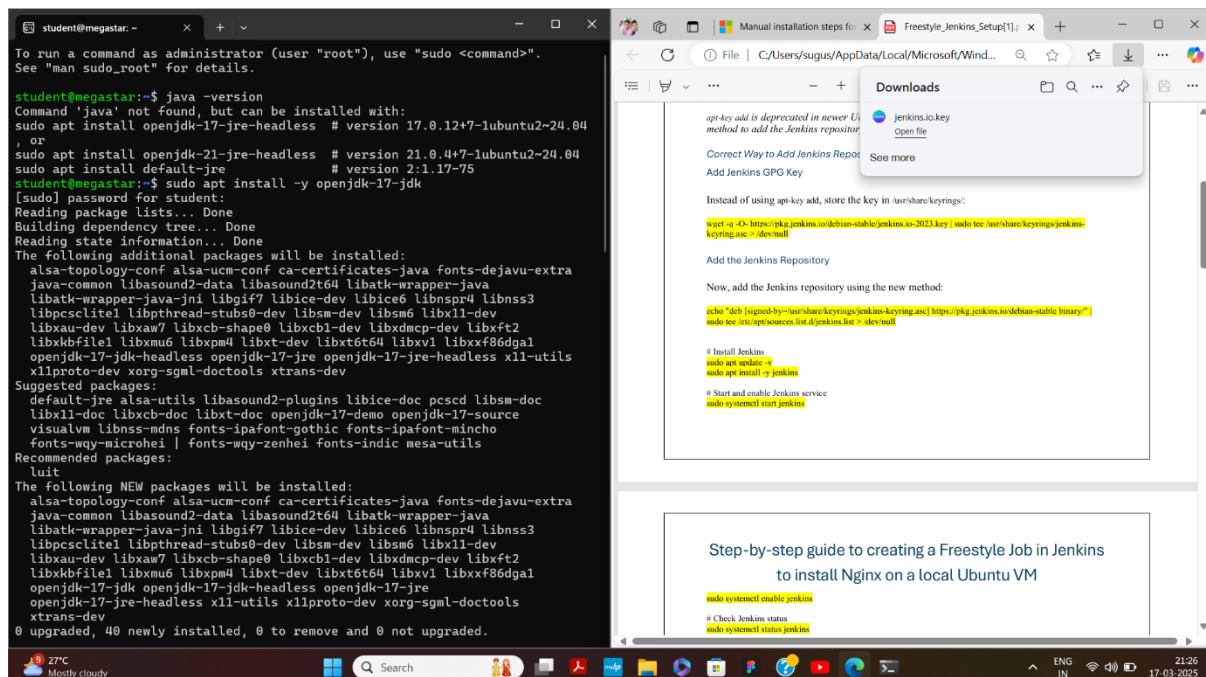
```
echo "deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] https://pkg.jenkins.io/debian-stable  
binary/" | sudo tee /etc/apt/sources.list.d/jenkins.list > /dev/null
```

### # Install Jenkins

```
sudo apt update -y
```

```
sudo apt install -y jenkins
```

# Start and enable Jenkins service `sudo systemctl start Jenkins`



```

student@LAPTOP-INTAVHGL:~$
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]
Pkg [23 Components: amd64 2155 kB/3871 kB 56%]
Get:24 http://archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 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/main 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 [759 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-backports/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
56 packages can be upgraded. Run 'apt list --upgradable' to see them.
student@LAPTOP-INTAVHGL:~$

```

```

student@LAPTOP-INTAVHGL:~$
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/jhsdb to provide /usr/bin/jhsdb (jhsdb) 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-keystudent@LAPTOP-INTAVHGL:~$ wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key 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
Get: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 [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
56 packages can be upgraded. Run 'apt list --upgradable' to see them.
student@LAPTOP-INTAVHGL:~$

```

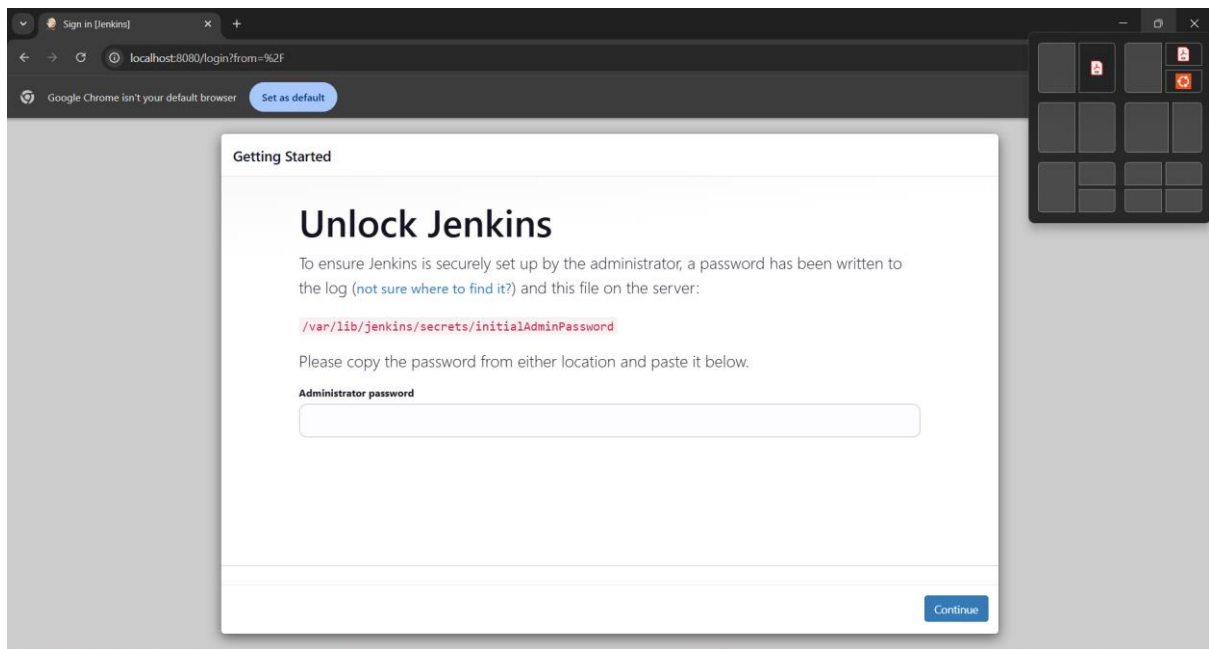
## Step 5: Install Jenkins

sudo apt update -y

sudo apt install -y jenkins



## Step 7: (Enter the Administrator Password)



```
Select student@LAPTOP-INTAVHGL: ~
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 systemd[1]: Started jenkins.service - Jenkins Continuous Integration S
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: 9098)
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]: 5513675f53d24271bfec2b0a9121d664
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 17:37:50 LAPTOP-INTAVHGL jenkins[2392]: 2025-03-17 17:37:50.706+0000 [id=55] INFO jenkins.InitReactorRunner$1@onAttained: Completed initialization
Mar 17 17:37:50 LAPTOP-INTAVHGL jenkins[2392]: 2025-03-17 17:37:50.736+0000 [id=33] INFO hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and running
Mar 17 17:37:50 LAPTOP-INTAVHGL systemd[1]: Started jenkins.service - Jenkins Continuous Integration Server.
Mar 17 17:37:50 LAPTOP-INTAVHGL jenkins[2392]: 2025-03-17 17:37:53.053+0000 [id=87] INFO h.m.DownloadService$Downloadable$load: Obtained the updated data file for hudson.tasks.Maven.MavenInstaller
Mar 17 17:37:53 LAPTOP-INTAVHGL jenkins[2392]: 2025-03-17 17:37:53.055+0000 [id=87] INFO hudson.util.Retrier$start: Performed the action check updates server successfully at the attempt #1
```

## Step 8: Access Jenkins Web Interface

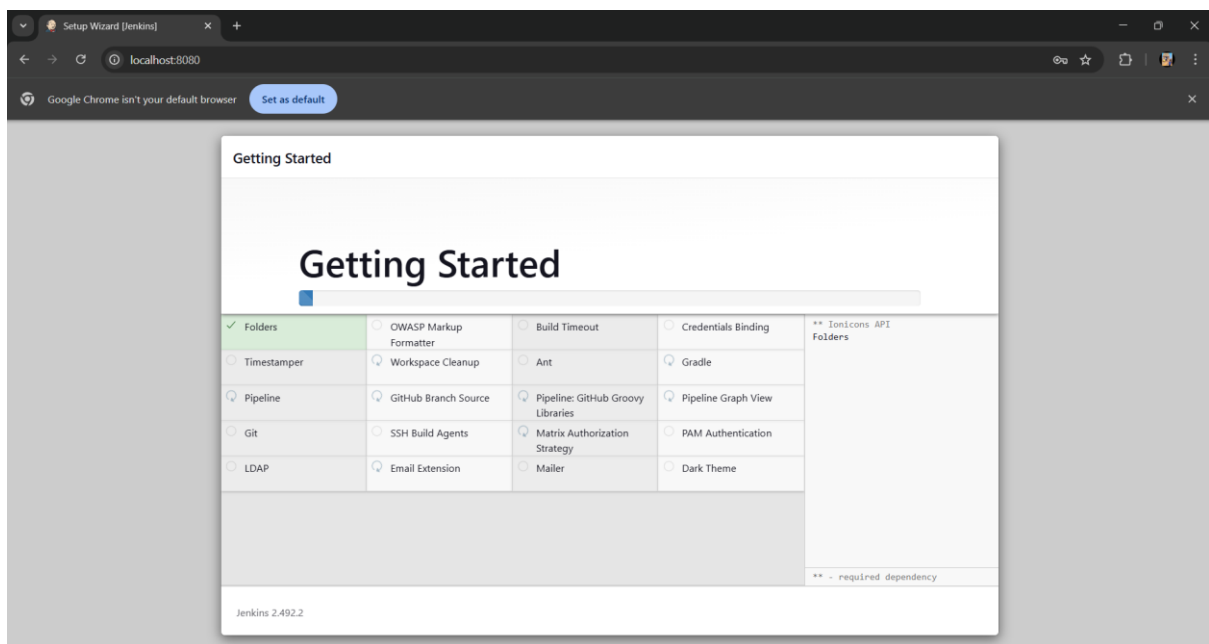
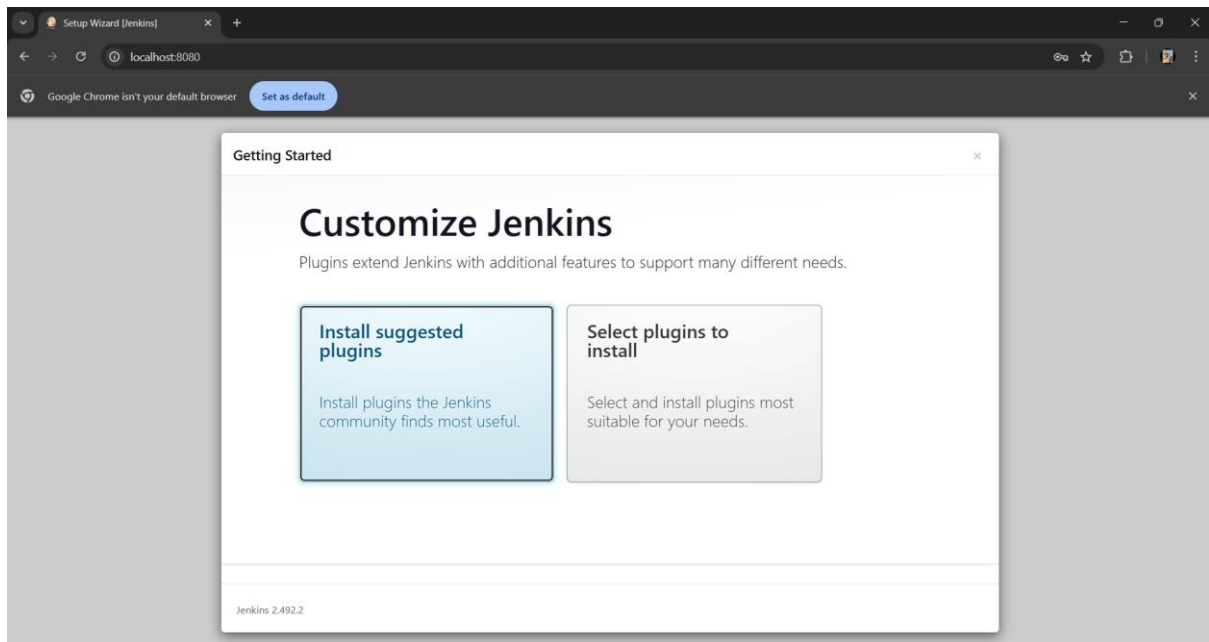
Jenkins will be available at <http://localhost:8080>

To Get the Jenkins Server URL, Follow These Steps:

Method 1: Check the Default URL

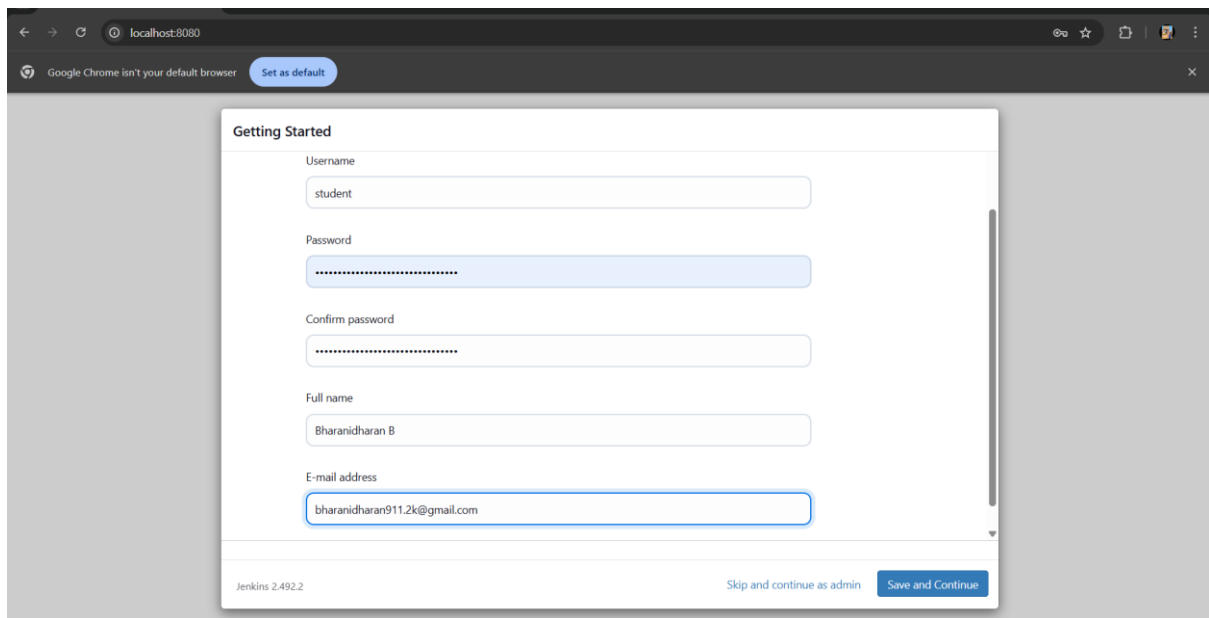
By default, Jenkins runs on port 8080. Open in a browser:

<http://<your-server-ip>:8080>





## Step 9: (Create First Admin User)



The screenshot shows the Jenkins 'Getting Started' setup wizard in a web browser. The browser address bar shows 'localhost:8080'. The wizard has a title bar 'Getting Started' and a 'Set as default' button. The form contains the following fields:

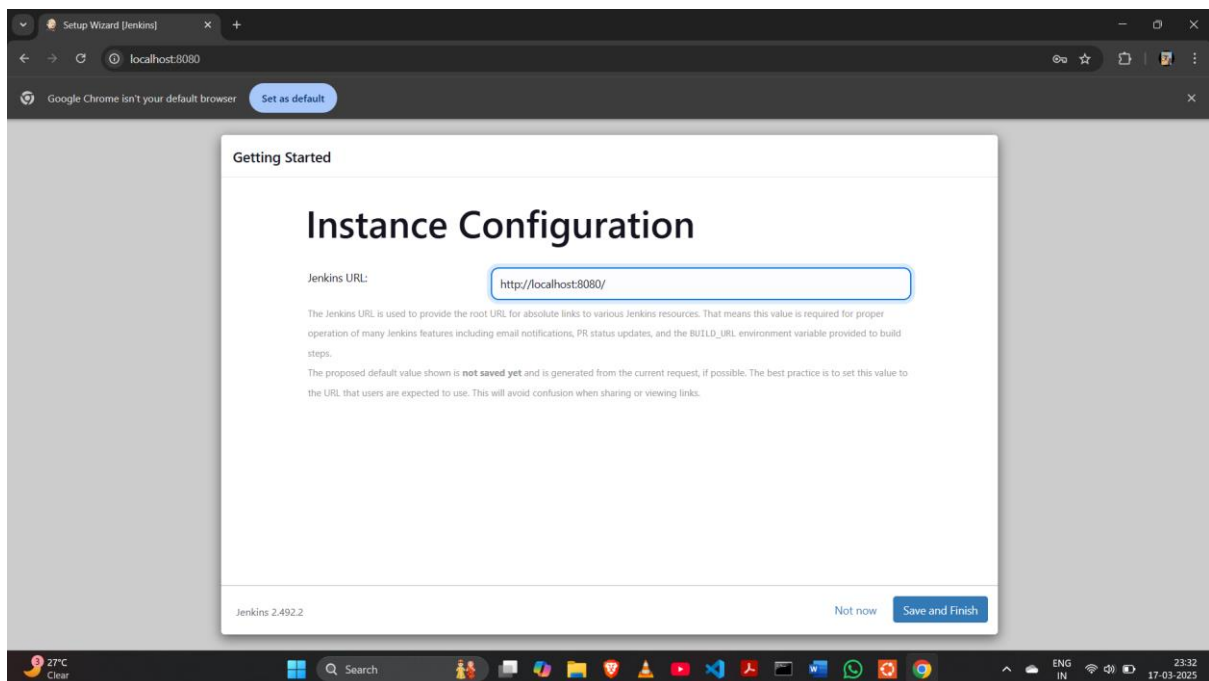
- Username: student
- Password: (masked with dots)
- Confirm password: (masked with dots)
- Full name: Bharanidharan B
- E-mail address: bharanidharan9112k@gmail.com

At the bottom, there is a 'Skip and continue as admin' link and a 'Save and Continue' button. The version 'Jenkins 2.492.2' is displayed in the bottom left corner.

## Step 10: (Enter the URL)

If you're on the same machine as Jenkins, use:

<http://localhost:8080>



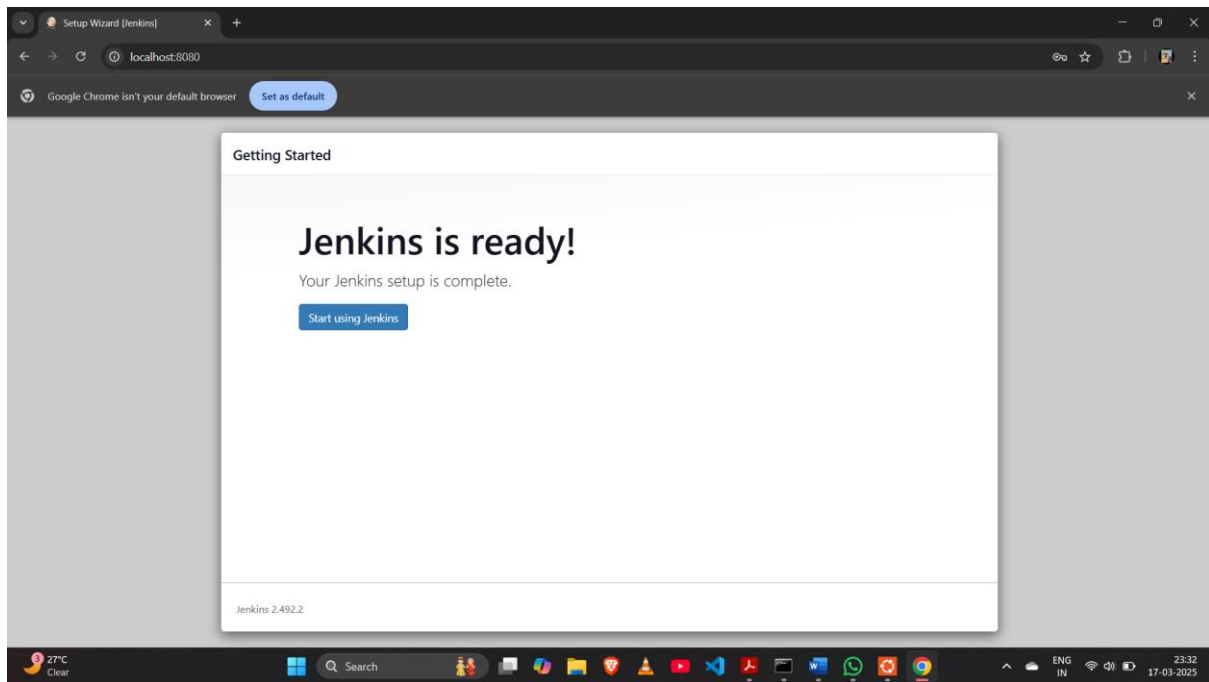
The screenshot shows the Jenkins 'Instance Configuration' setup wizard in a web browser. The browser address bar shows 'localhost:8080'. The wizard has a title bar 'Getting Started' and a 'Set as default' button. The form contains the following fields:

- Jenkins URL: http://localhost:8080/

Below the field, there is a paragraph of text: "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."

At the bottom, there is a 'Not now' link and a 'Save and Finish' button. The version 'Jenkins 2.492.2' is displayed in the bottom left corner.





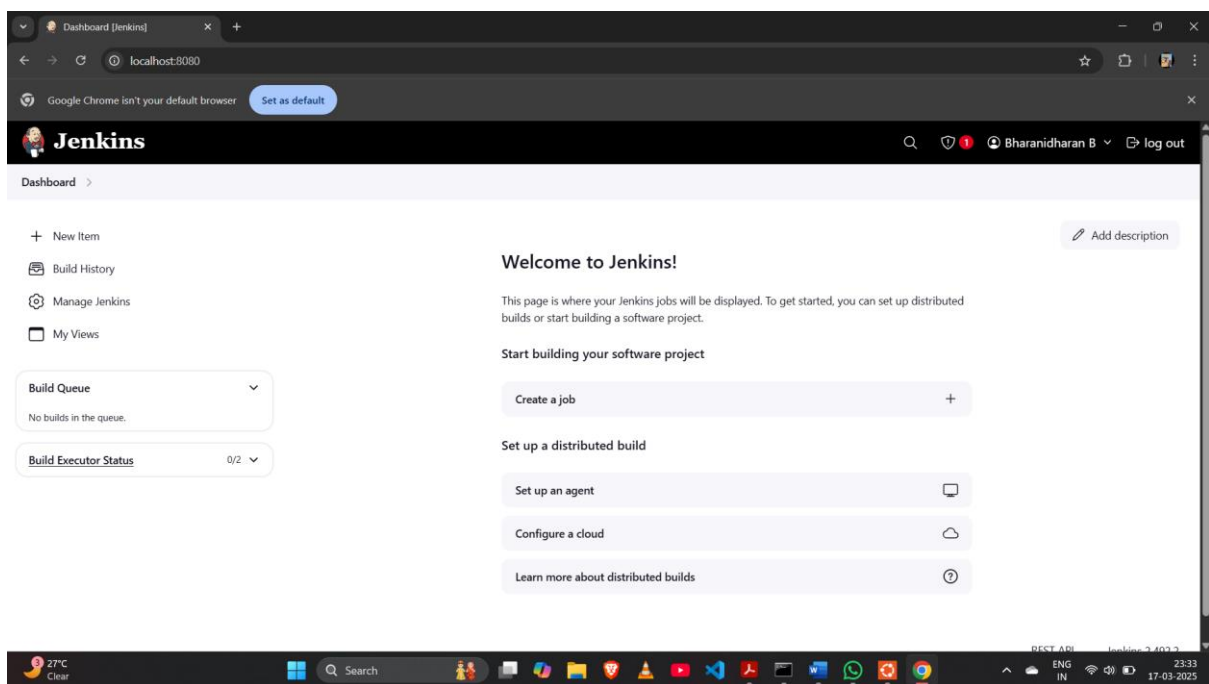
## Step 11:

**(Create an Project ex.ms)**

(In Configure build and Select Execute shell)

(Build the Project)

**SELECT BUILD NOW**



## Step: 12

### Step-by-Step Guide to Creating a Freestyle Job in Jenkins to Install Nginx Step 1: Create a New Freestyle Job

1. Click on **New Item** from the Jenkins Dashboard.
2. Enter a name for the job, e.g., *Install-Nginx*.
3. Select **Freestyle project**.
4. Click OK.

### Step 2: Configure the Job

#### Add Build Step

1. Scroll down to **Build** → Click *Add build step* → Select **Execute shell**.
2. Paste the following script in the command box:

```
echo "Updating package lists..."
sudo apt update -y
echo "Installing Nginx..."
sudo apt install -y nginx
echo "Starting Nginx service..."
sudo systemctl start nginx
echo "Enabling Nginx to start on boot..."
sudo systemctl enable nginx
echo "Nginx Installation Completed!"
```

### Step 3: Save and Run the Job

1. Click **Save**.
2. Click **Build Now**.
3. Check the **Console Output** to verify the installation.

### Step 4: Verify the Installation

#### 1. Check Nginx Status

```
systemctl status nginx
```

If running, you should see output like *"active (running)"*.

#### 2. Open Nginx in Browser

```
http://localhost:80
```

You should see the default Nginx welcome page

Install-Nginx Config [Jenkins] x Sign in [Jenkins] x +

localhost:8080/job/Install-Nginx/configure

Google Chrome isn't your default browser Set as default


Jenkins

Dashboard > Install-Nginx > Configuration

### Configure

- General
- Source Code Management
- Triggers
- Environment
- Build Steps
- Post-build Actions

### General

Enabled 

Description

Plain text [Preview](#)

☐ Discard old builds ?

☐ GitHub project

☐ This project is parameterized ?

☐ Throttle builds ?

☐ Execute concurrent builds if necessary ?

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

Install-Nginx Config [Jenkins] x Sign in [Jenkins] x +

localhost:8080/job/Install-Nginx/configure

Google Chrome isn't your default browser Set as default


Jenkins

Dashboard > Install-Nginx > Configuration

### Configure

- General
- Source Code Management
- Triggers
- Environment
- Build Steps
- Post-build Actions

### General

Enabled 

Description

```
#!/bin/
echo "Updating package lists..."
sudo apt update -y

echo "Installing Nginx..."
sudo apt install -y nginx
```

Plain text [Preview](#)

☐ Discard old builds ?

☐ GitHub project

☐ This project is parameterized ?

☐ Throttle builds ?


☐ Execute concurrent builds if necessary ?

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

Install-Nginx [Jenkins] x Sign in [Jenkins] x +

localhost:8080/job/Install-Nginx/

Google Chrome isn't your default browser Set as default

 Jenkins

REST API 1 Bharanidharan B log out

Dashboard > Install-Nginx >

Status

</> Changes

Workspace

Build Now

Configure

Delete Project

Rename

Builds

No builds

Install-Nginx

Edit description

```
#!/bin/
echo "Updating package lists..."
sudo apt update -y

echo "Installing Nginx..."
sudo apt install -y nginx
echo "Starting Nginx service..."
sudo systemctl start nginx
echo "Enabling Nginx to start on boot..."
sudo systemctl enable nginx
echo "Nginx Installation Completed!"
```


Permalinks

REST API Jenkins 2.492.2

Install-Nginx [Jenkins] x Sign in [Jenkins] x Dashboard [Jenkins] x +

localhost:8080

Google Chrome isn't your default browser Set as default

 Jenkins

REST API 1 Bharanidharan B log out

Dashboard >

New Item

Build History

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

0/2

All +

S	W	Name ↓	Last Success	Last Failure	Last Duration
☾	☀	Install-Nginx	N/A	N/A	N/A

Icons: S M L

REST API Jenkins 2.492.2

