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PRACTICAL- 1

Aim: Basic Git commands

1. Check git version git – version

```
ubuntu@ubuntu:~$ git --version
git version 2.25.1
ubuntu@ubuntu:~$
```

–

2. Create folder and initialize.

```
ubuntu@ubuntu:~$ git --version
git version 2.25.1
ubuntu@ubuntu:~$ mkdir newuser
ubuntu@ubuntu:~$ cd newuser/
ubuntu@ubuntu:~/newuser$ git init
Initialized empty Git repository in /home/ubuntu/newuser/.git/
ubuntu@ubuntu:~/newuser$
```

3. Configure Git git config --global user.name "usernewncrd" git config --global user.email "symca669@gmail.com"

```
ubuntu@ubuntu:~/newuser$ git config --global user.name "usernewncrd"
ubuntu@ubuntu:~/newuser$ git config --global user.email "symca669@gmail.com"
ubuntu@ubuntu:~/newuser$
```

4. Create a new project folder mkdir git-demo cd git-demo

```
ubuntu@ubuntu:~/newuser$ mkdir git-demo
ubuntu@ubuntu:~/newuser$ cd git-demo/
ubuntu@ubuntu:~/newuser/git-demo$
```

5. git init

```
ubuntu@ubuntu:~/newuser/git-demo$ git init
Initialized empty Git repository in /home/ubuntu/newuser/git-demo/.git/
ubuntu@ubuntu:~/newuser/git-demo$
```

6. Create and track a file: echo "Hello User" > file.txt
git add file.txt
git commit -m "Initial commit"

```
ubuntu@ubuntu:~/newuser/git-demo$ echo "Hello User"> file.txt
ubuntu@ubuntu:~/newuser/git-demo$ git add file.txt
ubuntu@ubuntu:~/newuser/git-demo$ git commit -m "Initial Commit"
[master (root-commit) 5da5867] Initial Commit
 1 file changed, 1 insertion(+)
 create mode 100644 file.txt
ubuntu@ubuntu:~/newuser/git-demo$
```

7. Check status and log:

git status
git log

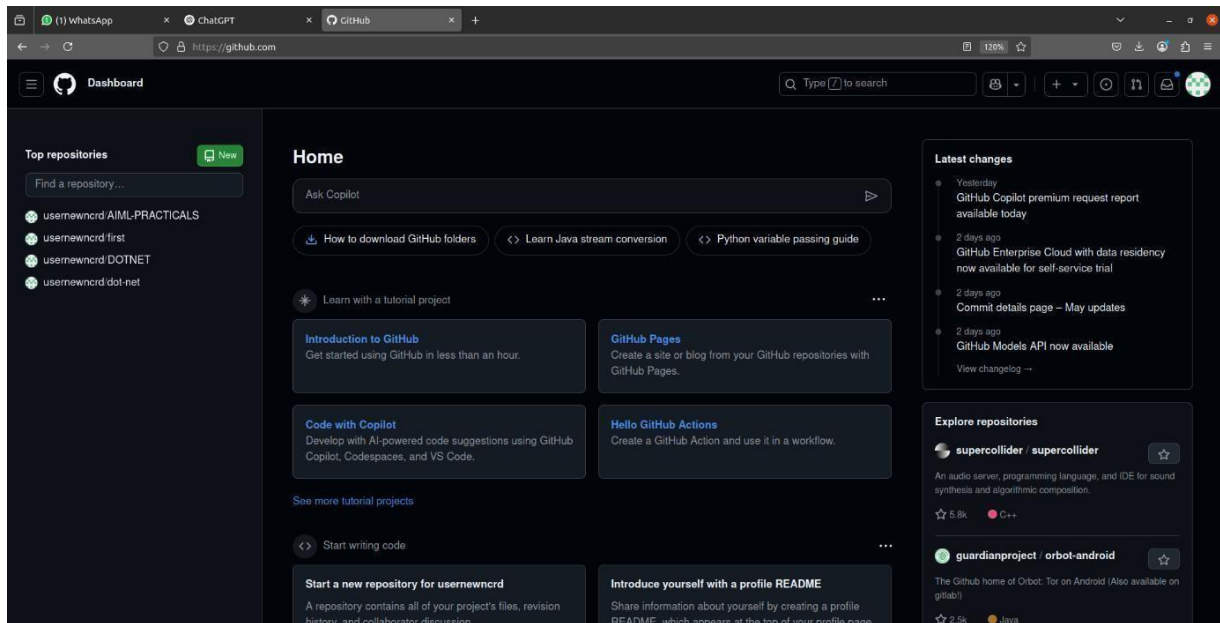
```
ubuntu@ubuntu:~/newuser/git-demo$ git status
On branch master
nothing to commit, working tree clean
ubuntu@ubuntu:~/newuser/git-demo$ git log
commit 5da586754b11433e7ab5ed5d1eafad9ad22d9289 (HEAD -> master)
Author: usernewncrd <symca669@gmail.com>
Date:   Sun May 18 13:52:53 2025 +0530

    Initial Commit
ubuntu@ubuntu:~/newuser/git-demo$
```

PRACTICAL- 2

Aim: Create and fork repositories in GitHub. Apply branch, merge, rebase concepts.

1. Create a GitHub account and log in.



2. Create a repository on GitHub (e.g., git-practice).

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository.](#)

Required fields are marked with an asterisk ().*

Owner * **Repository name ***

usernewncrd /

git-practice is available.

Great repository names are short and memorable. Need inspiration? How about [studious-octo-palm-tree](#) ?

Description (optional)

☒ **Public**
Anyone on the internet can see this repository. You choose who can commit.

☐ **Private**
You choose who can see and commit to this repository.

Initialize this repository with:

☐ **Add a README file**
This is where you can write a long description for your project. [Learn more about READMEs.](#)

Add .gitignore

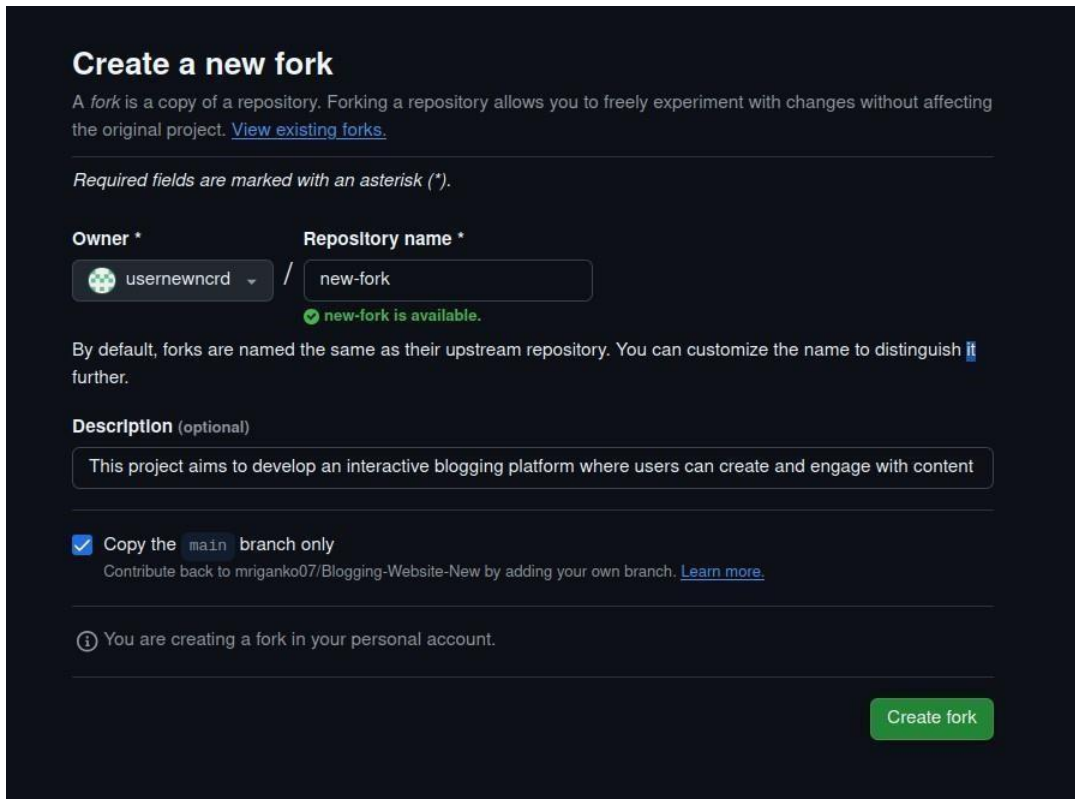
Choose which files not to track from a list of templates. [Learn more about ignoring files.](#)

Choose a license

A license tells others what they can and can't do with your code. [Learn more about licenses.](#)

You are creating a public repository in your personal account.

3. Fork any public repository or your own from another account





Create a new fork

A *fork* is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project. [View existing forks.](#)

Required fields are marked with an asterisk (*).

Owner * **Repository name ***

 usernewncrd / new-fork

 new-fork is available.


By default, forks are named the same as their upstream repository. You can customize the name to distinguish it further.

Description (optional)

This project aims to develop an interactive blogging platform where users can create and engage with content

☒ Copy the `main` branch only

Contribute back to mriganko07/Blogging-Website-New by adding your own branch. [Learn more.](#)

 You are creating a fork in your personal account.

[Create fork](#)

4. Clone the forked repo: `git clone https://github.com/usernewncrd/git-practice.git`
`cd git-practice`

```
ubuntu@ubuntu:~/newuser/git-demo$ git clone https://github.com/usernewncrd/new-fork
Cloning into 'new-fork'...
remote: Enumerating objects: 7, done.
remote: Counting objects: 100% (7/7), done.
remote: Compressing objects: 100% (7/7), done.
remote: Total 7 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (7/7), 28.85 KiB | 1.07 MiB/s, done.
ubuntu@ubuntu:~/newuser/git-demo$ cd new-fork/
ubuntu@ubuntu:~/newuser/git-demo/new-fork$
```

5. Create a branch: `git checkout -b feature`

```
ubuntu@ubuntu:~/newuser/git-demo/new-fork$ git checkout -b feature
Switched to a new branch 'feature'
```

6. Make changes, then commit: `echo "Feature added" >> newfile.txt`
`git add .`
`git commit -m "Added new feature"`

```
ubuntu@ubuntu:~/newuser/git-demo/new-fork$ echo "Feature Added" >> newfile.txt
ubuntu@ubuntu:~/newuser/git-demo/new-fork$ git add .
ubuntu@ubuntu:~/newuser/git-demo/new-fork$ git commit -m "Added new feature"
[feature ec92d67] Added new feature
1 file changed, 1 insertion(+)
create mode 100644 newfile.txt
```

7. Merge branch into main: git checkout master git merge feature

```
ubuntu@ubuntu:~/newuser/git-demo/new-fork$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
ubuntu@ubuntu:~/newuser/git-demo/new-fork$ git merge feature
Updating d0bf9b1..ec92d67
Fast-forward
 newfile.txt | 1 +
1 file changed, 1 insertion(+)
create mode 100644 newfile.txt
ubuntu@ubuntu:~/newuser/git-demo/new-fork$
```

8. Rebase branch (alternative to merge): git checkout feature git rebase master

```
ubuntu@ubuntu:~/newuser/git-demo/new-fork$ git checkout feature
Switched to branch 'feature'
ubuntu@ubuntu:~/newuser/git-demo/new-fork$ git rebase main
Current branch feature is up to date.
ubuntu@ubuntu:~/newuser/git-demo/new-fork$
```

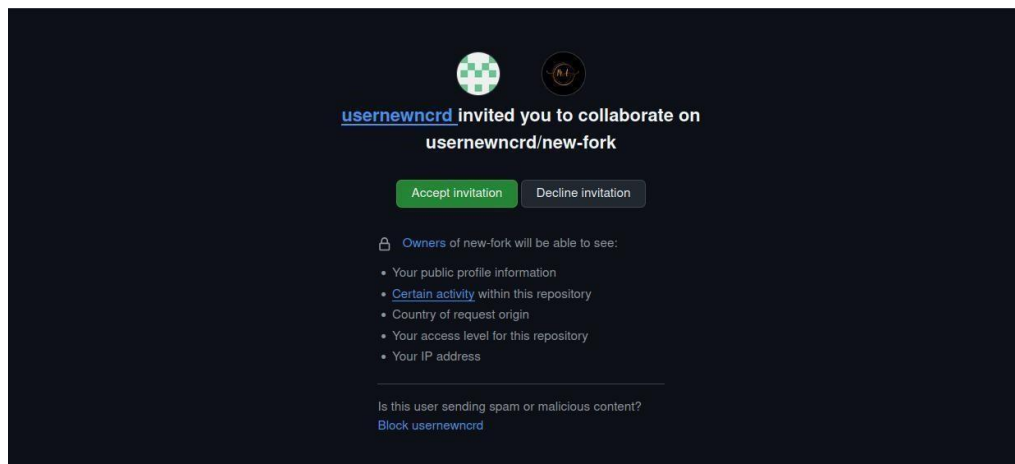
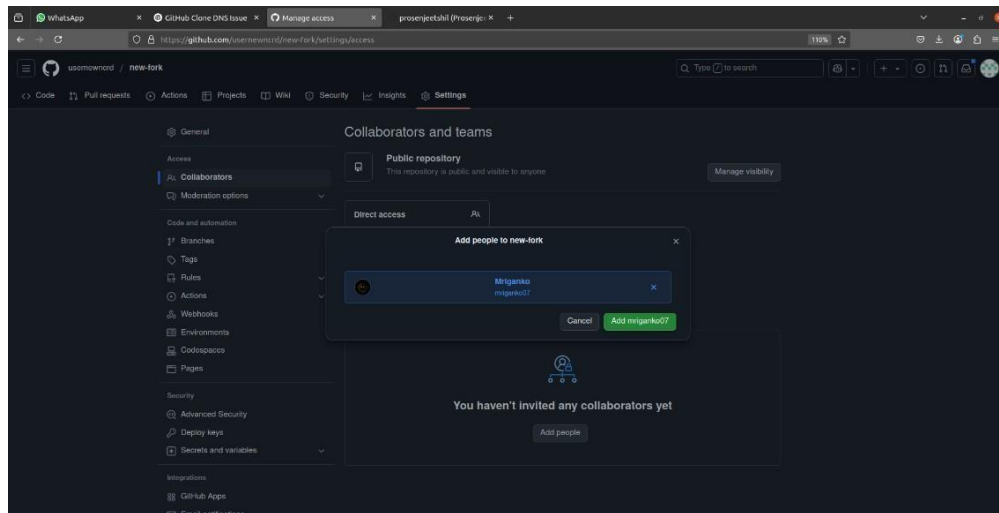
9. Push to GitHub:
git push origin feature

```
ubuntu@ubuntu:~/newuser/git-demo/new-fork$ git push origin feature
Username for 'https://github.com': usernewncrd
Password for 'https://usernewncrd@github.com':
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 283 bytes | 283.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
remote:
remote: Create a pull request for 'feature' on GitHub by visiting:
remote:   https://github.com/usernewncrd/new-fork/pull/new/feature
remote:
To https://github.com/usernewncrd/new-fork
 * [new branch]   feature -> feature
ubuntu@ubuntu:~/newuser/git-demo/new-fork$
```


PRACTICAL-3

Aim : Using Git for Collaboration

1. Using Git for Collaboration



2. Friend clones the repo:

git clone <https://github.com/usernewncrd/git-practice.git> cd

```
ubuntu@ubuntu:~/newuser/git-demo$ git clone https://github.com/usernewncrd/git-practice.git
Cloning into 'git-practice'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (3/3), 1000.37 KiB | 2.44 MiB/s, done.
ubuntu@ubuntu:~/newuser/git-demo$ cd team-repo
bash: cd: team-repo: No such file or directory
ubuntu@ubuntu:~/newuser/git-demo$ git checkout -b bug-fix
Switched to a new branch 'bug-fix'
ubuntu@ubuntu:~/newuser/git-demo$
```

3. Friend makes changes and pushes:

```
echo "Bug fixed" >> bug.txt
```

```
git add .
```

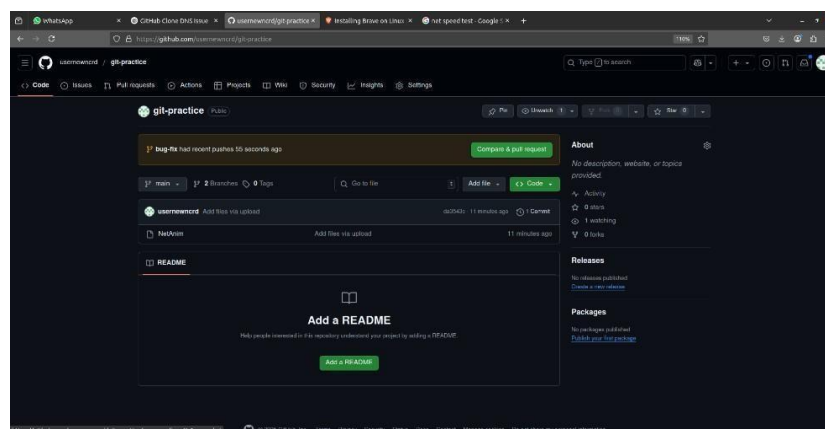
```
git commit -m "Fixed a bug"
```

```
ubuntu@ubuntu:~/newuser/git-demo$ echo "Bug fixed">>bug.txt
ubuntu@ubuntu:~/newuser/git-demo$ git add .
warning: adding embedded git repository: git-practice
hint: You've added another git repository inside your current repository.
hint: Clones of the outer repository will not contain the contents of
hint: the embedded repository and will not know how to obtain it.
hint: If you meant to add a submodule, use:
hint:
hint:   git submodule add <url> git-practice
hint:
hint: If you added this path by mistake, you can remove it from the
hint: index with:
hint:
hint:   git rm --cached git-practice
hint:
hint: See "git help submodule" for more information.
warning: adding embedded git repository: new-fork
ubuntu@ubuntu:~/newuser/git-demo$ git commit -m "Fixed the bug"
[bug-fix a816be3] Fixed the bug
 3 files changed, 3 insertions(+)
 create mode 100644 bug.txt
 create mode 160000 git-practice
 create mode 160000 new-fork
ubuntu@ubuntu:~/newuser/git-demo$
```

4. git push origin bug-fix

```
ubuntu@ubuntu:~/newuser/git-demo$ git push origin bug-fix
Username for 'https://github.com': usernewncrd
Password for 'https://usernewncrd@github.com':
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 12 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (6/6), 549 bytes | 549.00 KiB/s, done.
Total 6 (delta 0), reused 0 (delta 0)
remote:
remote: Create a pull request for 'bug-fix' on GitHub by visiting:
remote:   https://github.com/usernewncrd/git-practice/pull/new/bug-fix
remote:
To https://github.com/usernewncrd/git-practice.git
 * [new branch]      bug-fix -> bug-fix
ubuntu@ubuntu:~/newuser/git-demo$
```

5. Pull Request



PRACTICAL-4

Aim : Collaborating and Cloning using GitHub

1. Clone a public repository: `git clone`
`https://github.com/usernewncrd /git-practice.git`

```
ubuntu@ubuntu:~/newuser/git-demo$ git clone https://github.com/usernewncrd/git-practice.git
Cloning into 'git-practice'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (3/3), 1000.37 KiB | 2.44 MiB/s, done.
```

2. Create a branch: `git checkout -b`
`update-readme`

```
ubuntu@ubuntu:~/newuser/git-demo$ git checkout -b update-readme
Switched to a new branch 'update-readme'
ubuntu@ubuntu:~/newuser/git-demo$
```

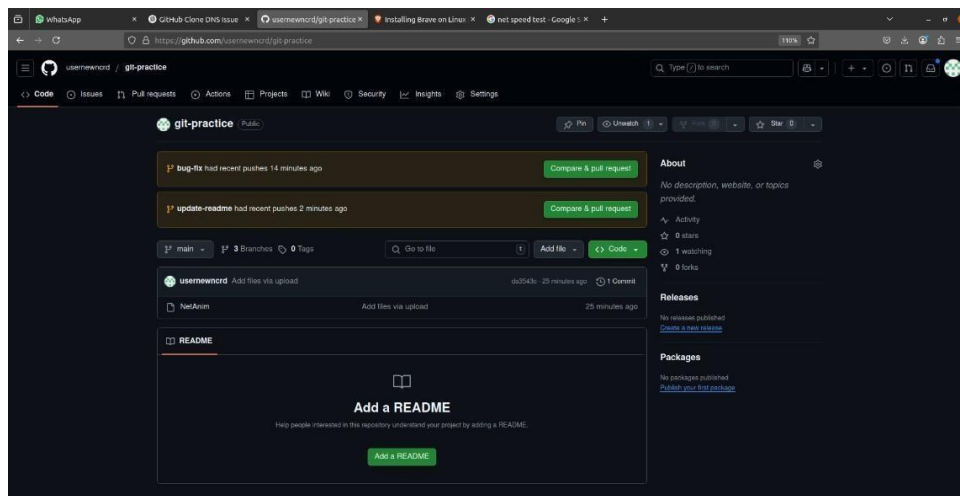
3. Edit and commit changes: `echo`
`"Added a line" >> README.md`
`git add README.md`
`git commit -m`
`"Updated README"`

```
ubuntu@ubuntu:~/newuser/git-demo$ echo "Added a line">>README.md
ubuntu@ubuntu:~/newuser/git-demo$ git add README.md
ubuntu@ubuntu:~/newuser/git-demo$ git commit -m "Updated README"
[update-readme 11aa668] Updated README
 1 file changed, 1 insertion(+)
 create mode 100644 README.md
ubuntu@ubuntu:~/newuser/git-demo$
```

4. Push and open pull request:

```
ubuntu@ubuntu:~/newuser/git-demo$ git push origin update-readme
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 290 bytes | 290.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
remote:
remote: Create a pull request for 'update-readme' on GitHub by visiting:
remote:   https://github.com/usernewncrd/git-practice/pull/new/update-readme
remote:
To https://github.com/usernewncrd/git-practice.git
 * [new branch]      update-readme -> update-readme
ubuntu@ubuntu:~/newuser/git-demo$
```

5. git push origin update-readme

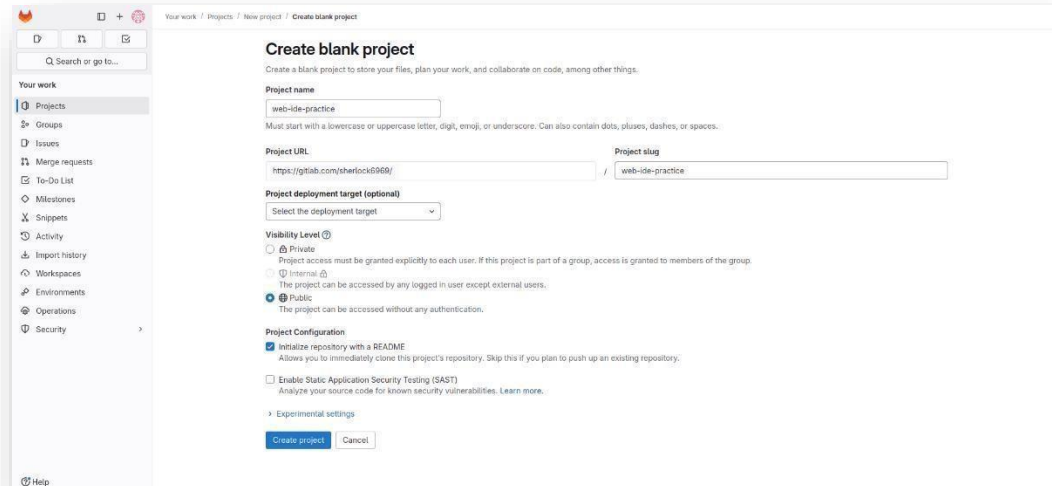


PRACTICAL-5

Aim : Using GitLab Web IDE

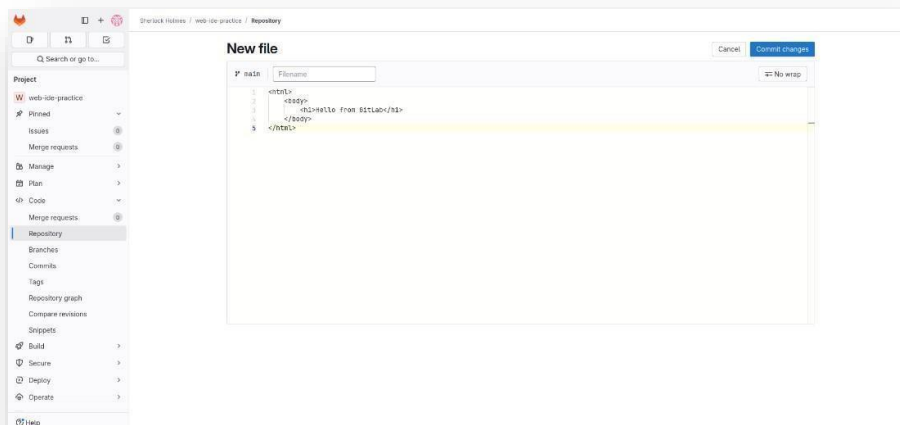
Steps:

1. Sign up at <https://gitlab.com>
2. Create a project.
3. Click on Web IDE in your repository.

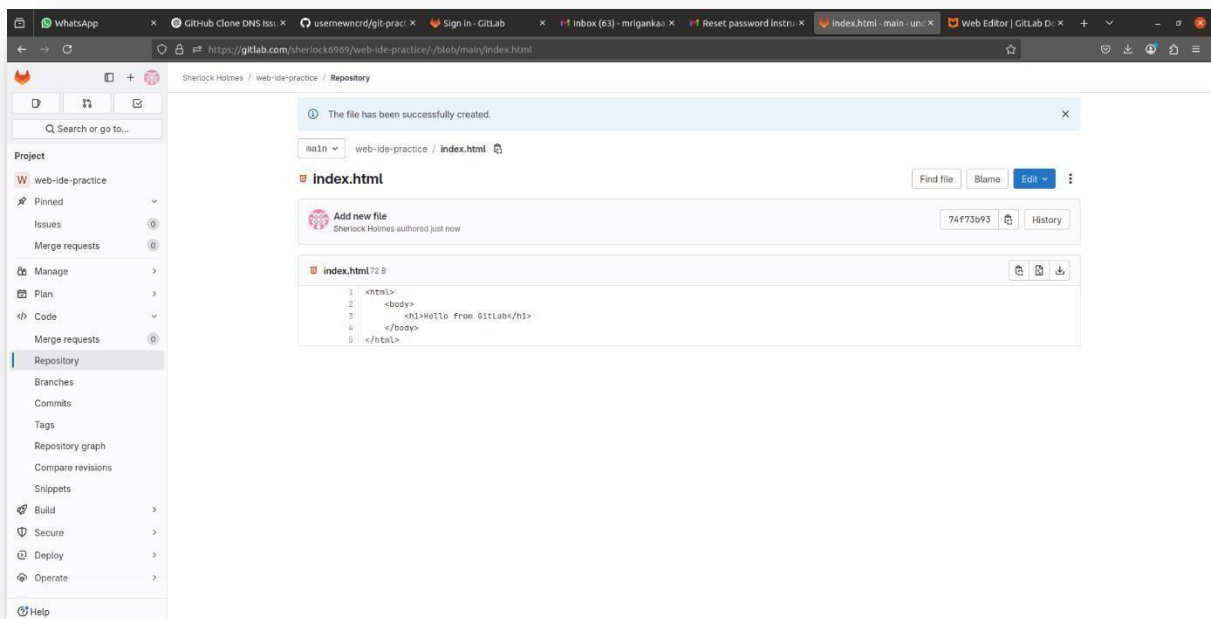
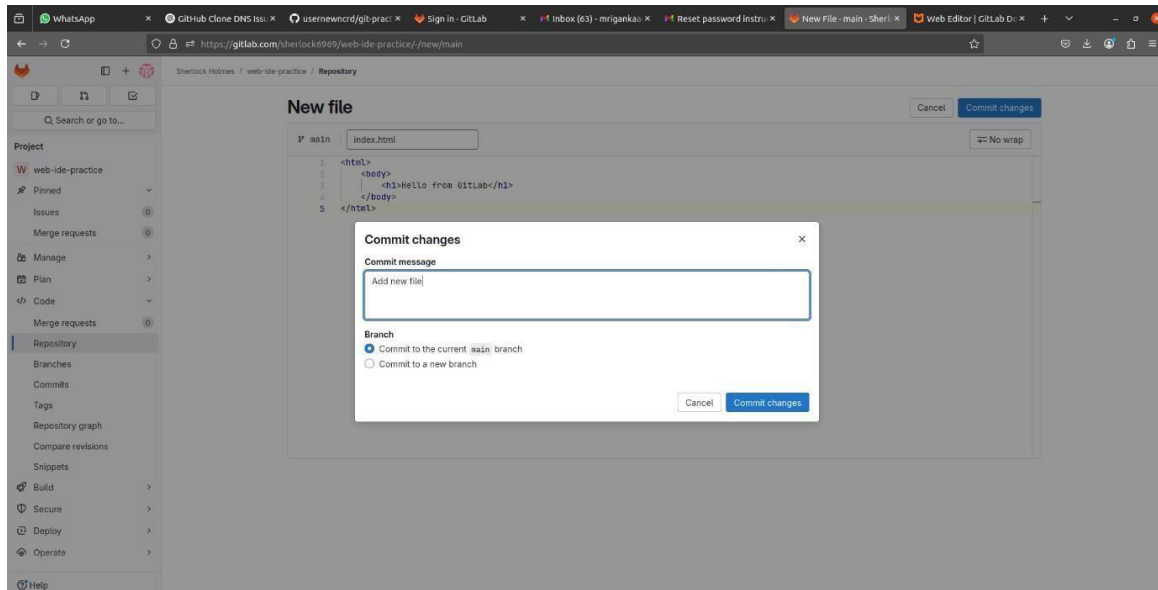


4. Create a file (index.html):

```
<html>
<body>
  <h1>Hello from GitLab</h1>
</body>
</html>
```



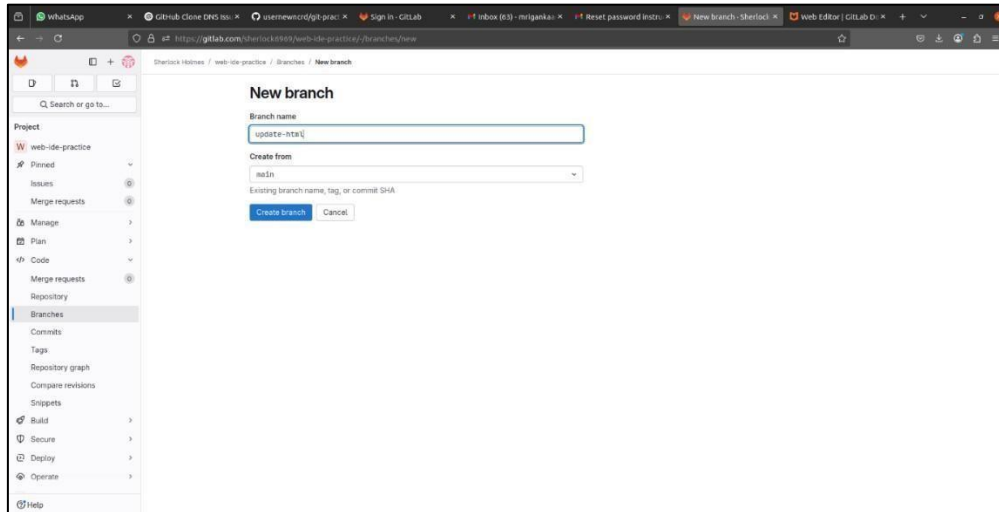
4. Click Commit and push changes.



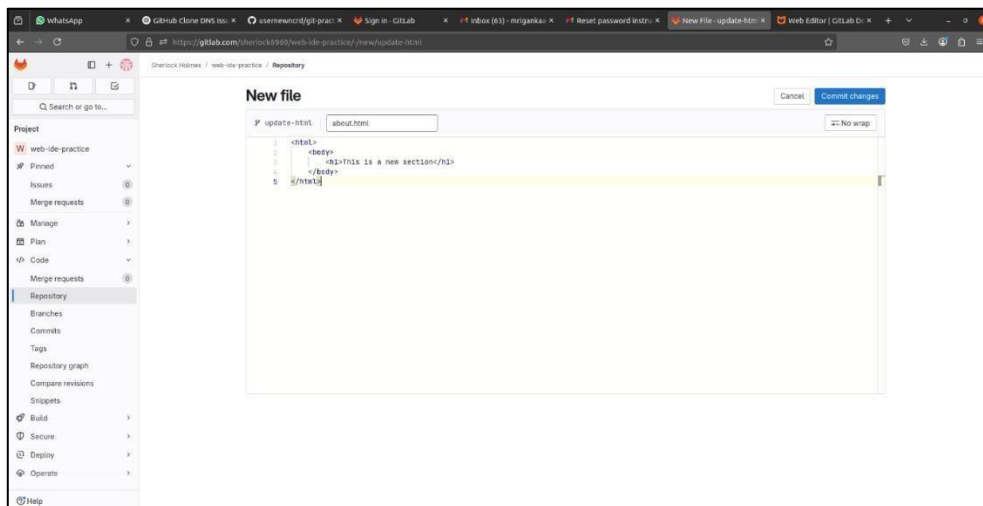
PRACTICAL-6

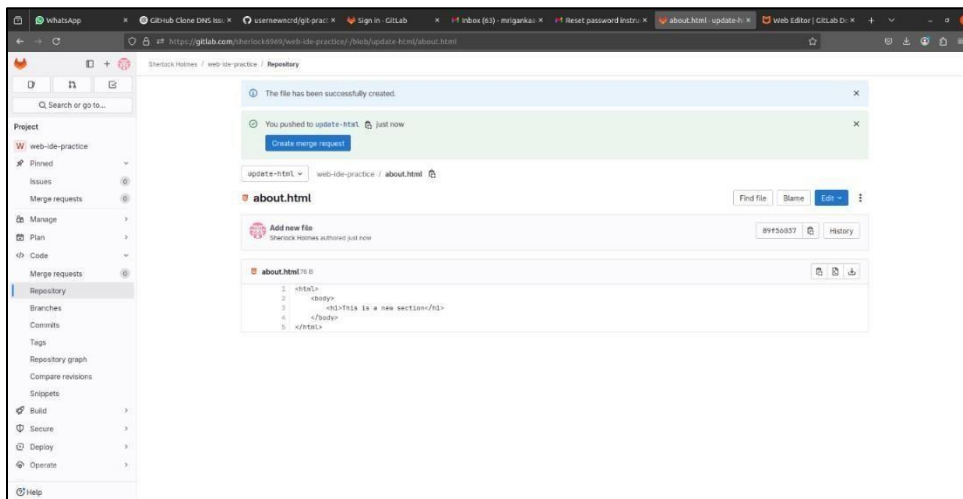
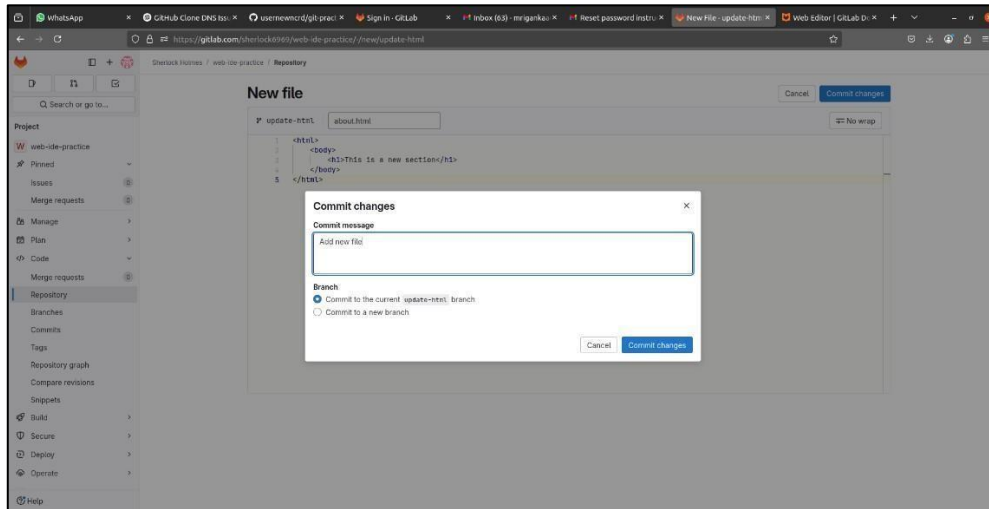
Aim : Performing merge requests using GitLab

1. Create a new branch in Web IDE.

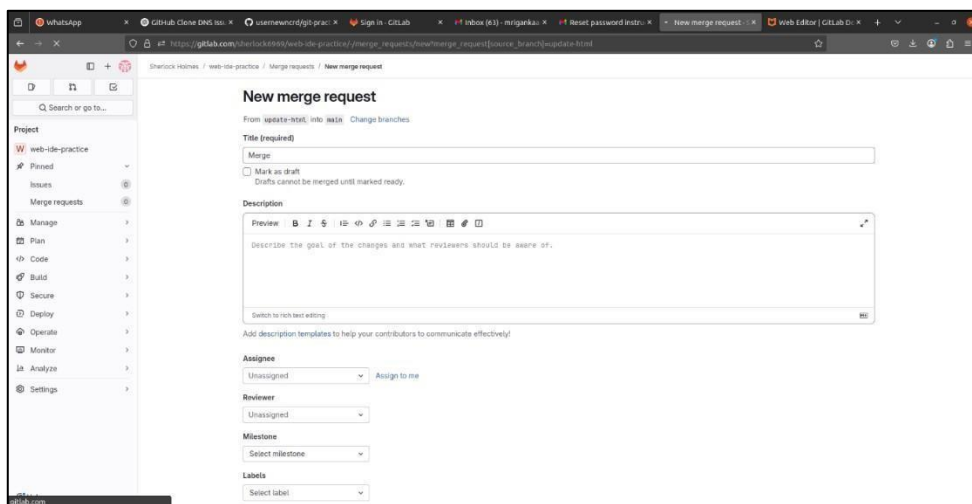


2. Add/edit a file and commit.

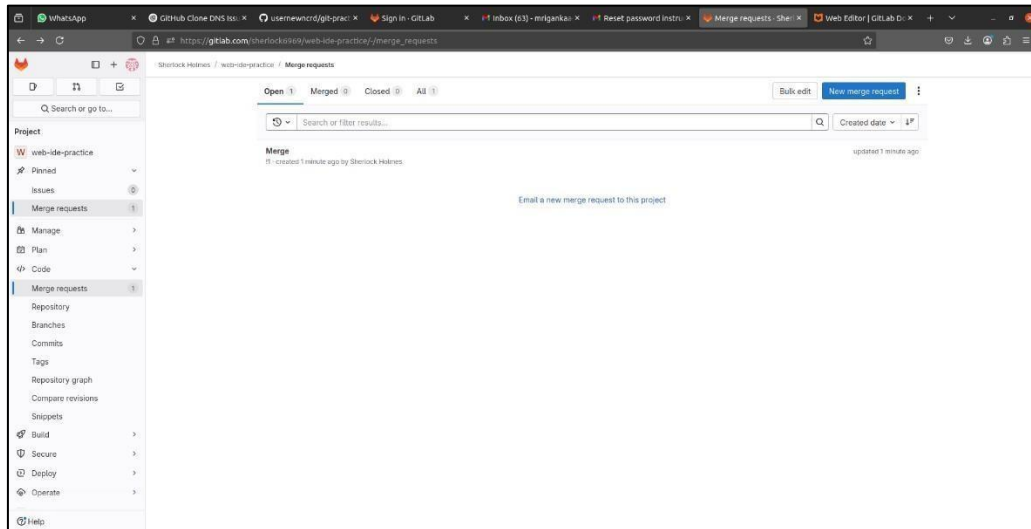




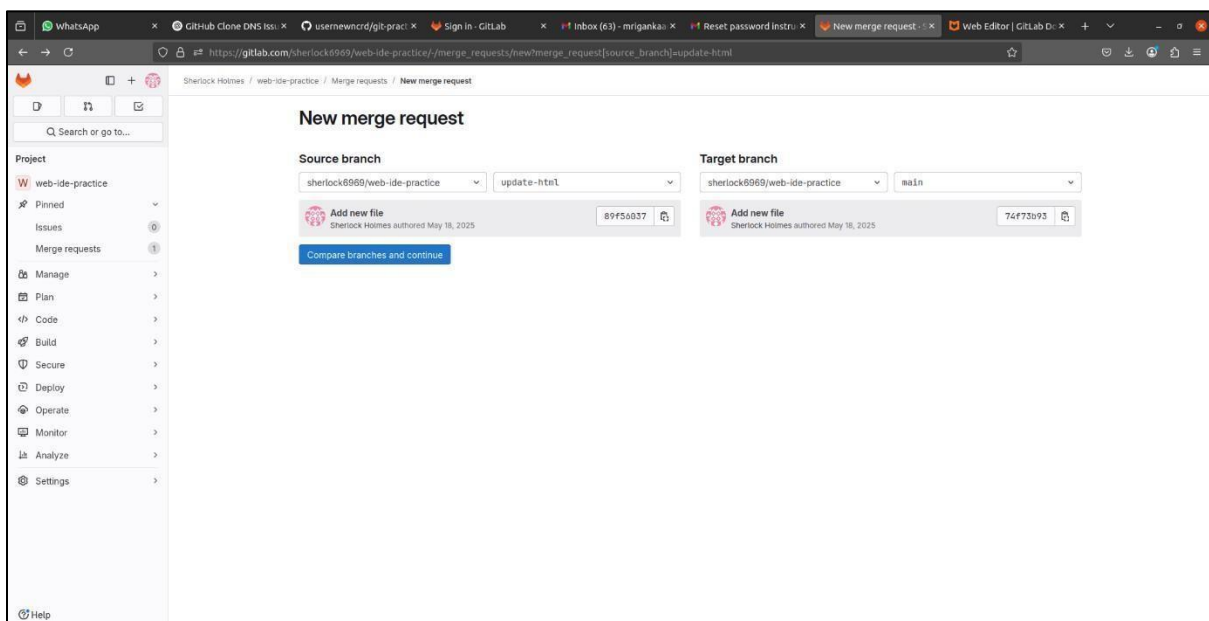
3. Click on Merge Requests > New Merge Request.



4. Select source and target branches.



5. Submit and merge after review.



PRACTICAL-7

Aim: Workflow management in GitLab

Steps:

1. In your repo, create .gitlab-ci.yml:

stages:

- build
- test

build-job: stage:

build script:

- echo

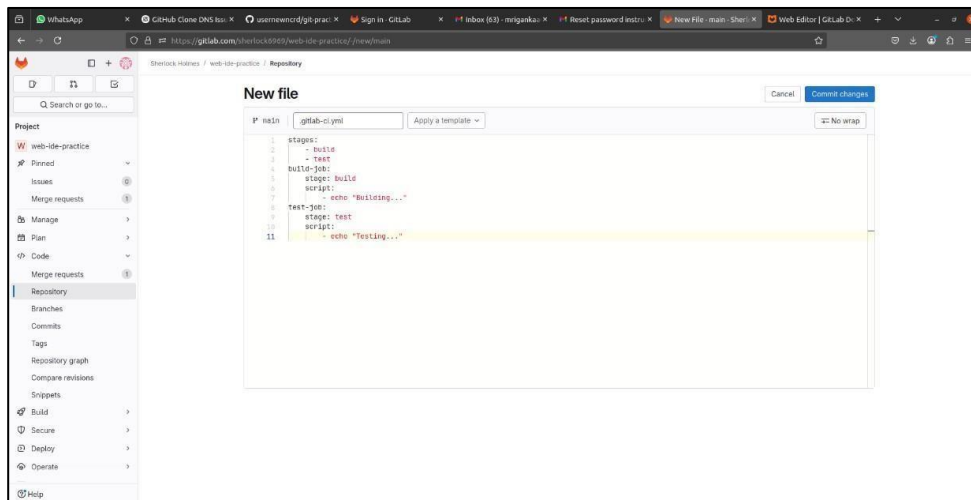
"Building..."

test- job: stage:

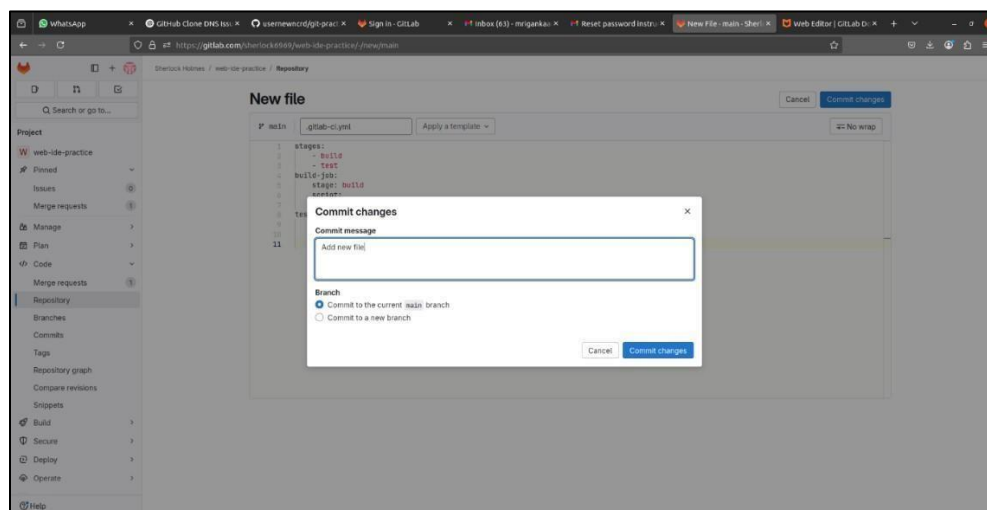
test

script:

- echo "Testing..."



2. Commit and push.



3. Go to CI/CD > Pipelines and view the build/test stages.

The screenshot shows the GitLab web interface for a project named 'web-ide-practice'. The left sidebar contains a navigation menu with options like Project, Pinned, Issues, Merge requests, Manage, Plan, Code, Build, Pipelines (selected), Jobs, Pipeline editor, Pipeline schedules, Artifacts, Secure, Deploy, Operate, Monitor, Analyze, and Settings. The main content area is titled 'Add new file' and shows a pipeline status of 'Passed'. It indicates that the pipeline was created for commit #1823478364, 2 minutes ago, and finished 1 minute ago. The pipeline consists of two jobs: 'build' and 'test', both of which are marked as 'Passed'. The 'build' job is shown with a green checkmark and a refresh icon, and the 'test' job is also shown with a green checkmark and a refresh icon.

The screenshot shows the GitLab web interface for the same project, displaying a list of pipelines. The top navigation bar includes 'All' (selected), 'Finished', 'Branches', and 'Tags'. There are links for 'View analytics', 'Clear runner caches', and 'New pipeline'. A search bar labeled 'Filter pipelines' is present. Below the search bar is a table with the following columns: Status, Pipeline, Created by, Stages, and Actions.

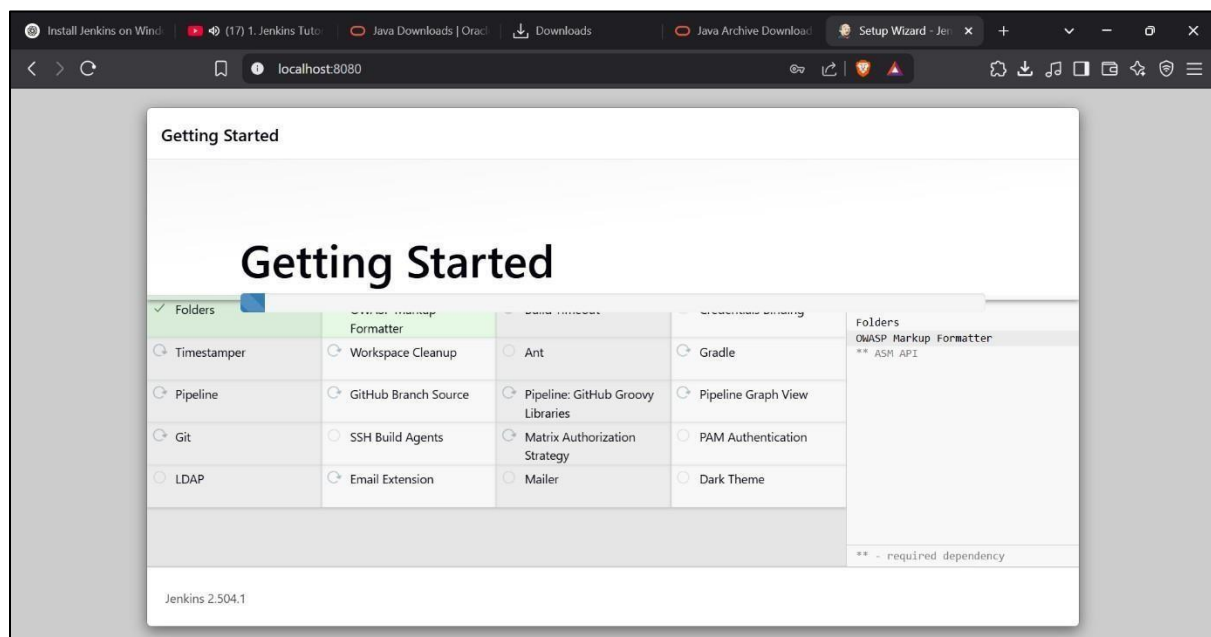
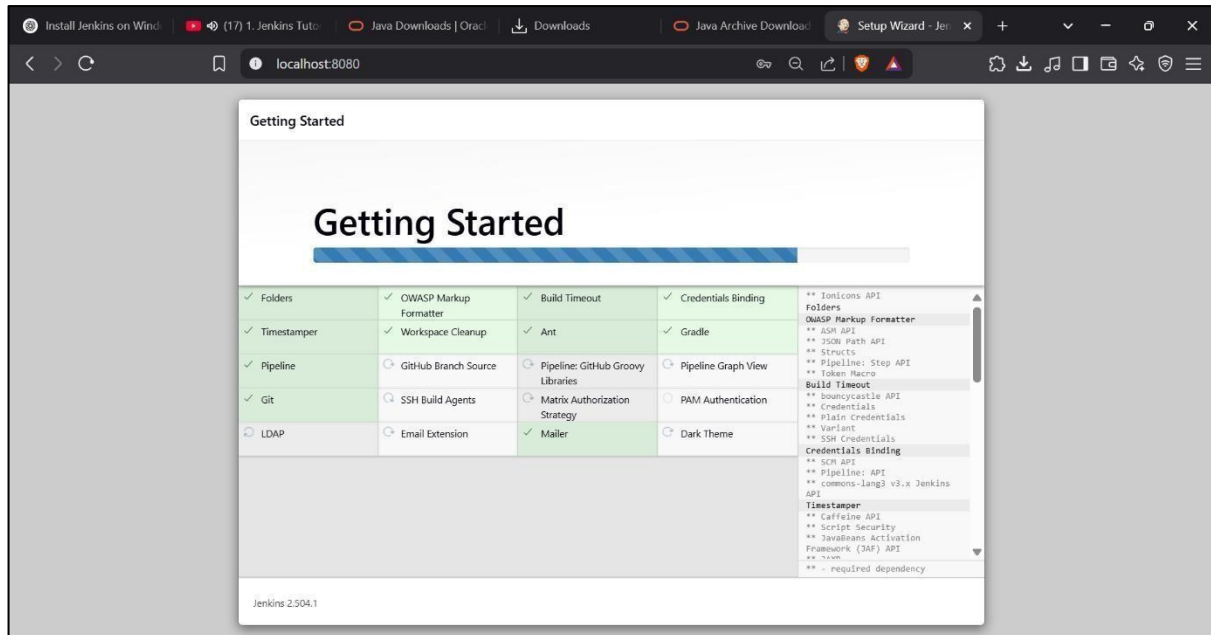
Status	Pipeline	Created by	Stages	Actions
Passed 00:00:58 1 minute ago	Add new file #1823478364 P main #1823478364 latest branch	Sherlock Holmes	build test	Download artifacts

PRACTICAL-8

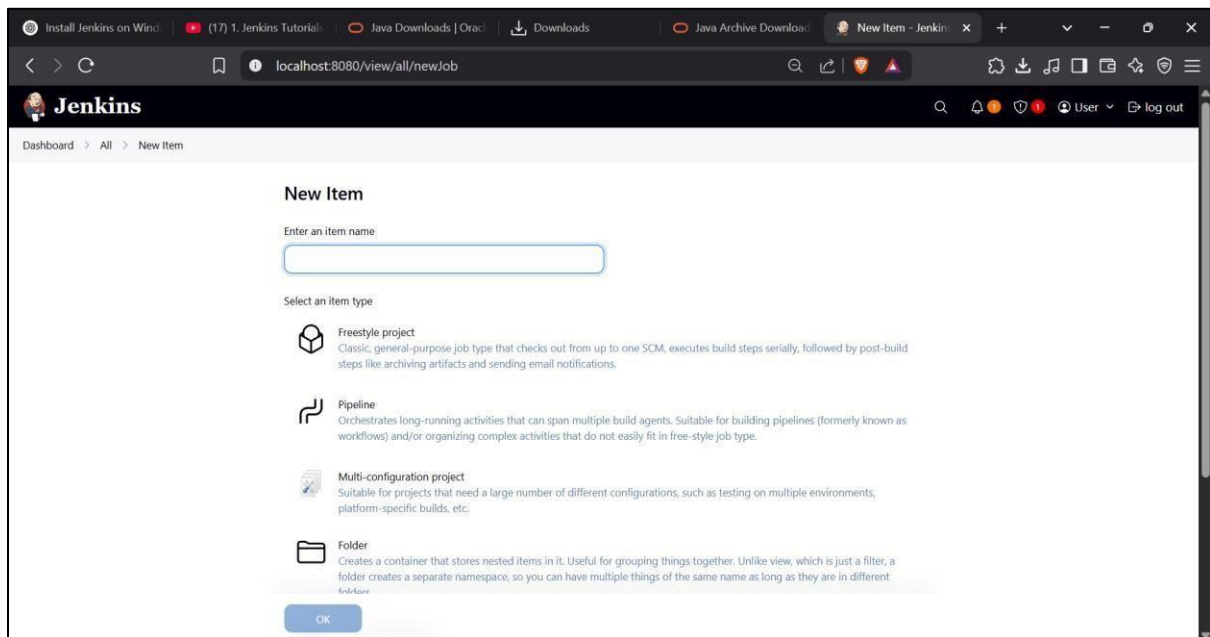
Aim: Demonstrate Continuous Integration and development using Jenkins

Steps

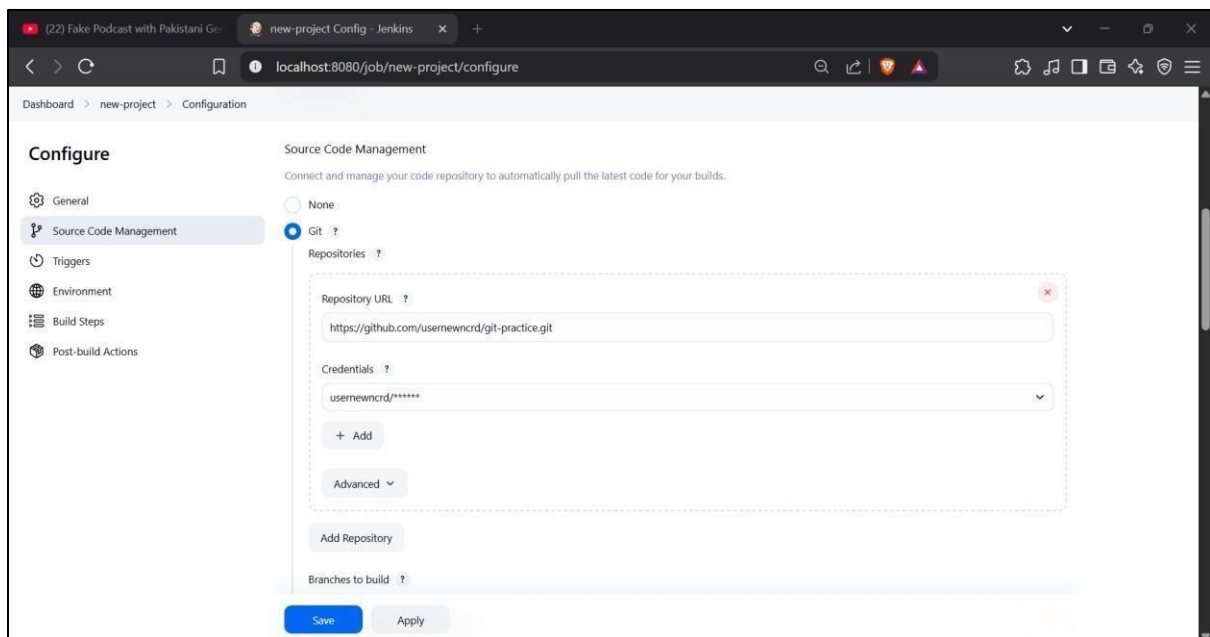
1. Install Jenkins (visit <https://www.jenkins.io>)
2. Run Jenkins: <http://localhost:8080>



3. Create new Freestyle Project: CI-Demo



4. Under Source Code Management, choose Git and enter your repo URL.



5. Add Build Step > Execute Shell: echo "Building Project..." echo "Run tests..."

Build Steps

Automate your build process with ordered tasks like code compilation, testing, and deployment.

≡ **Execute shell** ?

Command

[See the list of available environment variables](#)

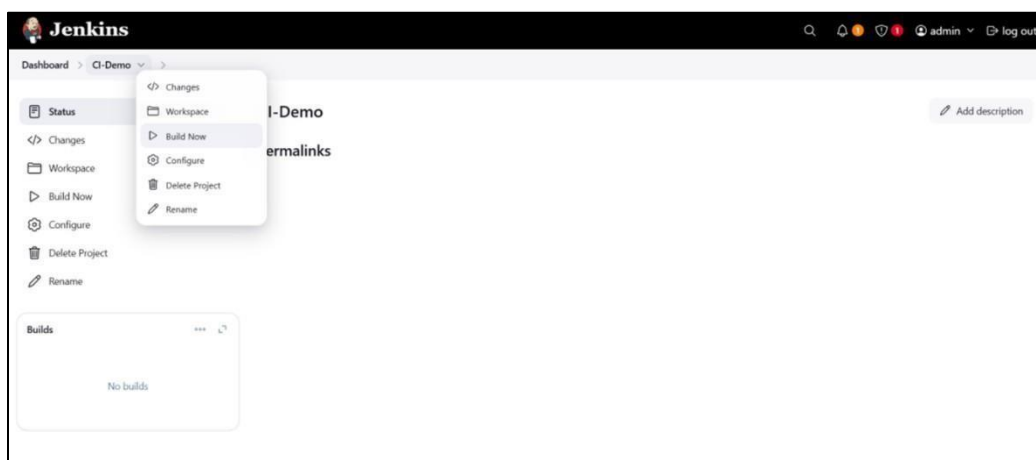
```
echo "Building Project..."
echo "Run tests..."
```

Advanced ▾

Add build step ▾

Save Apply

6. Save and click Build Now.



7. Check output in Console Output.

```
+ echo 'Building Project...'
Building Project...
+ echo 'Run tests...'
Run tests...
Finished: SUCCESS
```


PRACTICAL-9

Aim : Explore docker commands for content management

1. Check Docker version `docker --version`

```
ubuntu@ubuntu:~$ docker --version
Docker version 28.1.1, build 4eba377
```

2. Pull a Docker image from Docker Hub `docker pull nginx`

```
ubuntu@ubuntu:~$ docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
254e724d7786: Pull complete
913115292750: Pull complete
3e544d53ce49: Pull complete
4f21ed9ac0c0: Pull complete
d38f2ef2d6f2: Pull complete
40a6e9f4e456: Pull complete
d3dc5ec71e9d: Pull complete
Digest: sha256:c15da6c91de8d2f436196f3a768483ad32c258ed4e1beb3d367a27ed67253e66
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
```

3. List all Docker images `docker images`

```
ubuntu@ubuntu:~$ docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
nginx         latest    a830707172e8   4 weeks ago    192MB
```

4. Run a container from an image `docker run -d -p 8080:80 --name mynginx nginx`

This will run the Nginx container and map port 80 (inside the container) to port 8080 (on your host).

```
ubuntu@ubuntu:~$ docker run -d -p 8080:80 --name mynginx nginx
c241fdc47993e83fe932231e1ba068b8953126eb87a89916c50ebabdc088254c
```

5. List all running containers `docker ps`

```
ubuntu@ubuntu:~$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                    NAMES
c241fdc47993   nginx    "/docker-entrypoint..." 27 seconds ago Up 26 seconds 0.0.0.0:8080->80/tcp    mynginx
```

6. Copy content from host to container `docker cp index.html mynginx:/usr/share/nginx/html/`

Replace index.html with your actual file. This copies a file into the running container.

```
ubuntu@ubuntu:~$ docker cp index.html mynginx:/usr/share/nginx/html/
lsstat /home/ubuntu/index.html: no such file or directory
```

7. Copy content from container to host
 docker cp
 mynginx:/usr/share/nginx/html/index.html .

```
ubuntu@ubuntu:~$ docker cp index.html mynginx:/usr/share/nginx/html/
lstat /home/ubuntu/index.html: no such file or directory
```

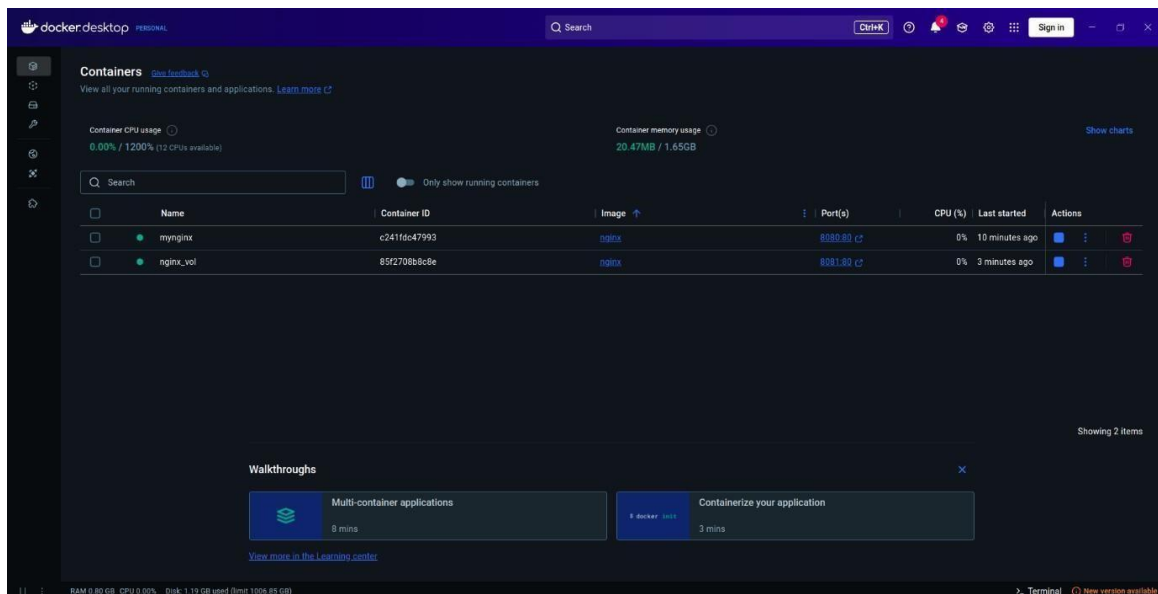
8. Create and use Docker volume for persistent content
 docker volume create mydata
 docker run -d -p 8081:80 --name nginx_vol -v mydata:/usr/share/nginx/html nginx
 Now any data added to the /usr/share/nginx/html inside the container will persist even if the container is removed.

```
ubuntu@ubuntu:~$ docker volume create mydata
mydata
ubuntu@ubuntu:~$ docker run -d -p 8081:80 --name nginx_vol -v mydata:/usr/share/nginx/html nginx
85f2708b8c8ec2c1eba2bb88f10a162feec1faa1ad3f86c2f0e8d0ba32e1090a
```

9. List Docker volumes
 docker volume ls

```
ubuntu@ubuntu:~$ docker volume ls
DRIVER      VOLUME NAME
local       mydata
```

10. Remove a container docker rm -f mynginx
 Remove an image docker rmi nginx



PRACTICAL-10

Aim: Develop a simple containerized application using Docker.

Develop a Simple Containerized Application using Docker.

- ## 1. Index.html

```
index.html x Dockerfile
index.html > html
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8">
5   <meta name="viewport" content="width=device-width, initial-scale=1.0">
6   <title>Document</title>
7 </head>
8 <body>
9   <h1>Hello from Docker Container</h1>
10  <h1>Hello From User</h1>
11 </body>
12 </html>
```

- ## 2. Dockerfile :-

```
<> index.html Dockerfile X
Dockerfile
1 FROM nginx:latest
2 COPY index.html /usr/share/nginx/html/index.html
3
```

- 3.
- `docker build -t my-docker-webapp .`

```
ubuntu@ubuntu:~/DevOps$ nano Dockerfile
ubuntu@ubuntu:~/DevOps$ docker build -t my-docker-webapp .
[+] Building 0.6s (7/7) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile              0.0s
=> ==> transferring dockerfile: 121B                             0.0s
=> [internal] load metadata for docker.io/library/nginx:latest  0.0s
=> [internal] load .dockerignore                                0.0s
=> ==> transferring context: 2B                                    0.0s
=> [internal] load build context                                0.1s
=> ==> transferring context: 309B                                  0.0s
=> [stage-1 1/2] FROM docker.io/library/nginx:latest           0.2s
=> [stage-1 2/2] COPY index.html /home/ubuntu/DevOps/index.html 0.1s
=> exporting image                                              0.1s
=> ==> exporting layers                                           0.1s
=> ==> writing image sha256:eb7c28f99ff6e48b821ddd884433bb48c5e0cafbbcc33be2444270361ebdaa3c 0.0s
=> ==> naming to docker.io/library/my-docker-webapp            0.0s
ubuntu@ubuntu:~/DevOps$
```

4. `docker run -d -p 8080:80 --name webapp-container my-docker-webapp`

```
ubuntu@ubuntu:~/DevOps$ docker run -d -p 8080:80 --name webapp-container my-docker-webapp
87758d2c13e4eb227c0bb149148952a661a46b92867ef336a4dd2ad74a993e3f
ubuntu@ubuntu:~/DevOps$
```

5. `docker ps`

```
ubuntu@ubuntu:~/DevOps$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
87758d2c13e4   my-docker-webapp "/docker-entrypoint...." 38 seconds ago Up 37 seconds 0.0.0.0:8080->80/tcp   webapp-container
85f2708b8c8e   nginx         "/docker-entrypoint...." 18 minutes ago Up 18 minutes  0.0.0.0:8081->80/tcp   nginx_vol
```

6. `docker stop webapp-container`

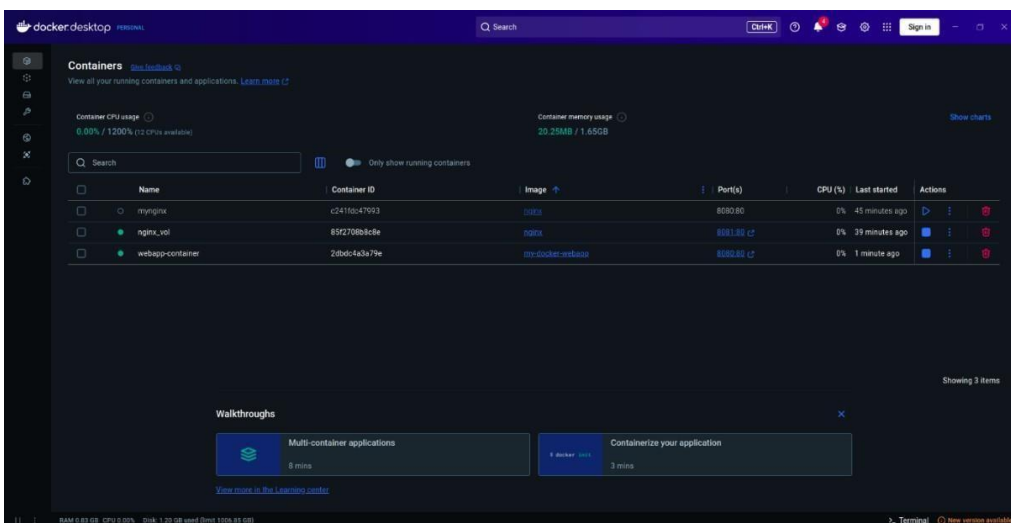
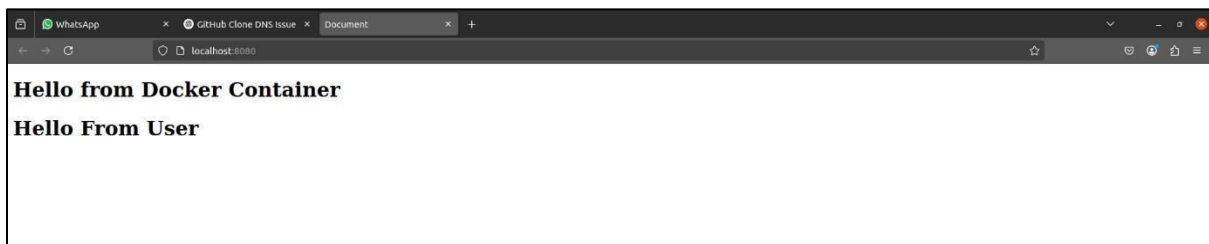
```
ubuntu@ubuntu:~/DevOps$ docker stop webapp-container
webapp-container
```

7. `docker rm webapp-container`

```
ubuntu@ubuntu:~/DevOps$ docker rm webapp-container
webapp-container
```

8. `docker rmi my-docker-webapp`

```
ubuntu@ubuntu:~/DevOps$ docker rmi my-docker-webapp
Untagged: my-docker-webapp:latest
Deleted: sha256:eb7c28f99ff6e48b821ddd884433bb48c5e0cafbfcc33be2444270361ebdaa3c
```



PRACTICAL-11

Aim : Ad-hoc Ansible Commands.

Step 1: Update your VM

```
ubuntu@ubuntu:~$ sudo apt update && sudo apt upgrade
[sudo] password for ubuntu:
Hit:1 https://brave-browser-apt-release.s3.brave.com stable InRelease
Hit:2 https://pkg.jenkins.io/debian-stable binary/ InRelease
Hit:3 https://pkg.jenkins.io/debian-stable binary/ Release
Hit:4 https://packages.microsoft.com/repos/code stable InRelease
Hit:5 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:6 http://ppa.launchpad.net/rock-core/qt4/ubuntu focal InRelease
Hit:7 http://ppa.launchpad.net/wireshark-dev/stable/ubuntu focal InRelease
Hit:8 http://in.archive.ubuntu.com/ubuntu focal InRelease
Hit:9 http://ppa.launchpad.net/wireshark-dev/stable/ubuntu focal InRelease
Hit:10 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:11 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease
Reading package lists... Done
Building dependency tree
Reading state information... Done
67 packages can be upgraded. Run 'apt list --upgradable' to see them.
N: Skipping acquire of configured file 'main/binary-i386/Packages' as repository 'https://brave-browser-apt-release.s3.brave.com stable InRelease' doesn't support architecture 'i386'
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi libgstreamer-plugins-bad1.0-0 libqt5concurrent5 libqt5opengl5-dev libqt5sql5 libqt5sql5-sqlite libqt5test5 libvulkan-dev libwireshark13
  libwireshark10 libwsutil11 libxext-dev qt5-gnome qt5-gnome-bin qtbase5-dev qtbase5-dev-tools x11proto-xext-dev
Use 'sudo apt autoremove' to remove them.
Get more security updates through Ubuntu Pro with 'esm-apps' enabled:
  vlc-bin vlc-plugin-video-output libavformat58 python2.7-dev libavfilter7
  libxdt4 vlc-plugin-samba ipython3 libswresample3 vlc-plugin-qt libzmq5
  python2.7-minimal vlc-plugin-skins2 vlc-plugin-visualization vlc-l10n
  libcorss6 libpython2.7 python2.7 vlc-plugin-notifi libvlc5 python3-lpython
  libpython2.7-dev libgvc-plugins-gtk libpostproc5 liblab-gnumt1 libvcore9
  libvcl-bin libpmix2 libzvb10 libavcodec58 vlc libcdt5 libavutil56 vlc-data
  libpathplan4 libavdevice58 libswscale5 libgvp2 libstdl2-2.0-0 libmysofa1
  inetutils-traceroute vlc-plugin-video-splitter libpython2.7-minimal
  libgraphviz-dev libgvc6 vlc-plugin-base libpython2.7-stdlib traceroute
  libzbi-common graphviz
Learn more about Ubuntu Pro at https://ubuntu.com/pro
The following NEW packages will be installed:
  linux-headers-5.15.0-139-generic linux-hwe-5.15-headers-5.15.0-139 linux-image-5.15.0-139-generic linux-modules-5.15.0-139-generic linux-modules-extra-5.15.0-139-generic
The following packages will be upgraded:
  code distro-info-data fonts-opensymbol gtr1.2-soup-2.4 gnome-shell gnome-shell-common grub-efi-and64-bin grub-efi-and64-signed libarchive13 libcryptsetup12 libjuh-java libjurt-java
  libmysqlclient21 libpoppler-cpp05 libpoppler-glib8 libpoppler97 libraw19 libreoffice-base-core libreoffice-calc libreoffice-common libreoffice-core libreoffice-draw libreoffice-gnome
```

Step 2: Install Ansible

```
ubuntu@ubuntu:~$ sudo apt install ansible -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi libgstreamer-plugins-bad1.0-0 libqt5concurrent5 libqt5opengl5-dev libqt5sql5 libqt5sql5-sqlite libqt5test5 libvulkan-dev libwireshark13
  libwireshark10 libwsutil11 libxext-dev qt5-gnome qt5-gnome-bin qtbase5-dev qtbase5-dev-tools x11proto-xext-dev
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  ieee-data python3-argcomplete python3-crypto python3-dnspython python3-jinja2 python3-jmespath python3-kerberos python3-libcloud python3-netaddr python3-ntlm-auth
  python3-requests-kerberos python3-requests-ntlm python3-selenium python3-wlrm python3-xmltodict
Suggested packages:
  cowsay sshpass python-jinja2-doc python-netaddr-docs
The following NEW packages will be installed:
  ansible ieee-data python3-argcomplete python3-crypto python3-dnspython python3-jinja2 python3-jmespath python3-kerberos python3-libcloud python3-netaddr python3-ntlm-auth
  python3-requests-kerberos python3-requests-ntlm python3-selenium python3-wlrm python3-xmltodict
0 upgraded, 16 newly installed, 0 to remove and 67 not upgraded.
Need to get 9,726 kB of archives.
After this operation, 90.6 MB of additional disk space will be used.
Ign:1 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-jinja2 all 2.10.1-2ubuntu0.6
Get:2 http://in.archive.ubuntu.com/ubuntu focal/main amd64 python3-crypto amd64 2.6.1-13ubuntu2 [237 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-dnspython all 1.16.0-1ubuntu1 [89.2 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu focal/main amd64 ieee-data all 20180805.1 [1,589 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-netaddr all 0.7.19-3ubuntu1 [236 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 ansible all 2.9.6+dfsg-1 [5,794 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 python3-argcomplete all 1.8.1-1.3ubuntu1 [27.2 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-jmespath all 0.9.4-2ubuntu1 [21.5 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 python3-kerberos amd64 1.1.14-3.1build1 [22.6 kB]
Get:10 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 python3-libcloud all 2.8.0-1 [1,403 kB]
Get:11 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 python3-ntlm-auth all 1.1.0-1 [19.6 kB]
Get:12 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 python3-requests-kerberos all 0.12.0-2 [11.9 kB]
Get:13 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 python3-requests-ntlm all 1.1.0-1 [6,004 B]
Get:14 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 python3-selenium amd64 3.0-build12 [139 kB]
Get:15 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 python3-xmltodict all 0.12.0-1 [12.6 kB]
Get:16 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 python3-wlrm all 0.3.0-2 [21.7 kB]
Get:17 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 python3-jinja2 all 2.10.1-2ubuntu0.6 [96.3 kB]
Fetched 9,726 kB in 15s (669 kB/s)
Selecting previously unselected package python3-jinja2.
(Reading database ... 212961 files and directories currently installed.)
Preparing to unpack .../60-python3-jinja2_2.10.1-2ubuntu0.6_all.deb ...
Unpacking python3-jinja2 (2.10.1-2ubuntu0.6) ...
Selecting previously unselected package python3-crypto.
(Reading database ... 212961 files and directories currently installed.)
Preparing to unpack .../61-python3-crypto_2.6.1-13ubuntu2_amd64.deb ...
Unpacking python3-crypto (2.6.1-13ubuntu2) ...
```

Step 3: Check version:

```
ubuntu@ubuntu:~$ ansible --version
ansible 2.9.6
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/home/ubuntu/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  executable location = /usr/bin/ansible
  python version = 3.8.10 (default, Mar 18 2025, 20:04:55) [GCC 9.4.0]
ubuntu@ubuntu:~$
```



```

ubuntu@ubuntu: ~$ sudo apt-get install nginx
Reading database ... 70%
Reading database ... 75%
Reading database ... 80%
Reading database ... 85%
Reading database ... 90%
Reading database ... 95%
Reading database ... 100%
(Reading database ... 222461 files and directories currently installed.)
Preparing to unpack .../8-nginx-common_1.18.0-0ubuntu1.7_all.deb ...
Unpacking nginx-common (1.18.0-0ubuntu1.7) ...
Selecting previously unselected package libnginx-mod-http-image-filter.
Preparing to unpack .../1-libnginx-mod-http-image-filter_1.18.0-0ubuntu1.7_and64.deb ...
Unpacking libnginx-mod-http-image-filter (1.18.0-0ubuntu1.7) ...
Selecting previously unselected package libnginx-mod-http-xslt-filter.
Preparing to unpack .../2-libnginx-mod-http-xslt-filter_1.18.0-0ubuntu1.7_and64.deb ...
Unpacking libnginx-mod-http-xslt-filter (1.18.0-0ubuntu1.7) ...
Selecting previously unselected package libnginx-mod-mail.
Preparing to unpack .../3-libnginx-mod-mail_1.18.0-0ubuntu1.7_and64.deb ...
Unpacking libnginx-mod-mail (1.18.0-0ubuntu1.7) ...
Selecting previously unselected package libnginx-mod-stream.
Preparing to unpack .../4-libnginx-mod-stream_1.18.0-0ubuntu1.7_and64.deb ...
Unpacking libnginx-mod-stream (1.18.0-0ubuntu1.7) ...
Selecting previously unselected package nginx-core.
Preparing to unpack .../5-nginx-core_1.18.0-0ubuntu1.7_and64.deb ...
Unpacking nginx-core (1.18.0-0ubuntu1.7) ...
Selecting previously unselected package nginx.
Preparing to unpack .../6-nginx_1.18.0-0ubuntu1.7_all.deb ...
Unpacking nginx (1.18.0-0ubuntu1.7) ...
Setting up nginx-common (1.18.0-0ubuntu1.7) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service.
Setting up libnginx-mod-http-image-filter (1.18.0-0ubuntu1.7) ...
Setting up libnginx-mod-mail (1.18.0-0ubuntu1.7) ...
Setting up libnginx-mod-http-xslt-filter (1.18.0-0ubuntu1.7) ...
Setting up libnginx-mod-stream (1.18.0-0ubuntu1.7) ...
Setting up nginx-core (1.18.0-0ubuntu1.7) ...
Setting up nginx (1.18.0-0ubuntu1.7) ...
Processing triggers for systemd (245.4-4ubuntu3.24) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for ufw (0.36-6ubuntu1.1) ...
}
ubuntu@ubuntu: ~$

```

4. Start a service ansible local -i host.ini -m service -a "name=nginx state=started" --become

```

ubuntu@ubuntu: ~$ ansible local -i host.ini -m service -a "name=nginx state=started" --become
[DEPRECATION WARNING]: Distribution Ubuntu 20.04 on host localhost should use /usr/bin/python3, but is using /usr/bin/python for backward compatibility with prior Ansible releases. A future
Ansible release will default to using the discovered platform python for this host. See https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for more
information. This feature will be removed in version 2.12. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
localhost | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "name": "nginx",
  "state": "started",
  "status": {
    "ActiveEnterTimestamp": "Sun 2025-05-18 16:35:34 IST",
    "ActiveEnterTimestampMonotonic": "8907109875",
    "ActiveExitTimestampMonotonic": "0",
    "ActiveState": "active",
    "After": "basic.target systemd-journald.socket network.target system.slice sysinit.target",
    "AllowIsolate": "no",
    "AllowedCPU": "",
    "AllowedMemoryNodes": "",
    "AmbientCapabilities": "",
    "AssertResult": "yes",
    "AssertTimestamp": "Sun 2025-05-18 16:35:34 IST",
    "AssertTimestampMonotonic": "8907060424",
    "Before": "multi-user.target shutdown.target",
    "BlockIOAccounting": "no",
    "BlockIOWeight": "[not set]",
    "CPUAccounting": "no",
    "CPUAffinity": "",
    "CPUAffinityFromNUMA": "no",
    "CPUQuotaPerSec": "infinity",
    "CPUQuotaPeriodSec": "infinity",
    "CPUSchedulingPolicy": "0",
    "CPUSchedulingPriority": "0",
    "CPUSchedulingResetOnFork": "no",
    "CPUShares": "[not set]",
    "CPUUsageSec": "[not set]",
    "CPUWeight": "[not set]",
    "CachedirectoryMode": "0755",
    "CanIsolate": "no",
    "CanReload": "yes",
    "CanStart": "yes",

```

```

    "UnitFileState": "enabled",
    "UtmpMode": "init",
    "WantedBy": "multi-user.target",
    "WatchdogSignal": "6",
    "WatchdogTimestampMonotonic": "0",
    "WatchdogUsec": "0"
  }
}
ubuntu@ubuntu: ~$

```

PRACTICAL-12

Aim: Using Ansible Playbooks.

Install and Start Nginx.

install_nginx.yml:

name: Install and start Nginx on web servers

hosts: webserver become: true tasks:

- name: Install

 Nginx apt: name:

 nginx state:

 present

 update_cache:

 yes

- name: Start

 Nginx service:

 name: nginx

 state: started

 enabled: true

ubuntu@ubuntu:~\$ nano install_nginx.yml



```
GNU nano 4.8 install_nginx.yml
-
name: Install and start Nginx on localhost
hosts: local
become: yes
tasks:
- name: Install nginx
  apt:
    name: nginx
    state: present
    update_cache: yes
- name: Start nginx
  service:
    name: nginx
    state: started
    enabled: true
```

Run the Playbook:

ansible-playbook -i hosts.ini install_nginx.yml

```
ubuntu@ubuntu:~$ ansible-playbook -i host.ini install_nginx.yml
PLAY [Install and start Nginx on localhost] *****

TASK [Gathering Facts] *****
[DEPRECATION WARNING]: Distribution Ubuntu 20.04 on host localhost should use /usr/bin/python3, but is using /usr/bin/python for backward compatibility with prior Ansible releases. A future
Ansible release will default to using the discovered platform python for this host. See https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for more
information. This feature will be removed in version 2.12. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [localhost]

TASK [Install nginx] *****
ok: [localhost]

TASK [Start nginx] *****
ok: [localhost]

PLAY RECAP *****
localhost : ok=3  changed=0  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0
```

