

# Practical No 1

## Aim : To Perform Basic GIT Commands.

### 1. git -v

Displays the installed Git version

```
C:\Users\USER>git -v  
git version 2.47.1.windows.2
```

### 2. git config

Sets configuration options for Git

```
D:\Sakib_T_Devops_Practicals>git config --global user.name "Sakib"  
D:\Sakib_T_Devops_Practicals>git config --global user.email "sakibmca2024_131@ncrdsims.edu.in"  
D:\Sakib_T_Devops_Practicals>git config --global user.name  
Sakib  
D:\Sakib_T_Devops_Practicals>git config --global user.email  
sakibmca2024_131@ncrdsims.edu.in
```

### 3. git init

Initializes a new Git repository

```
PS D:\Sakib_T_Devops_Practicals> git init  
Initialized empty Git repository in D:/Sakib_T_Devops_Practicals/.git/  
PS D:\Sakib_T_Devops_Practicals> |
```

### 4. Git clone

retrieve an entire repository from a hosted location via URL

```
● PS D:\Sakib_T_Devops_Practicals> git clone https://github.com/sakibtheseeker/todo-react  
Cloning into 'todo-react'...  
remote: Enumerating objects: 60, done.  
remote: Counting objects: 100% (60/60), done.  
remote: Compressing objects: 100% (42/42), done.  
remote: Total 60 (delta 15), reused 45 (delta 8), pack-reused 0 (from 0)  
Receiving objects: 100% (60/60), 473.33 KiB | 5.32 MiB/s, done.  
Resolving deltas: 100% (15/15), done.
```

## 5. Git rm

delete the file from project and stage the removal for commit

```
PS D:\Sakib_T_Devops_Practicals\todo-react> git rm NewTxtfile
rm 'NewTxtfile'
```

## 6. Git diff

```
PS D:\Sakib_T_Devops_Practicals\todo-react> git diff main origin/main
>>
diff --git a/NewTxtfile b/NewTxtfile
new file mode 100644
index 0000000..84f8ce1
--- /dev/null
+++ b/NewTxtfile
@@ -0,0 +1,2 @@
+User Name
+Password
diff --git a/public/index.html b/public/index.html
index 3d72536..aa069f2 100644
--- a/public/index.html
+++ b/public/index.html
@@ -2,81 +2,42 @@
<html lang="en">
  <head>
    <meta charset="utf-8" />
    - <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <link rel="icon" href="%PUBLIC_URL%/favicon.ico" />
    <meta name="viewport" content="width=device-width, initial-scale=1" />
Ⓢ PS D:\Sakib_T_Devops_Practicals\todo-react> git diff main origin/main
>> q
diff --git a/NewTxtfile b/NewTxtfile
new file mode 100644
index 0000000..84f8ce1
--- /dev/null
+++ b/NewTxtfile
@@ -0,0 +1,2 @@
+User Name
+Password
diff --git a/public/index.html b/public/index.html
index 3d72536..aa069f2 100644
--- a/public/index.html
+++ b/public/index.html
@@ -2,81 +2,42 @@
<html lang="en">
  <head>
    <meta charset="utf-8" />
    - <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <link rel="icon" href="%PUBLIC_URL%/favicon.ico" />
    <meta name="viewport" content="width=device-width, initial-scale=1" />
```

**7. Git fetch**

```

PS D:\Sakib_T_Devops_Practicals\todo-react> git fetch
remote: Enumerating objects: 7, done.
remote: Counting objects: 100% (7/7), done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 4 (delta 3), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (4/4), 1022 bytes | 35.00 KiB/s, done.
From https://github.com/sakibtheseeker/todo-react
c8c0a2a..0e6c0c2  main      -> origin/main

```

**8. git add index.js**

Stages changes for the next commit

```

PS D:\Sakib_T_Devops_Practicals> git init
Initialized empty Git repository in D:/Sakib_T_Devops_Practicals/.git/
PS D:\Sakib_T_Devops_Practicals> git add index.js

```

**9. git commit -m "commit message"**

Saves staged changes with a message

a)Initial Commit

```

PS D:\Sakib_T_Devops_Practicals> git commit -m "Initial Code added"
[master (root-commit) 0ef2422] Initial Code added
1 file changed, 4 insertions(+)
create mode 100644 index.js

```

a)Second Commit

```

PS D:\Sakib_T_Devops_Practicals> git commit -m "Code Deleted"
[master 4c9c4b1] Code Deleted
1 file changed, 2 insertions(+), 2 deletions(-)

```

**10. git log**

Displays the commit history

a)Log after initial commit

```

PS D:\Sakib_T_Devops_Practicals> git log
commit 0ef242294135fc17d3b48c5be45fff425efbc5b7 (HEAD -> master)
Author: Sakib <sakibmca2024_131@ncrdsims.edu.in>
Date: Sat Jan 18 16:15:12 2025 +0530

Initial Code added

```

b)Log after another commit

```
commit 4c9c4b17b142ba6b0d17dd437058235c77e39c6d (HEAD -> master)
Author: Sakib <sakibmca2024_131@ncrdsims.edu.in>
Date: Sat Jan 18 16:23:38 2025 +0530

Code Deleted

commit 0ef242294135fc17d3b48c5be45fff425efbc5b7
Author: Sakib <sakibmca2024_131@ncrdsims.edu.in>
Date: Sat Jan 18 16:15:12 2025 +0530

Initial Code added
```

c) Tree of commit executed

```
JS index.js | 4c9c4b17 - Code Deleted (1 files) X
```

JS index.js	4c9c4b17 - Code Deleted (1 files)
1 let a=10;	1 let a=10;
2-let b=10;	2+let d=15;
3-c=a+b;	3+c=a+d;
4 console.log(c);	4 console.log(c);

## 11. Git log

Displays the commit history

```
PS D:\Sakib_T_Devops_Practicals> git log
commit 3528158d39d039a8564f11a52a83d4c7ee3c6d0e (HEAD -> XYZ)
Author: Sakib <sakibmca2024_131@ncrdsims.edu.in>
Date: Mon Jan 20 15:39:34 2025 +0530

Added variable d

commit 4c8c83735842641d7a4e12bd80b3b0f09992f83a (origin/master, master)
Author: Sakib <sakibmca2024_131@ncrdsims.edu.in>
Date: Mon Jan 20 15:00:17 2025 +0530

Revert "Initial Code added"

This reverts commit 0ef242294135fc17d3b48c5be45fff425efbc5b7.

commit 0ef242294135fc17d3b48c5be45fff425efbc5b7
Author: Sakib <sakibmca2024_131@ncrdsims.edu.in>
Date: Sat Jan 18 16:15:12 2025 +0530

Initial Code added
```

## 12. git log --oneline

```
PS D:\Sakib_T_Devops_Practicals> git log --oneline
4c9c4b1 (HEAD -> master) Code Deleted
0ef2422 Initial Code added
```

```
• PS D:\Sakib_T_Devops_Practicals> git log --oneline
3528158 (HEAD -> XYZ) Added variable d
4c8c837 (origin/master, master) Revert "Initial Code added"
0ef2422 Initial Code added
```

### 13. git show commitid

Displays detailed information about a specific commit

```
• PS D:\Sakib_T_Devops_Practicals> git show 4c9c4b1
commit 4c9c4b17b142ba6b0d17dd437058235c77e39c6d (HEAD -> master)
Author: Sakib <sakibmca2024_131@ncrdsims.edu.in>
Date: Sat Jan 18 16:23:38 2025 +0530

    Code Deleted

diff --git a/index.js b/index.js
index 3c30033..8ba1519 100644
--- a/index.js
+++ b/index.js
@@ -1,4 +1,4 @@
   let a=10;
-  let b=10;
-  c=a+b;
+  let d=15;
+  c=a+d;
   console.log(c);
\ No newline at end of file
```

### 14. git blame

Shows who last modified each line of a file and when

```
PS D:\Sakib_T_Devops_Practicals> git blame index.js
^0ef2422 (Sakib 2025-01-18 16:15:12 +0530 1) let a=10;
4c9c4b17 (Sakib 2025-01-18 16:23:38 +0530 2) let d=15;
4c9c4b17 (Sakib 2025-01-18 16:23:38 +0530 3) c=a+d;
^0ef2422 (Sakib 2025-01-18 16:15:12 +0530 4) console.log(c);
```

### 15. git status

Shows the current status of changes in the repo

```
• PS D:\Sakib_T_Devops_Practicals> git status
On branch master
nothing to commit, working tree clean
```

## 16. git reset --hard commitid

Undoes changes by resetting the current HEAD

```
PS D:\Sakib_T_Devops_Practicals> git reset --hard 0ef2422  
HEAD is now at 0ef2422 Initial Code added
```

## 17. git revert commitid

Creates a new commit that undoes the changes from a previous commit

```
PS D:\Sakib_T_Devops_Practicals> git revert 0ef2422  
[master 4c8c837] Revert "Initial Code added"  
1 file changed, 4 deletions(-)  
delete mode 100644 index.js
```

## 18. git remote add origin

Manages remote repository connections

```
PS D:\Sakib_T_Devops_Practicals> git remote  
PS D:\Sakib_T_Devops_Practicals> git remote add origin https://github.com/sakibtheseeker/Devops-lab-Practice.git
```

## 19. git remote -v

```
PS D:\Sakib_T_Devops_Practicals> git remote -v  
origin https://github.com/sakibtheseeker/Devops-lab-Practice.git (fetch)  
origin https://github.com/sakibtheseeker/Devops-lab-Practice.git (push)
```

## 20. Git branch

Lists, creates, or deletes branches

```
PS D:\Sakib_T_Devops_Practicals> git branch "XYZ"  
PS D:\Sakib_T_Devops_Practicals> git branch  
XYZ  
* master
```

## 21. Git branch

```
PS D:\Sakib_T_Devops_Practicals> git branch  
* XYZ  
master
```

## 22. Git checkout

Switches to a different branch

```
PS D:\Sakib_T_Devops_Practicals> git checkout XYZ  
Switched to branch 'XYZ'  
  
PS D:\Sakib_T_Devops_Practicals> git checkout master  
Switched to branch 'master'  
Your branch is up to date with 'origin/master'.
```

## 23. Git push

Uploads local commits to the remote repository

```
PS D:\Sakib_T_Devops_Practicals> git push -u origin master
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 20 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (5/5), 460 bytes | 460.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/sakibtheseeker/Devops-lab-Practice2.git
 * [new branch]      master -> master
branch 'master' set up to track 'origin/master'.
PS D:\Sakib_T_Devops_Practicals>
```

Commits

master

All users All time

Commits on Jan 20, 2025

Revert "Initial Code added" Sakib committed 35 minutes ago 4c8c837

Commits on Jan 18, 2025

Initial Code added Sakib committed 2 days ago 0ef2422

```
PS D:\Sakib_T_Devops_Practicals> git push --set-upstream origin XYZ
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 20 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 296 bytes | 296.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'XYZ' on GitHub by visiting:
remote:   https://github.com/sakibtheseeker/Devops-lab-Practice2/pull/new/XYZ
remote:
To https://github.com/sakibtheseeker/Devops-lab-Practice2.git
 * [new branch]      XYZ -> XYZ
branch 'XYZ' set up to track 'origin/XYZ'.
```

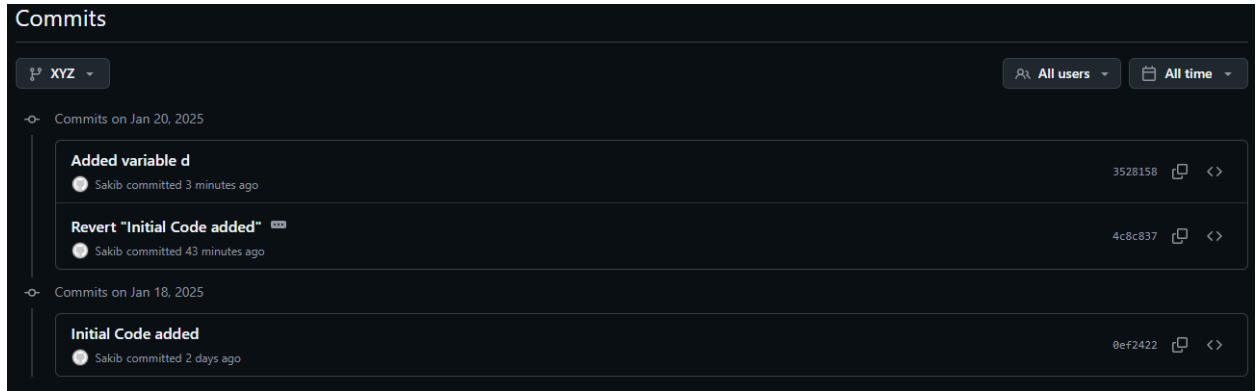
Added variable d Sakib XYZ

Revert "Initial Code added"... Sakib origin/master

Initial Code added Sakib

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The screenshot shows the 'Commits' page for a repository named 'XYZ'. At the top, there are filters for 'All users' and 'All time'. Below this, the commits are grouped by date. The first group is for 'Commits on Jan 20, 2025', which includes two commits: 'Added variable d' (commit hash 3528158) and 'Revert "Initial Code added"' (commit hash 4c8c837). The second group is for 'Commits on Jan 18, 2025', which includes one commit: 'Initial Code added' (commit hash 0ef2422). Each commit entry shows the commit message, the author 'Sakib', the time since commit, the commit hash, and icons for copying the hash and viewing the commit details.

```
PS D:\Sakib_T_Devops_Practicals> git push
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/sakibtheseeker/Devops-lab-Practice2.git
4c8c837..3528158 master -> master
```

## 24. Git merge

Combines changes from another branch into the current one

```
PS D:\Sakib_T_Devops_Practicals> git merge origin/XYZ
Updating 4c8c837..3528158
Fast-forward
 index.js | 5 +++++
 1 file changed, 5 insertions(+)
 create mode 100644 index.js
```



# Practical 2

## Aim: Create and fork repositories in github.

### ● Create Repository

1. In the top-right corner, click the + icon and select New repository.
2. Name your repository and add a description (optional).
3. Choose Public or Private.
4. Check Initialize with README (optional).
5. Optionally, add a .gitignore and choose a license.
6. Click Create repository.


### 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 \*

 sakibthaseeker


Repository name \*

testapp


 testapp is available.

Great repository names are short and memorable. Need inspiration? How about [musical-winner](#) ?

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


.gitignore template: None

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

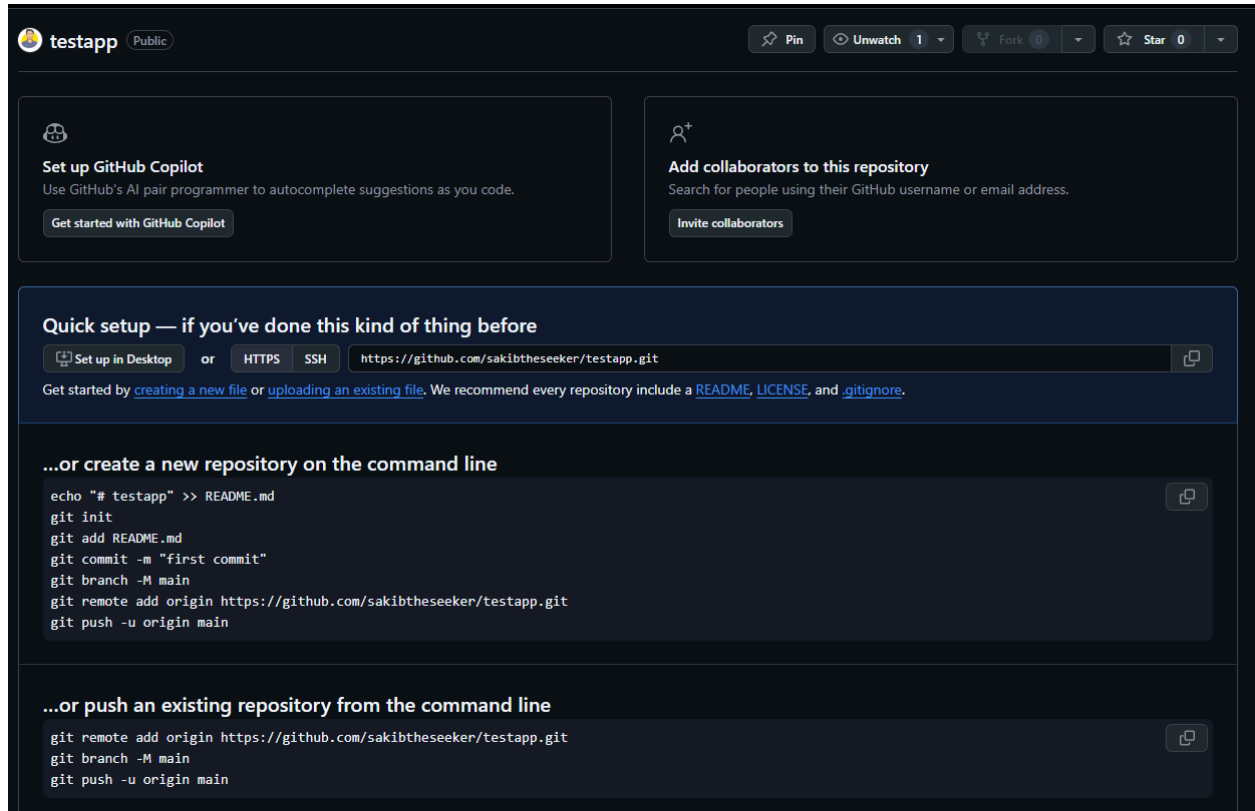
Choose a license

License: None

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.

Create repository



## ● Fork Repository:

1. Find the repository you want to fork: Go to the GitHub page of the repository you want to fork.
2. Fork the repository:
  - a. In the upper-right corner of the repository page, click the Fork button.
  - b. You can choose where to fork it (either under your username or to an organization, if applicable).

Name: Prathmesh Mane

Roll No:101 Div: B

The screenshot shows the GitHub repository page for 'todo-react', which is a public repository forked from 'Ebazhanov/todo-react'. The repository is currently on the 'main' branch, which is up to date with the upstream 'main' branch. The repository has 1 branch and 0 tags. The commit history shows a2f936d from 3 years ago with 7 commits. The file list includes 'public', 'src', '.gitignore', 'README.md', 'package.json', and 'yarn.lock', all of which were first committed 3 years ago.

Name	Last commit message	Last commit date
public	first commit	3 years ago
src	Update TodoForm	3 years ago
.gitignore	first commit	3 years ago
README.md	Add test button.Check npm start.	3 years ago
package.json	Add test button.Check npm start.	3 years ago
yarn.lock	Add test button.Check npm start.	3 years ago

The screenshot shows the GitHub repository page for 'sakibtheseeker', which is a public repository created by 'sakibtheseeker'. The repository is currently on the 'main' branch, which is 1 commit ahead of the upstream 'main' branch. The repository has 1 branch and 0 tags. The commit history shows 7ef5decb from now with 1 commit. The file list includes 'public', 'src', '.gitignore', 'NewTxtfile', 'README.md', 'package.json', and 'yarn.lock', all of which were first committed 3 years ago.

Name	Last commit message	Last commit date
public	first commit	3 years ago
src	Update TodoForm	3 years ago
.gitignore	first commit	3 years ago
NewTxtfile	Created NewTxtfile	now
README.md	Add test button.Check npm start.	3 years ago
package.json	Add test button.Check npm start.	3 years ago
yarn.lock	Add test button.Check npm start.	3 years ago

## ● Create Pull Request

1. Go to your forked repo on GitHub.
2. Click Pull Requests and then click New Pull Request.
3. Select Compare across forks if the repository you want to submit to is a fork.
4. Select your fork and branch, then click Create Pull Request.

Name: Prathmesh Mane

Roll No:101 Div: B

## Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#) or [learn more about diff comparisons](#).

base repository: Ebazhanov/todo-react

base: main

head repository: sakibtheseeker/todo-react

compare: main

✓ **Able to merge.** These branches can be automatically merged.

Discuss and review the changes in this comparison with others. [Learn about pull requests](#)

Create pull request

1 commit1 file changed1 contributor

Commits on Jan 27, 2025

Created NewTxtfile

sakibtheseeker authored 1 minute ago

Verified7e6decba11

Showing 1 changed file with 2 additions and 0 deletions.

SplitUnified

NewTxtfile

@@ -0,0 +1,2 @@

1 + User Name

2 + Password

## Created NewTxtfile #1

Open sakibtheseeker wants to merge 1 commit into Ebazhanov:main from sakibtheseeker:main

Conversation 0Commits 1Checks 0Files changed 1+2 -0

sakibtheseeker commented now

No description provided.

Created NewTxtfile

Verified7e6decba11

✓ This branch has no conflicts with the base branch

Only those with [write access](#) to this repository can merge pull requests.

Try the new merge experience

Add a comment

WritePreview

H B I

Add your comment here...

Markdown is supportedPaste, drop, or click to add files

Close pull requestComment

Reviewers

No reviews

Still in progress? [Convert to draft](#)

Assignees

No one assigned

Labels

None yet

Projects

None yet

Milestone

No milestone

Development

Successfully merging this pull request may close these issues.

None yet

Notifications

Customize

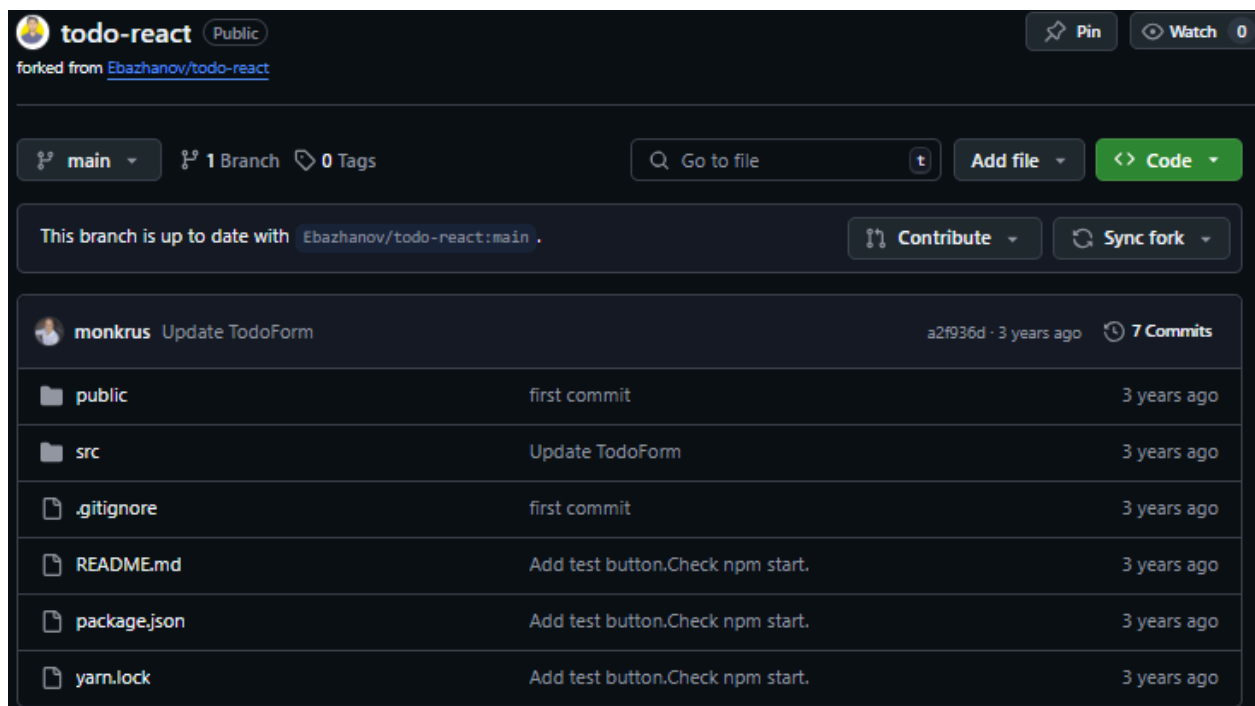
Unsubscribe

# Practical 3

## Aim:Using Git for Collaboration

### 1. Fork a Repository

1. Go to the repository you want to contribute to.
2. In the top-right corner, click Fork to create a copy of the repo under your account.



### 2. Clone Your Fork Locally

1. Copy the repository's URL (HTTPS or SSH).

```
PS D:\Sakib_T_Devops_Practicals> git clone https://github.com/sakibtheseeker/todo-react/
Cloning into 'todo-react'...
remote: Enumerating objects: 68, done.
remote: Counting objects: 100% (68/68), done.
remote: Compressing objects: 100% (48/48), done.
remote: Total 68 (delta 20), reused 48 (delta 10), pack-reused 0 (from 0)
Receiving objects: 100% (68/68), 475.59 KiB | 4.62 MiB/s, done.
Resolving deltas: 100% (20/20), done.
PS D:\Sakib_T_Devops_Practicals>
```

---

### 3. Create a New Branch

1. Navigate to the repo directory:
2. Create a new branch for your changes

```
PS D:\Sakib_T_Devops_Practicals> cd todo-react
PS D:\Sakib_T_Devops_Practicals\todo-react> git checkout -b new-feature
>>
```

---

### 4. Make Changes and Commit

1. Edit files as needed.
2. Commit your changes

```
PS D:\Sakib_T_Devops_Practicals\todo-react> git add public/index.html
PS D:\Sakib_T_Devops_Practicals\todo-react> git commit -m "Added SEO Enhancement"
[new-feature e96889f] Added SEO Enhancement
1 file changed, 27 insertions(+), 20 deletions(-)
```

---

### 5. Push Changes to Your Fork

Push your changes to GitHub

```
PS D:\Sakib_T_Devops_Practicals\todo-react> git push origin new-feature
>>
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 783 bytes | 783.00 KiB/s, done.
Total 4 (delta 3), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.
remote:
remote: Create a pull request for 'new-feature' on GitHub by visiting:
remote:   https://github.com/sakibtheseeker/todo-react/pull/new/new-feature
remote:
To https://github.com/sakibtheseeker/todo-react/
 * [new branch]      new-feature -> new-feature
```

---

## 6. Create a Pull Request (PR)

1. Go to your forked repo on GitHub.
2. Click Pull Requests > New Pull Request.
3. Select your branch and click Create Pull Request.

The screenshot shows the GitHub interface for a repository named 'todo-react', which is a fork of 'Ebazhanov/todo-react'. The repository is public and has 1 branch (main) and 0 tags. A notification bar at the top indicates that the 'new-feature' branch has recent pushes 2 seconds ago, with a 'Compare & pull request' button. Below this, the repository is shown to be 3 commits ahead of the upstream 'main' branch. The commit history is displayed, showing a recent commit by 'sakibtheseeker' titled 'Update index.js' (commit hash 0e6c0c2, 1 hour ago) and 10 total commits. The commit details table lists the following changes:

File	Commit Message	Time Ago
public	Updated Index file	2 days ago
src	Update index.js	1 hour ago
.gitignore	first commit	3 years ago
README.md	Add test button.Check npm start.	3 years ago
package.json	Add test button.Check npm start.	3 years ago
yarn.lock	Add test button.Check npm start.	3 years ago

**Name: Prathmesh Mane**

**Roll No:101 Div: B**

## Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also [compare across forks](#). [Learn more about diff comparisons here](#)

base repository: Ebazhanov/todo-react ▾


base: main ▾

←

head repository: sakibthaseeker/todo-react ▾

compare: new-feature ▾

✓ **Able to merge.** These branches can be automatically merged.



### Add a title

Seo Enhancement

[Helpful resources](#)  
GitHub Community

### Add a description

WritePreview

H B I E < > Link List Table Checklist Image Link Comment Undo Redo

Add your description here...



Markdown is supported Paste, drop, or click to add files





☒ Allow edits by maintainers ⓘ


Create pull request ▾

ⓘ Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).


## Seo Enhancement #2


 **Open** sakibtheseeker wants to merge 4 commits into `Ebazhanov:main` from `sakibtheseeker:new-feature` 









 Conversation **0**  Commits **4**  Checks **0**  Files changed **2**


 **sakibtheseeker** commented now ...


*No description provided.*
















 **sakibtheseeker** and others added 4 commits 3 months ago



-   Created NewTxtfile Verified 7e5dec
-   Updated Index file c8c0a2
-   Update index.js Verified 0e5c0c2
-   Added SEO Enhancement e96889f


 **No conflicts with base branch**  
Changes can be cleanly merged.

 **Add a comment**

**Write** Preview             

Add your comment here...

 Markdown is supported  Paste, drop, or click to add files

 **Close pull request** **Comment**



## 7. Sync Your Fork with the Original Repo (Upstream)

1. Add the original repository as a remote
2. Fetch the latest changes
3. Merge changes into your branch
4. Push the updates to your fork:

```
PS D:\Sakib_T_Devops_Practicals\todo-react> git remote add upstream https://github.com/monkrus/todo-react
PS D:\Sakib_T_Devops_Practicals\todo-react> git fetch upstream
>>
remote: Enumerating objects: 27, done.
remote: Counting objects: 100% (24/24), done.
remote: Compressing objects: 100% (11/11), done.
remote: Total 15 (delta 3), reused 14 (delta 3), pack-reused 0 (from 0)
Unpacking objects: 100% (15/15), 14.86 KiB | 237.00 KiB/s, done.
From https://github.com/monkrus/todo-react
* [new branch]      main      -> upstream/main
```

```
PS D:\Sakib_T_Devops_Practicals\todo-react> git checkout main
>> git merge upstream/main
>>
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
Merge made by the 'ort' strategy.
 README.md          | 14 +++---
 img.png            | Bin 0 -> 13467 bytes
 src/App.js         | 13 +++---
 src/components/ToDoForm.jsx | 80 ++++++-----
 src/components/ToDoItem.jsx | 42 ++++++
 src/components/ToDoList.css | 5 +++
 src/components/ToDoList.jsx | 101 ++++++
 src/components/ToDoTab.jsx  | 29 ++++++
 src/services/todoService.js | 45 ++++++-----
 9 files changed, 250 insertions(+), 79 deletions(-)
 create mode 100644 img.png
```

```
● PS D:\Sakib_T_Devops_Practicals\todo-react> git push origin main
>>
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 979 bytes | 979.00 KiB/s, done.
Total 4 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/sakibtheseeker/todo-react/
    0e6c0c2..d8d6baa  main -> main
○ PS D:\Sakib_T_Devops_Practicals\todo-react> █
```

# Practical 4

## Aim: Collaborating and Cloning using GitHub.

### Steps for Collaborating and Cloning using GitHub:

#### 1. Create a GitHub Repository (Owner):


- Sign in to GitHub.
- Click on New Repository, add a name, and create it.

### 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 \*

 sakibtheseeker


Repository name \*

devopscollabproject


✔ devopscollabproject is available.

Great repository names are short and memorable. Need inspiration? How about [improved-broccoli](#) ?

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


.gitignore template: None

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

Choose a license

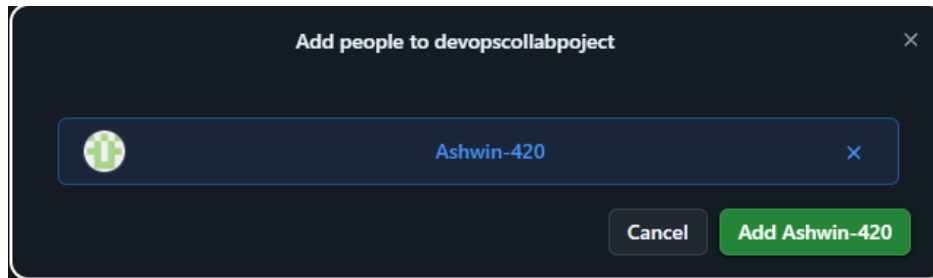
License: None

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.

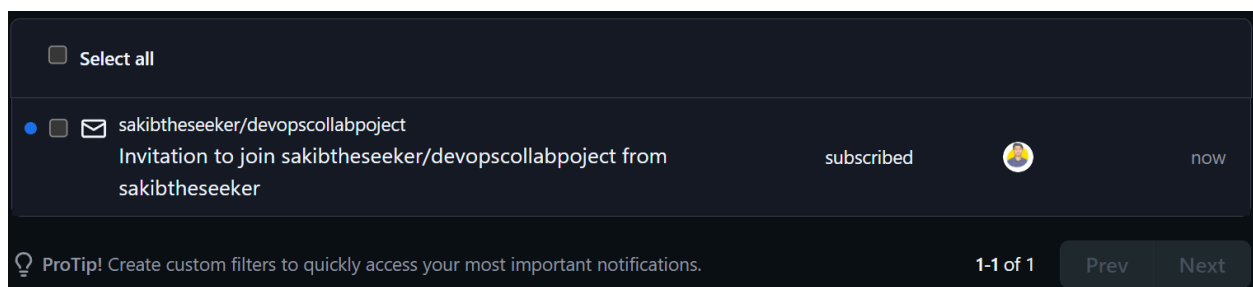
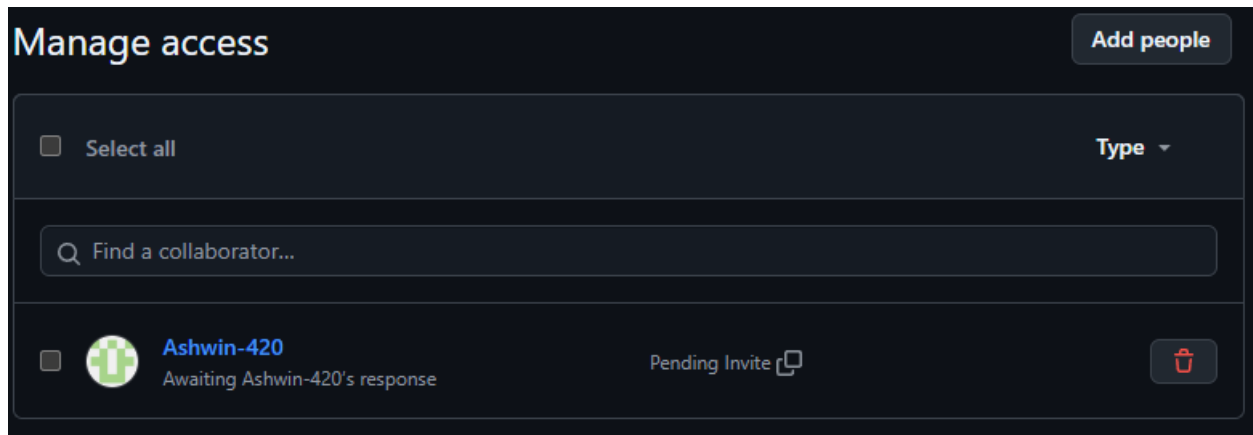
Create repository

- **Share the repository link with collaborators.**





## 2. Invite Collaborators (Owner):

- **Go to the repository > Settings > Collaborators.**




- **Add GitHub usernames or email IDs and send invitations.**



[sakibtheseeker](#) invited you to collaborate on **sakibtheseeker/devopscollabproject**

Accept invitationDecline invitation

 **Owners** of devopscollabproject will be able to see:

- Your public profile information
- [Certain activity](#) within this repository
- Country of request origin
- Your access level for this repository
- Your IP address

---


Is this user sending spam or malicious content?  
[Block sakibtheseeker](#)


## Manage access

Add people

☐ Select all Type ▾

☐

**Ashwin-420**  
Collaborator



Name: Prathmesh Mane

Roll No:101 Div: B

General

Access

**Collaborators**

Moderation options

Code and automation

Rules

Actions

Webhooks

Environments

Codespaces

Pages

Security

Advanced Security

Deploy keys


Secrets and variables

Integrations

GitHub Apps

Email notifications

## Collaborators and teams


 **Public repository**  
This repository is public and visible to anyone

Manage visibility

**Direct access**

0 collaborators have access to this repository. Only you can contribute to this repository.

## Manage access



You haven't invited any collaborators yet


Add people

devopscollabproject Public


Watch 1

Fork 0

Star 0

**Start coding with Codespaces**  
Add a README file and start coding in a secure, configurable, and dedicated development environment.  

Create a codespace

**Add collaborators to this repository**  
Search for people using their GitHub username or email address.  

Invite collaborators

### Quick setup — if you've done this kind of thing before

Set up in Desktop

 or 

HTTPS

SSH

https://github.com/sakibtheseeker/devopscollabproject.git

Get started by [creating a new file](#) or [uploading an existing file](#). We recommend every repository include a [README](#), [LICENSE](#), and [gitignore](#).

### ...or create a new repository on the command line

```
echo "# devopscollabproject" >> README.md
git init
git add README.md
git commit -m "first commit"
git branch -M main
git remote add origin https://github.com/sakibtheseeker/devopscollabproject.git
git push -u origin main
```

### ...or push an existing repository from the command line

```
git remote add origin https://github.com/sakibtheseeker/devopscollabproject.git
git branch -M main
git push -u origin main
```

### 3. Clone the Repository (Collaborator):

- Open Git Bash or Terminal

Use the command:

**git clone** <https://github.com/username/repository-name.git>

```
Sakib@LAPTOP-BPSVF1HI MINGW64 ~  
$ git clone https://github.com/sakibtheseeker/devopscollabproject.git  
Cloning into 'devopscollabproject'...  
warning: You appear to have cloned an empty repository.
```

Navigate into the project folder:

**cd repository-name**

```
Sakib@LAPTOP-BPSVF1HI MINGW64 ~  
$ cd devopscollabproject  
  
Sakib@LAPTOP-BPSVF1HI MINGW64 ~/devopscollabproject (main)  
$
```

### 4. Create a New Branch (Collaborator):

To avoid conflicts, create a separate branch:

**git checkout -b branch-name**

```
Sakib@LAPTOP-BPSVF1HI MINGW64 ~/devopscollabproject (main)  
$ git checkout -b new-feature  
Switched to a new branch 'new-feature'
```

### 5. Make Changes and Commit:

- Make the required changes in the code.

Stage the changes:

**git add .**

```
Sakib@LAPTOP-BPSVF1HI MINGW64 ~/devopscollabproject (new-feature)
$ git add index.html
git commit -m "Added new paragraph to index.html"
[new-feature 174694a] Added new paragraph to index.html
1 file changed, 3 insertions(+)
```

```
<html lang="en">
<head>
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Welcome | Sakib's DevOps Project</title>
  <style>
    body {
      font-family: Arial, sans-serif;
      background: #f4f4f4;
      color: #333;
      text-align: center;
      padding-top: 50px;
    }
    h1 {
      color: #007acc;
    }
    p {
      font-size: 18px;
    }
    footer {
      margin-top: 40px;
      font-size: 14px;
      color: #777;
    }
  </style>
</head>
<body>
  <h1>Welcome to Sakib's DevOps Collaboration Project</h1>
  <p>This is a sample HTML page created to demonstrate collaboration using GitHub.</p>
  <!-- Add this line somewhere inside the <body> -->
  <p>This is a new feature added by Sakib.</p>

  <footer>
    <p>Created by Sakib | © 2025</p>
  </footer>
</body>
</html>
```



**Commit with a meaningful message:**

sql

CopyEdit

**git commit -m "Added feature XYZ"**

```
git commit -m "Added new paragraph to index.html"
```

## 6. Push Changes to GitHub:

**Push your branch to the remote repository:**

**git push origin branch-name**

```
sakib@LAPTOP-BPSVF1HI MINGW64 ~/devopscollabproject (xyz)
$ git push origin xyz
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 651 bytes | 651.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/sakibtheseeker/devopscollabproject.git
 * [new branch]      xyz -> xyz
```

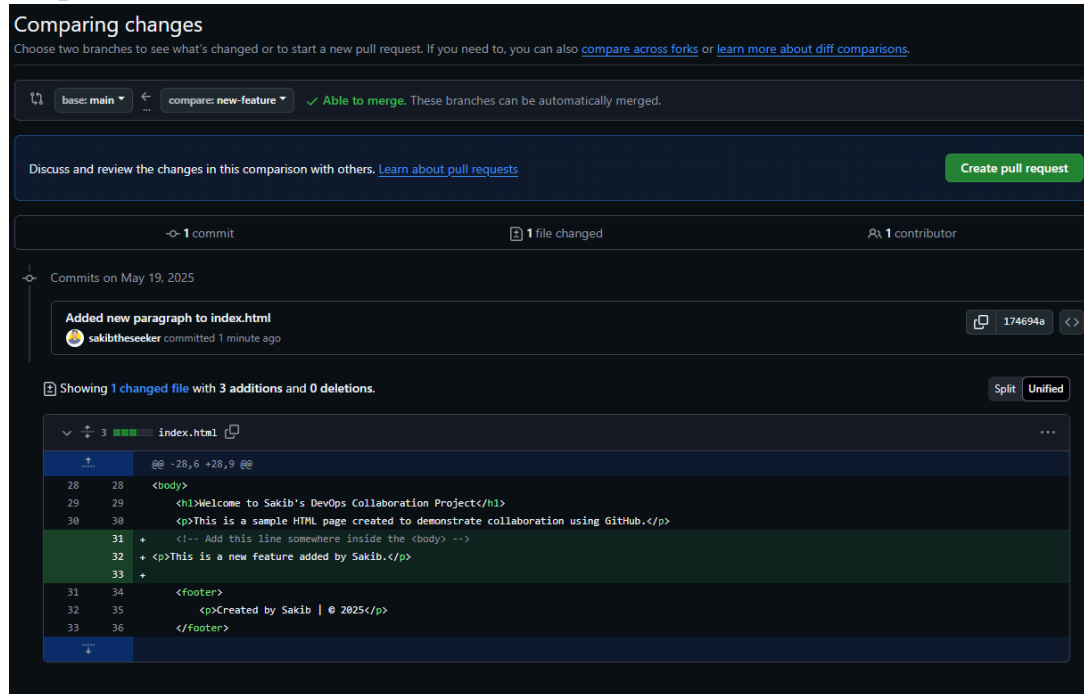
## 7. Create a Pull Request (PR):

- **Go to the GitHub repository in your browser.**

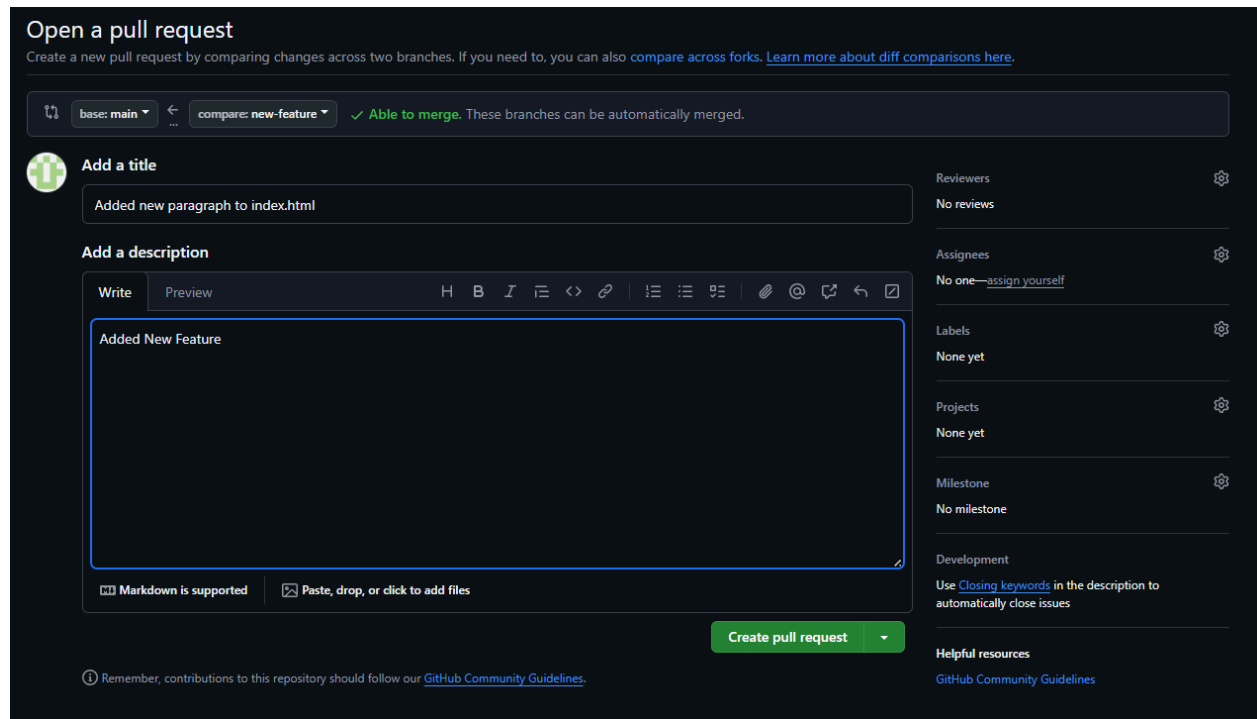
Name: Prathmesh Mane

Roll No:101 Div: B

- **GitHub will detect the new branch and show an option to create a Pull Request.**

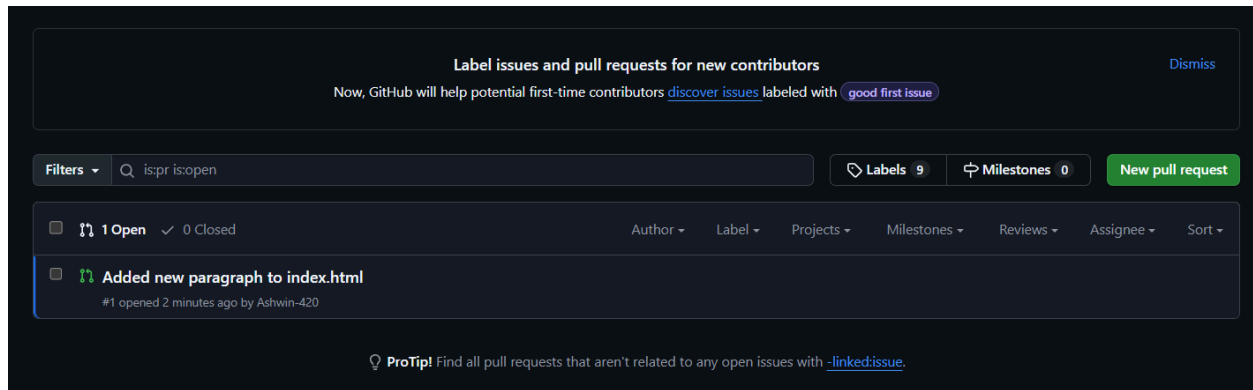


- **Add a description of the changes and submit the PR.**



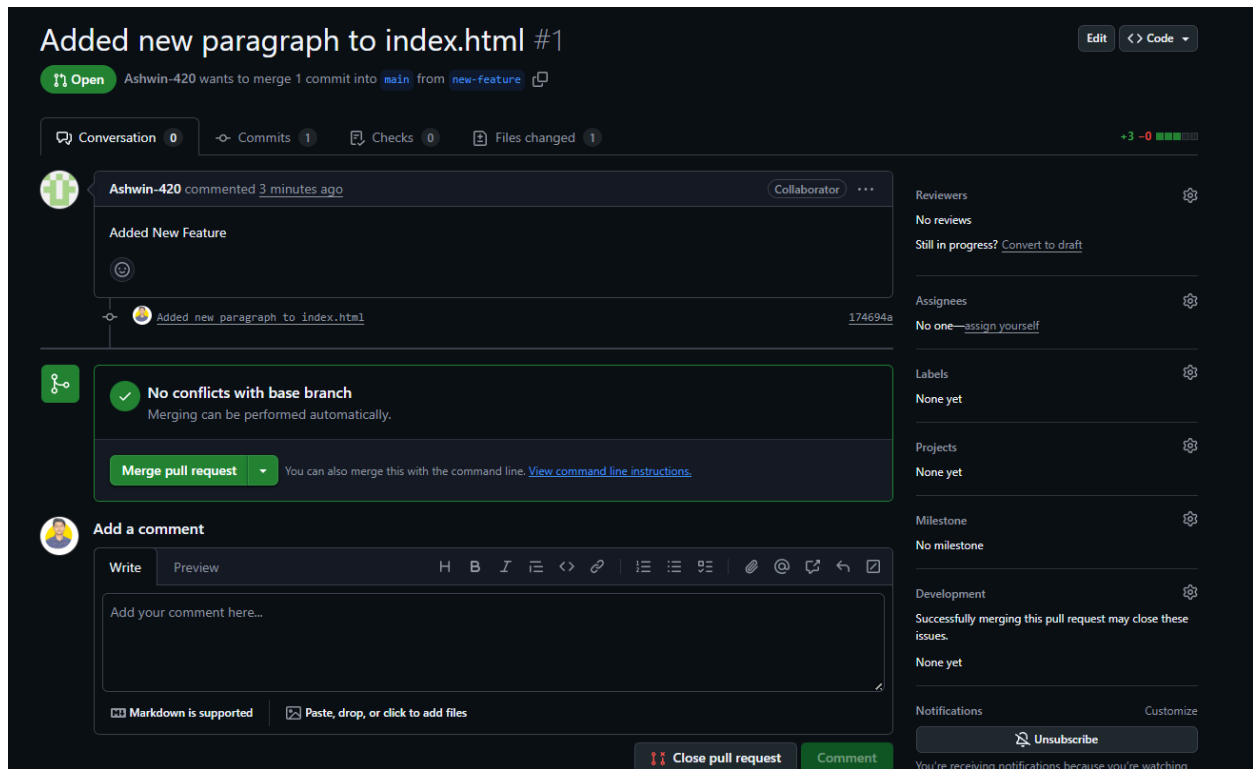
Name: Prathmesh Mane

Roll No:101 Div: B

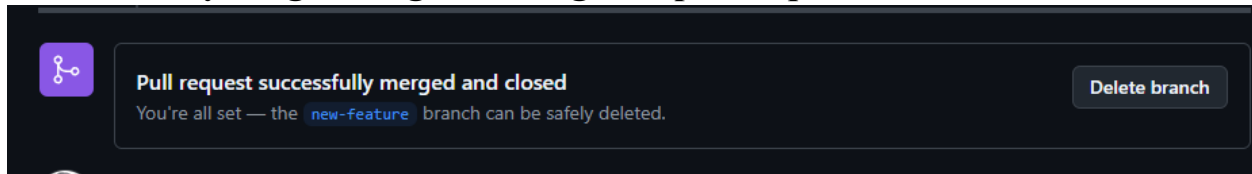


## 8. Review and Merge (Owner or Admin):

- Review the pull request.



- If everything looks good, Merge the pull request into the main branch.



## 9. Sync the Repository (All Collaborators):

- Pull the latest changes to keep your local repo updated:

**git pull origin main**

```
Sakib@LAPTOP-BPSVF1HI MINGW64 ~/devopscollabproject (new-feature)
$ git pull origin main
remote: Enumerating objects: 1, done.
remote: Counting objects: 100% (1/1), done.
remote: Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (1/1), 922 bytes | 307.00 KiB/s, done.
From https://github.com/sakibtheseeker/devopscollabproject
* branch                main                -> FETCH_HEAD
   32a23af..a04056a      main                -> origin/main
Updating 174694a..a04056a
Fast-forward
```

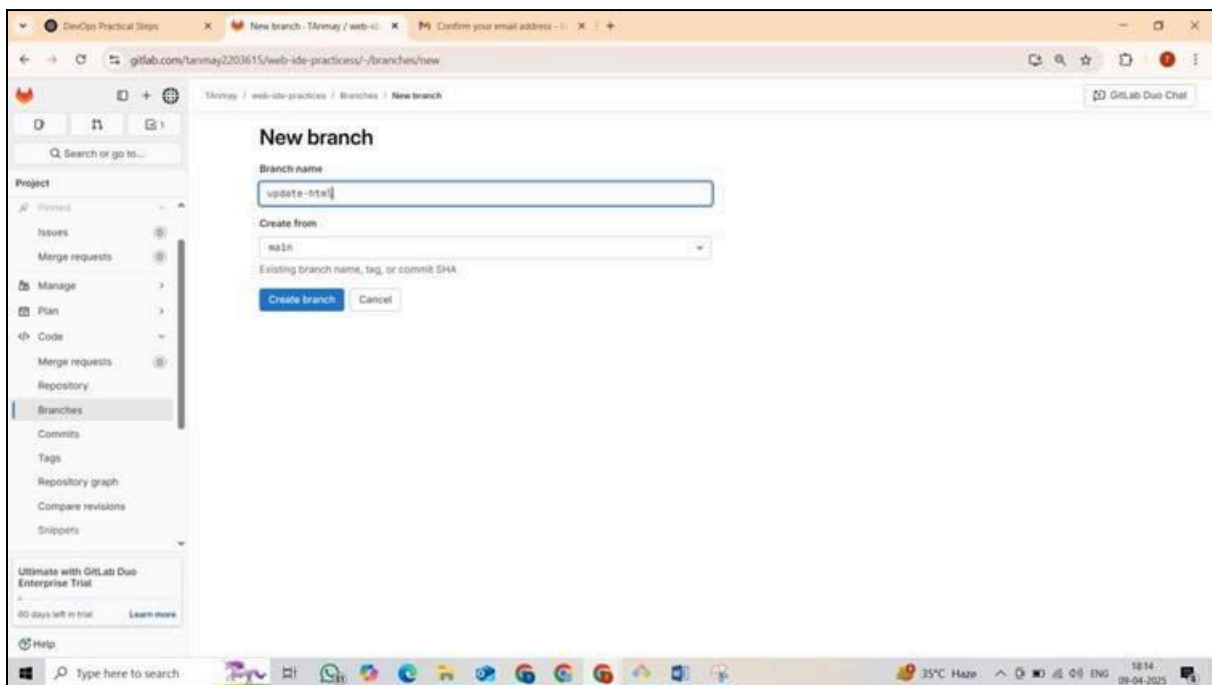
# Practical 5

## Aim:Using GitLab Web IDE

### Performing Merge Requests Using GitLab

#### Steps:

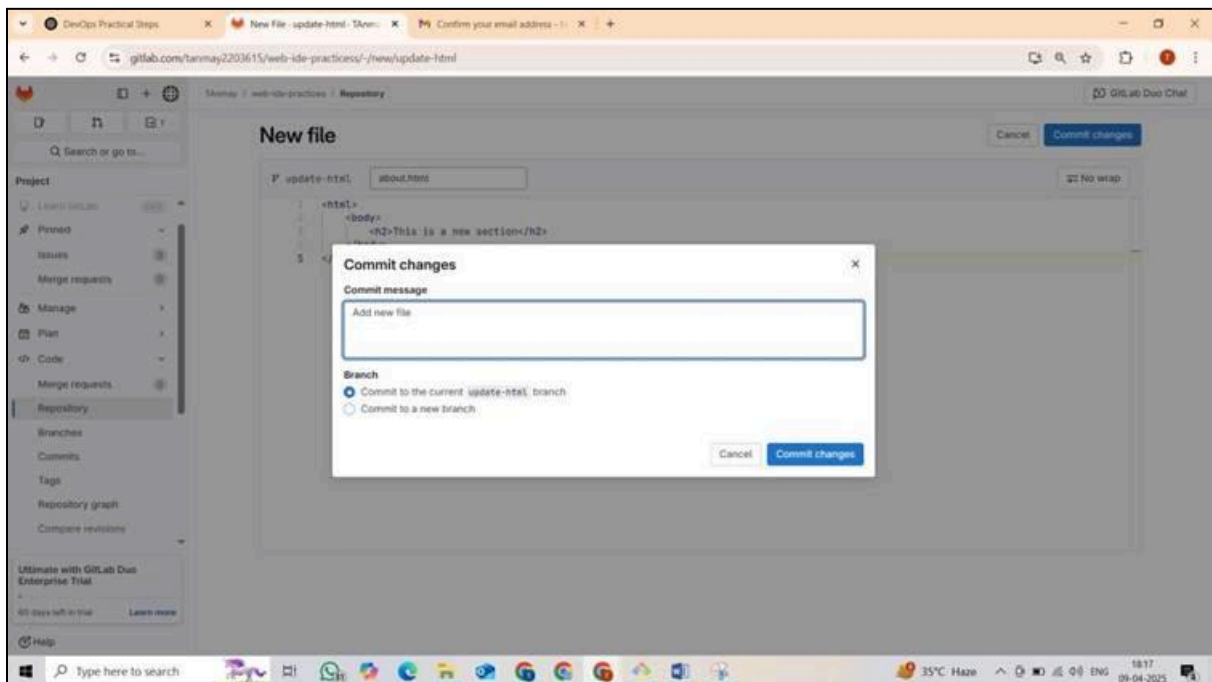
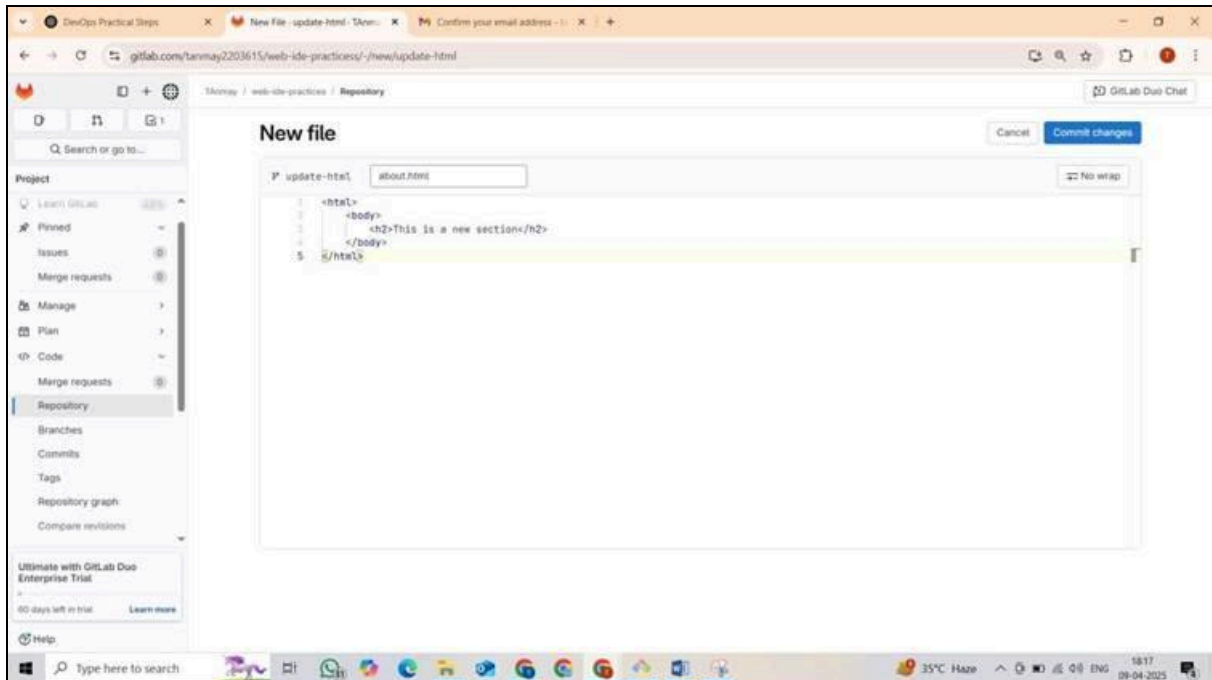
#### 1. Create a new branch in Web IDE.



#### 2. Add/edit a file and commit.

Name: Prathmesh Mane

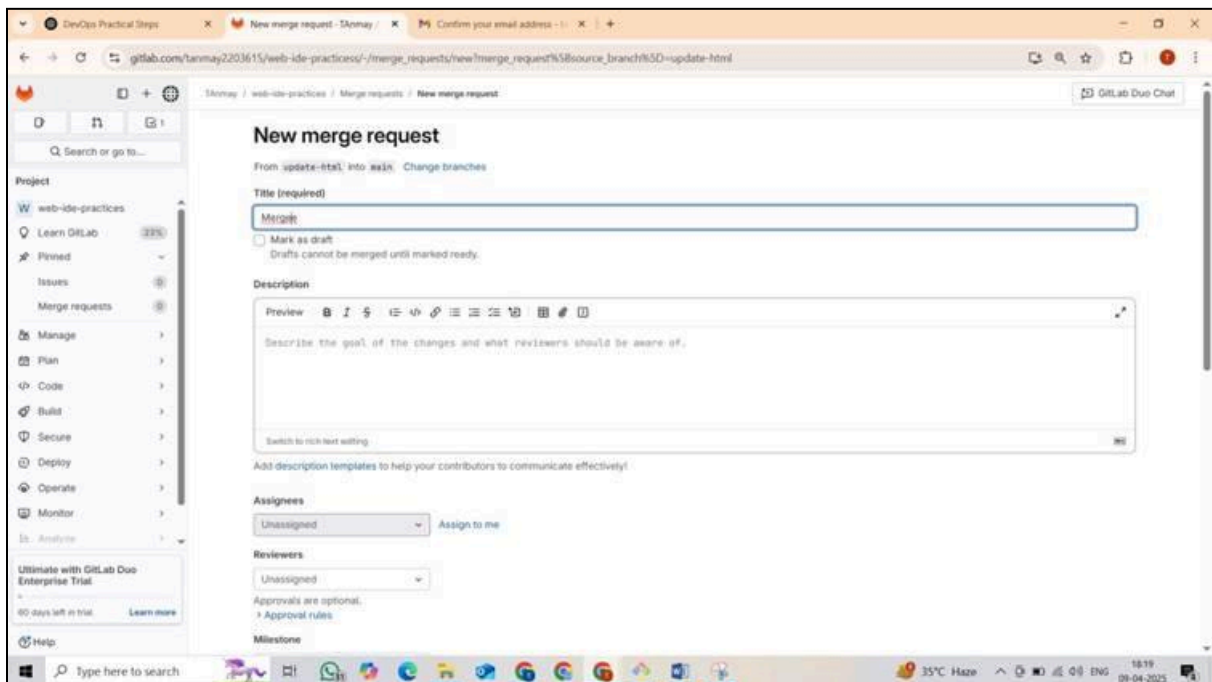
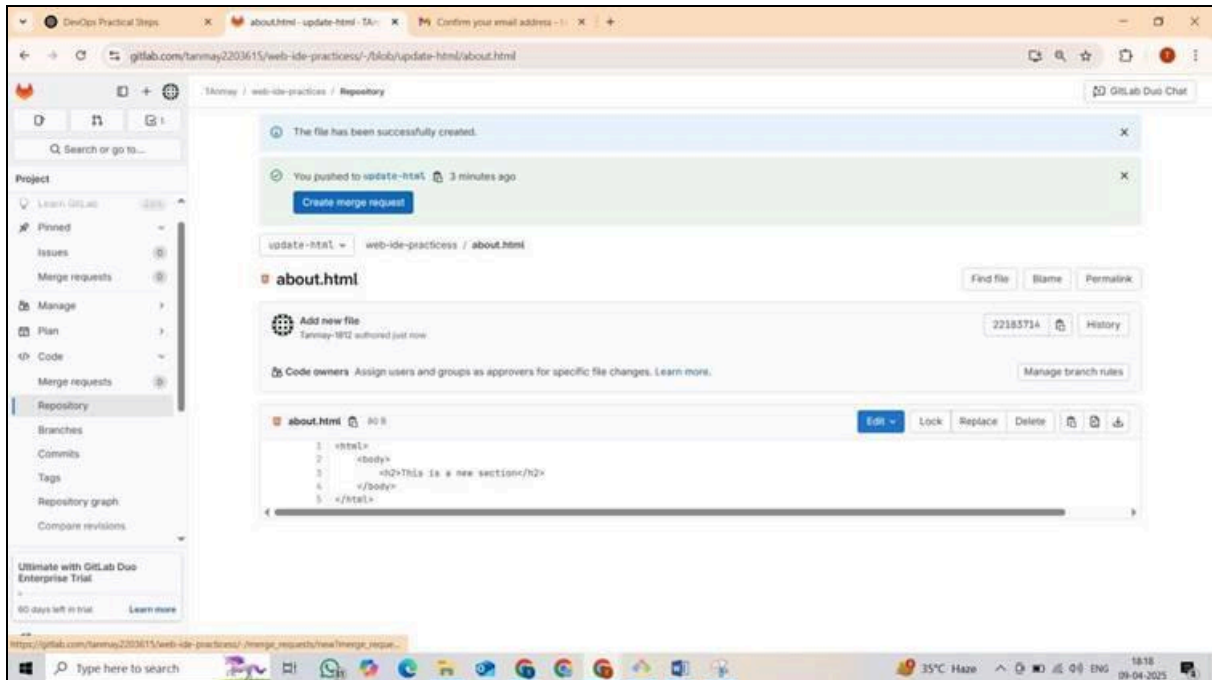
Roll No:101 Div: B



3. Click on Merge Requests > New Merge Request.

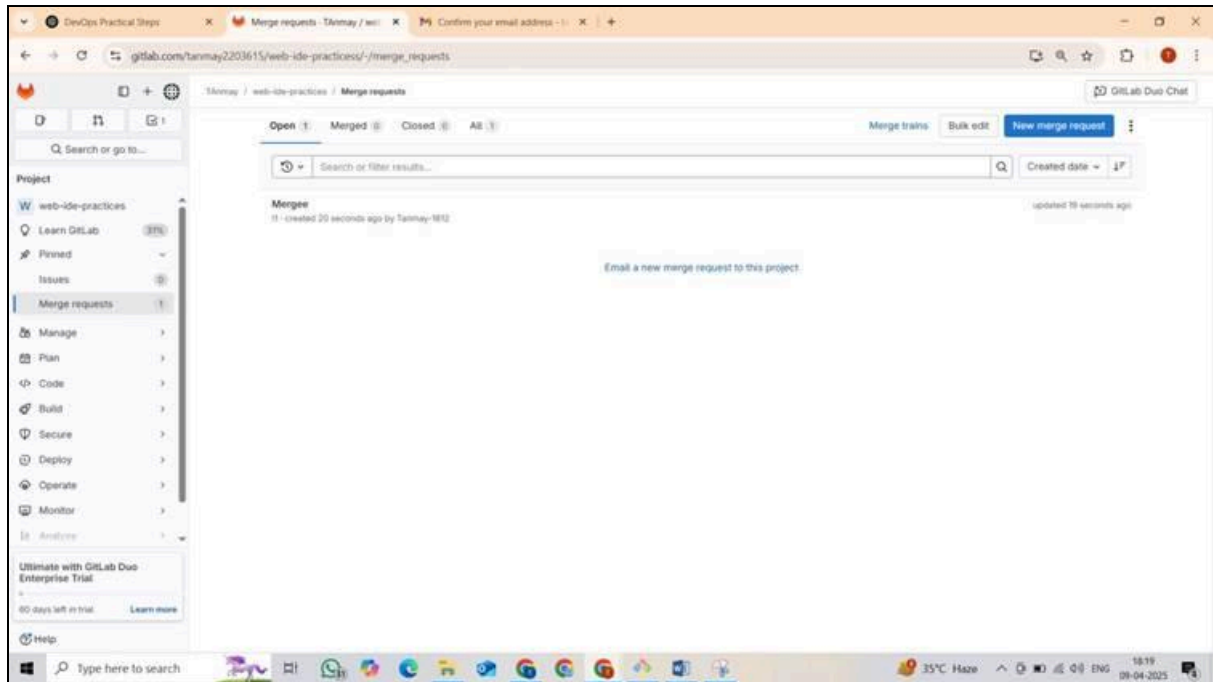
Name: Prathmesh Mane

Roll No:101 Div: B

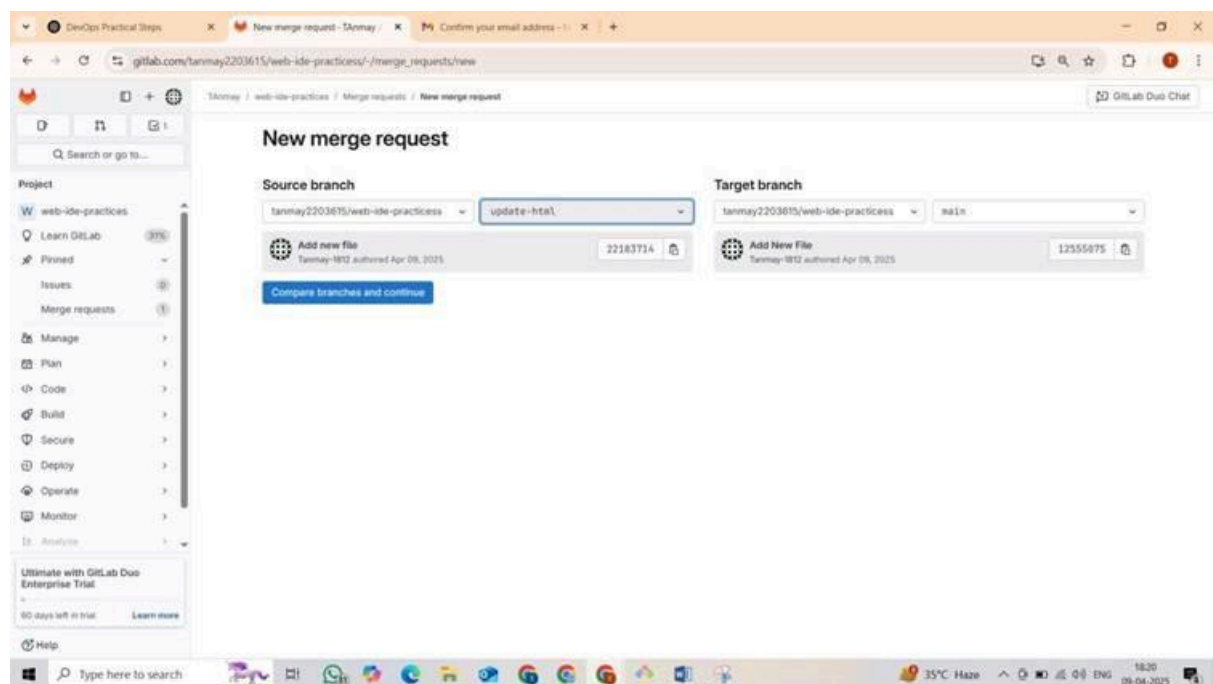


Name: Prathmesh Mane

Roll No:101 Div: B



4. Select source and target branches.
5. Submit and merge after review.



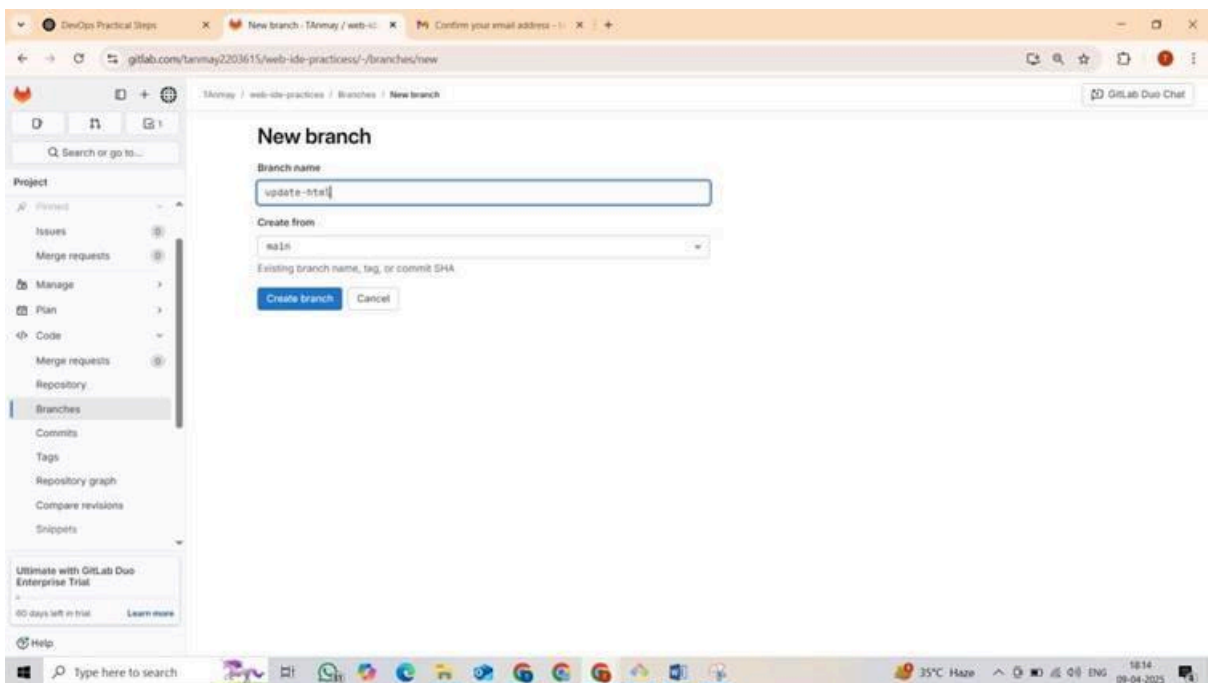


# Practical 6

**Aim:Performing merge requests using GitLab**

**Steps:**

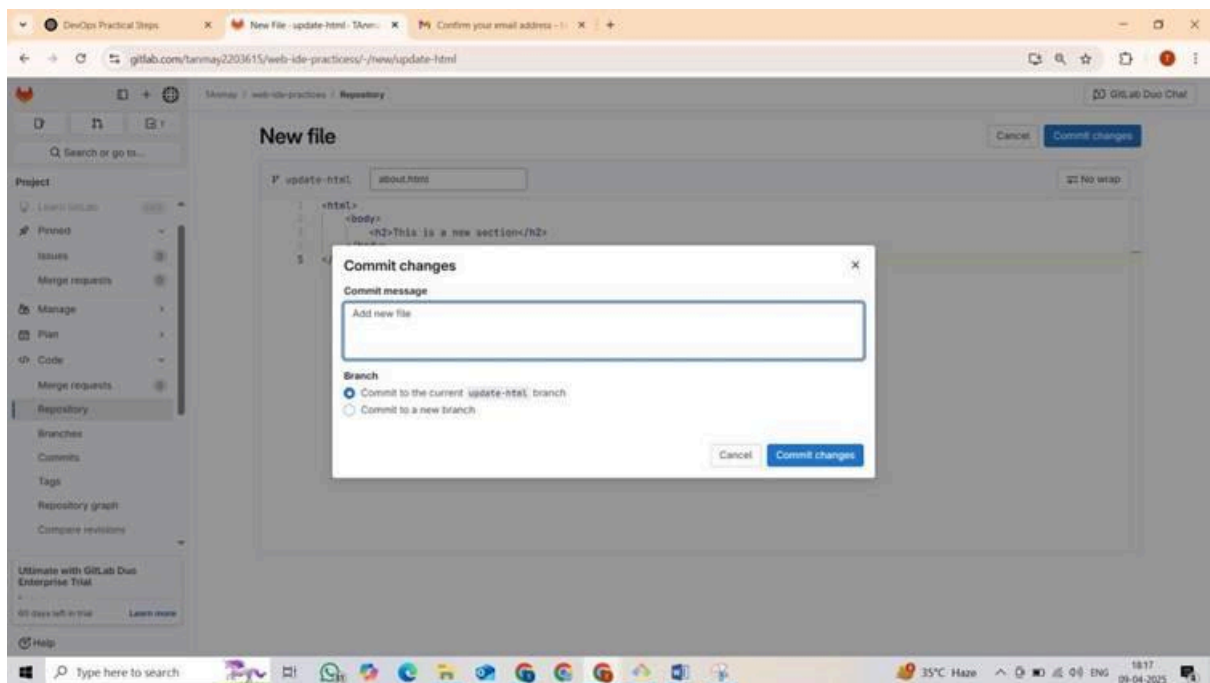
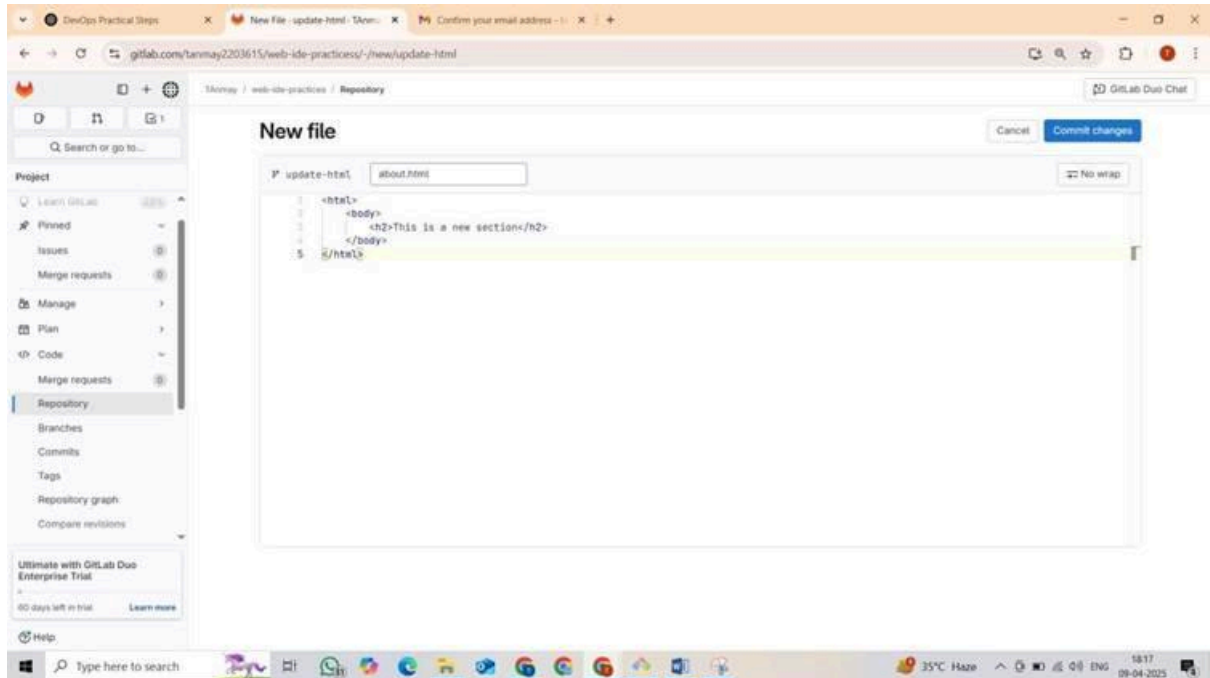
**1. Create a new branch in Web IDE.**



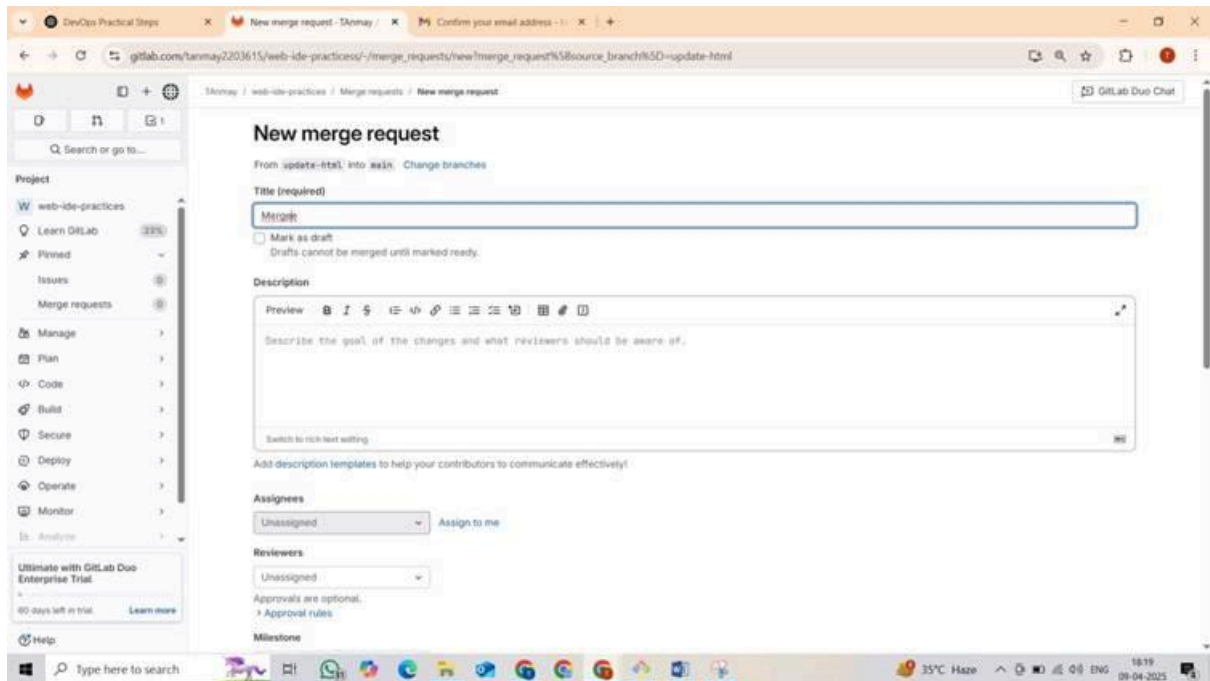
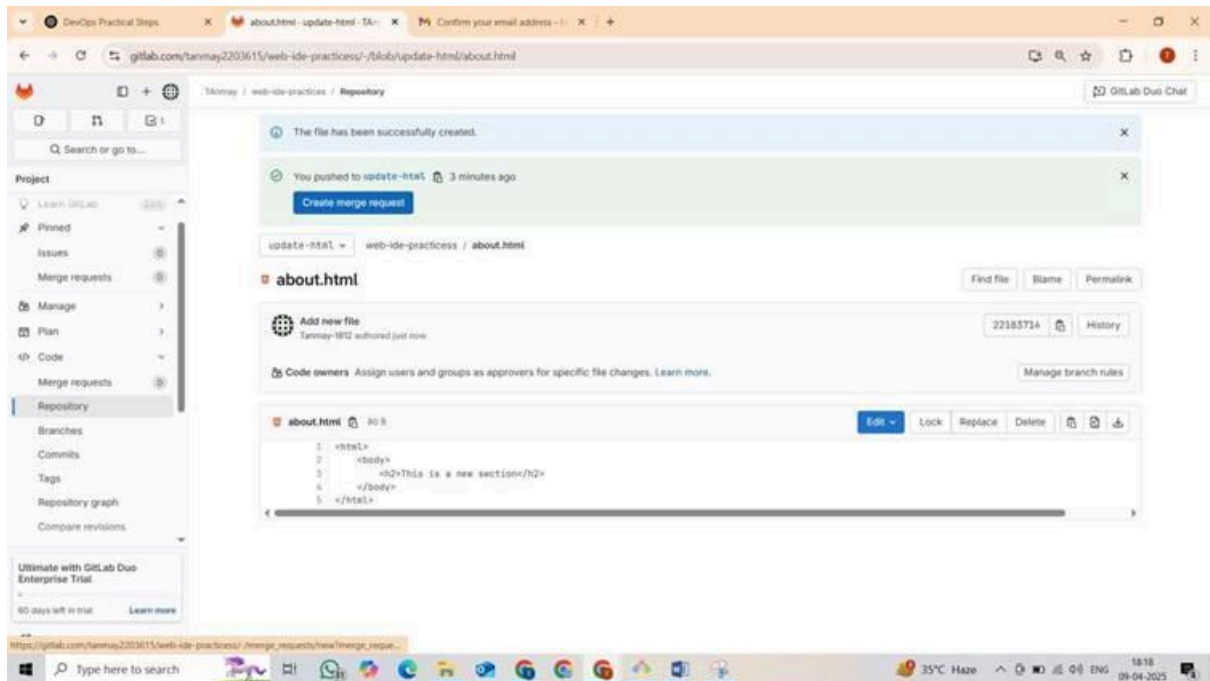
**2. Add/edit a file and commit.**

Name: Prathmesh Mane

Roll No:101 Div: B

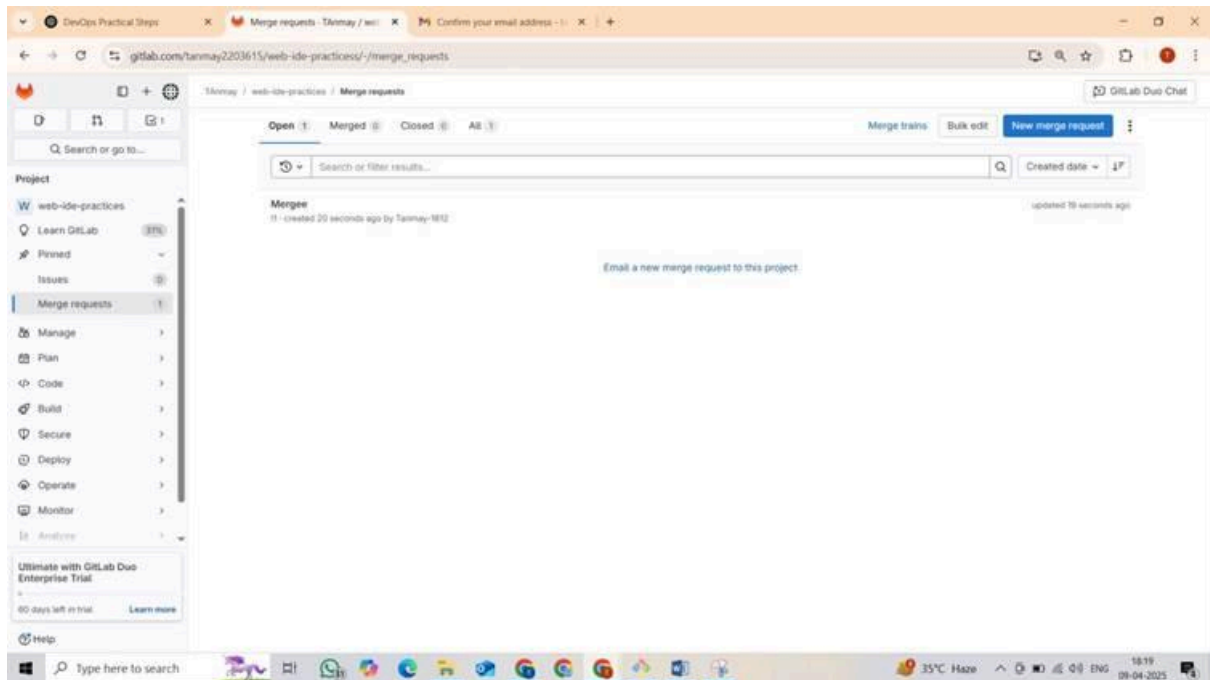


### 3. Click on Merge Requests > New Merge Request.



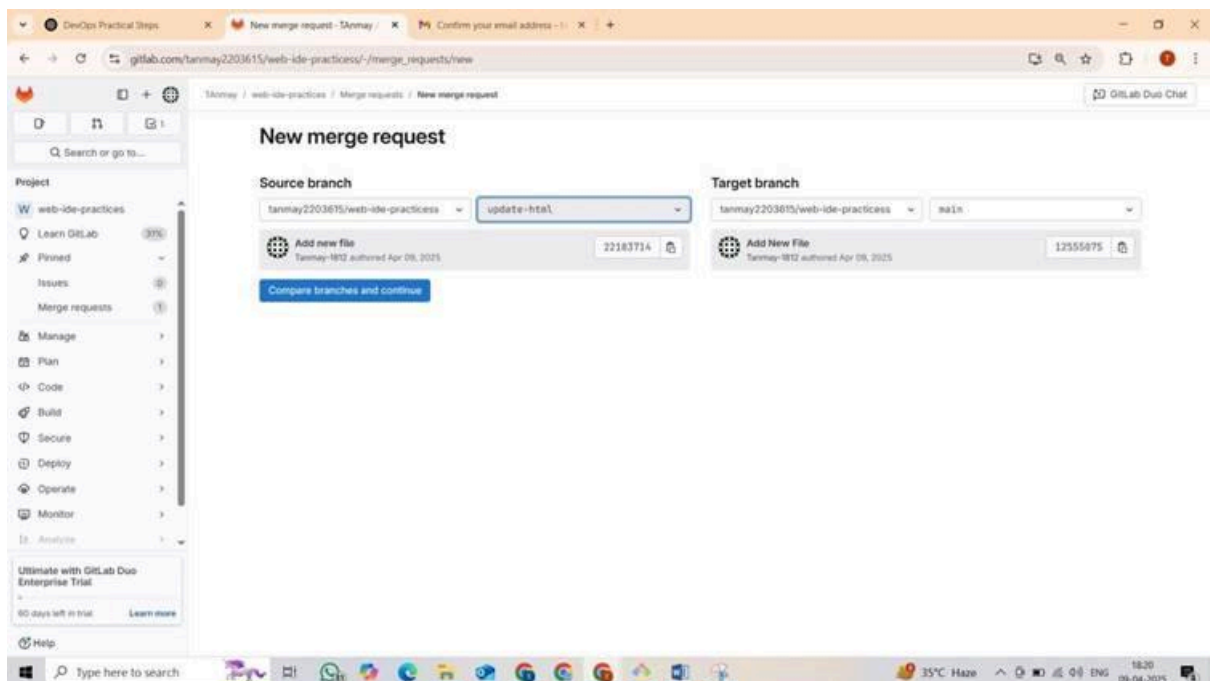
Name: Prathmesh Mane

Roll No:101 Div: B



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:

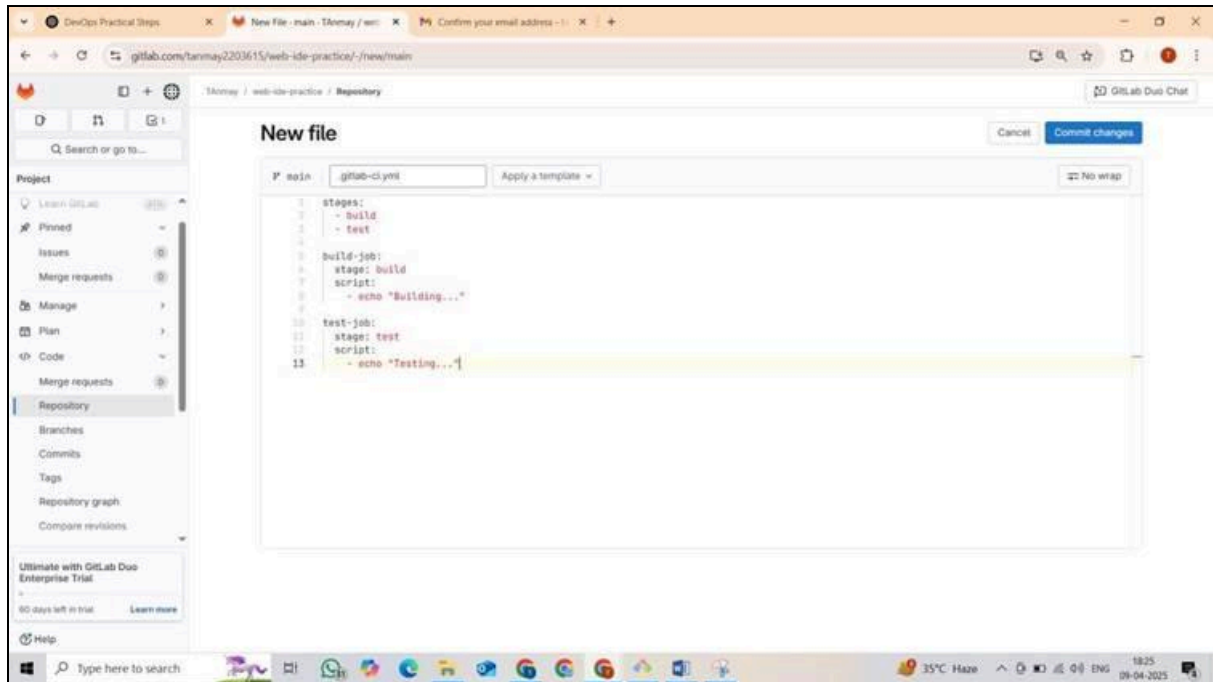
stage: test

script:

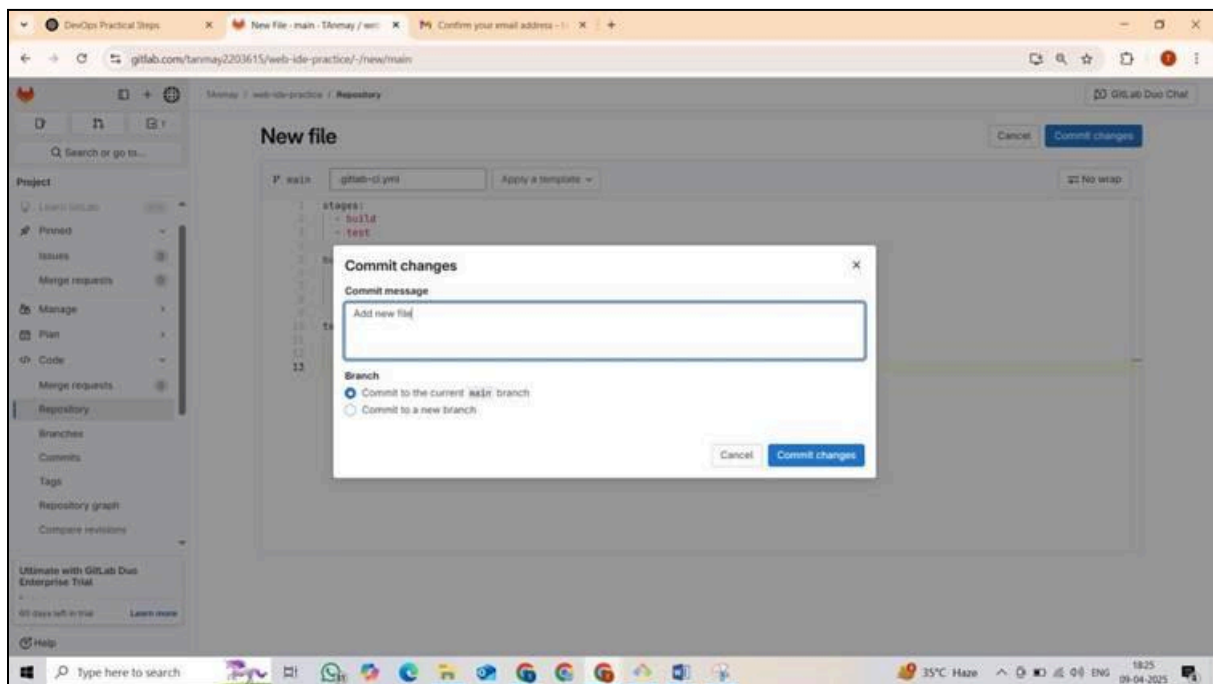
- echo "Testing..."

Name: Prathmesh Mane

Roll No:101 Div: B



## 2. Commit and push.



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

vdespa\_cs08\_2024 / My first pipeline / Pipelines / #1357857257

## Add build job

✓ Passed Valentin Despa created pipeline for commit 45e1c306 just now, finished

For main

latest 1 job 0.17 10 seconds, queued for 1 seconds

Pipeline Needs Jobs 1 Tests 0

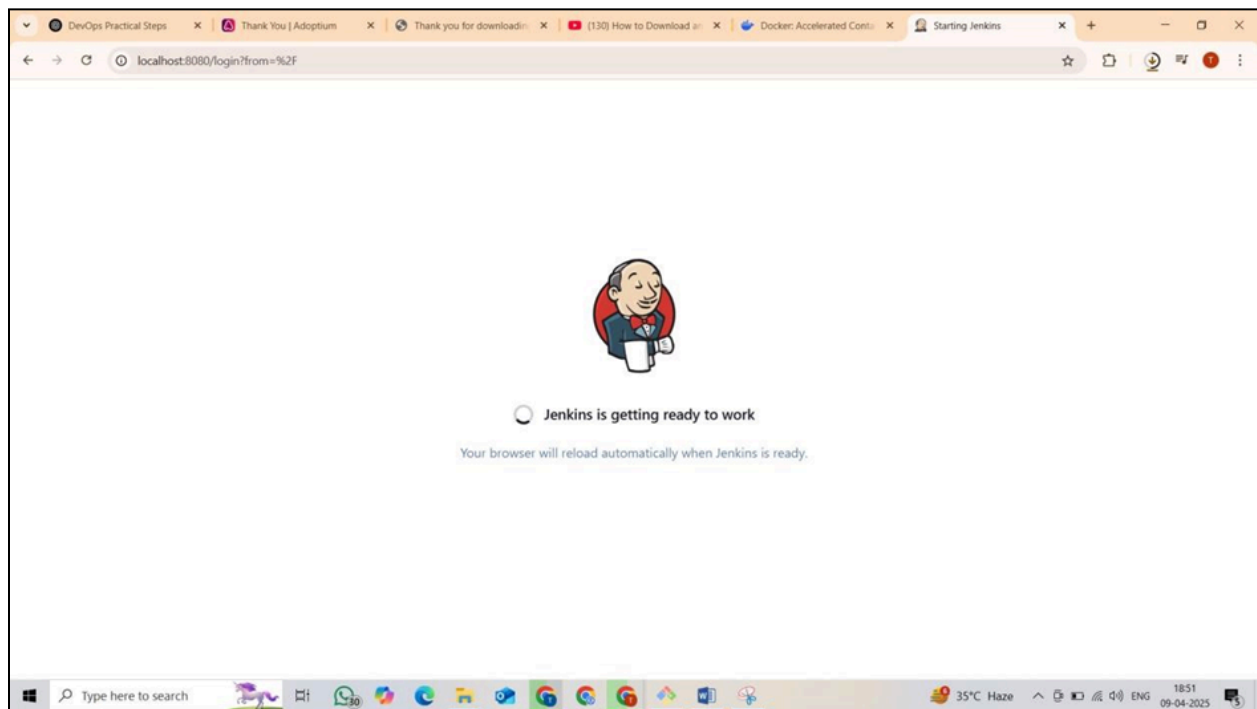
test

✓ create\_file

# Practical 8

**Aim: Demonstrate Continuous Integration and development using Jenkins.**

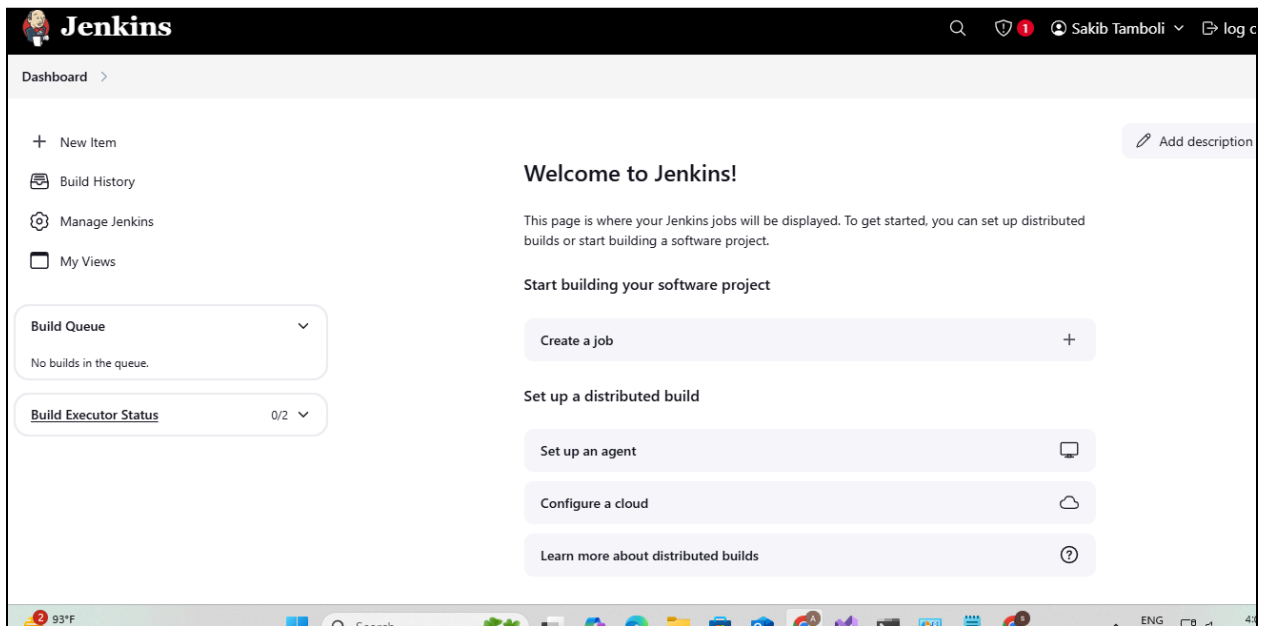
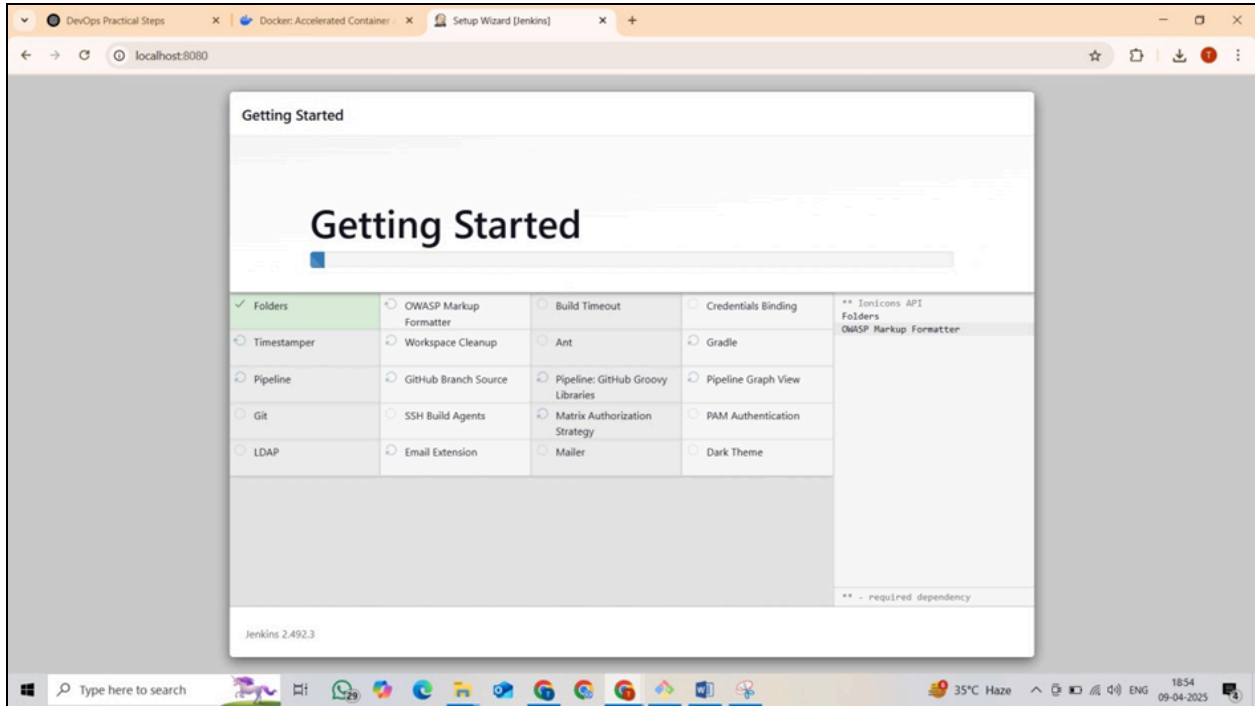
1. Install Jenkins (visit <https://www.jenkins.io>)
2. Run Jenkins: <http://localhost:8080>





Name: Prathmesh Mane

Roll No:101 Div: B




Dashboard > New Item


## New Item


Enter an item name

MyFirstProject

Select an item type

**Freestyle project**  
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.


**Pipeline**  
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.


**Multi-configuration project**  
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.


OK


Dashboard > MyFirstProject > Configuration


## Configure


 General

 Source Code Management


 Triggers

 Environment

 Build Steps

 Post-build Actions

### General

Enabled 

Description

This is my first Jenkins Project. You will see me often from now onwards!!!!!!!!!!!!!!

Plain text [Preview](#)

☐ Discard old builds ?

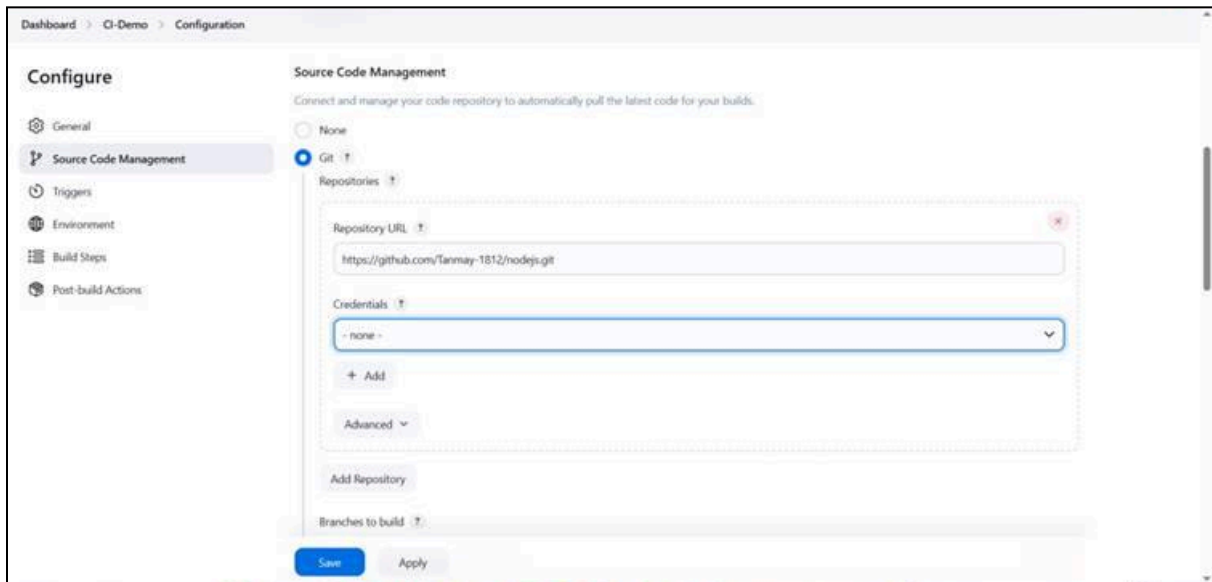
☐ GitHub project

☐ This project is parameterised ?

☐ Throttle builds ?

Save Apply

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

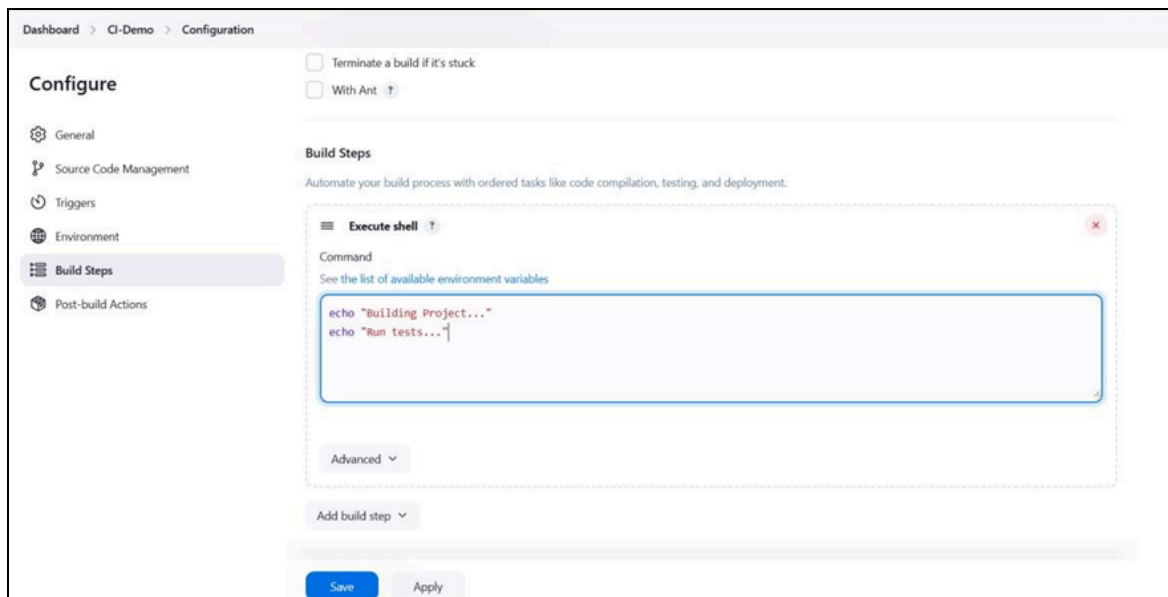


The screenshot shows the 'Configure' page for 'Source Code Management'. The left sidebar has a menu with 'General', 'Source Code Management', 'Triggers', 'Environment', 'Build Steps', and 'Post-build Actions'. The 'Source Code Management' section is active. It includes a 'None' radio button and a selected 'Git' radio button. Below, there's a 'Repository URL' field with the value 'https://github.com/Tanmay-1812/nodejs.git'. A 'Credentials' dropdown menu is set to 'none'. There are '+ Add' and 'Advanced' buttons. At the bottom, there's an 'Add Repository' button and a 'Branches to build' field. 'Save' and 'Apply' buttons are at the bottom right.

#### 5. Add Build Step > Execute Shell:

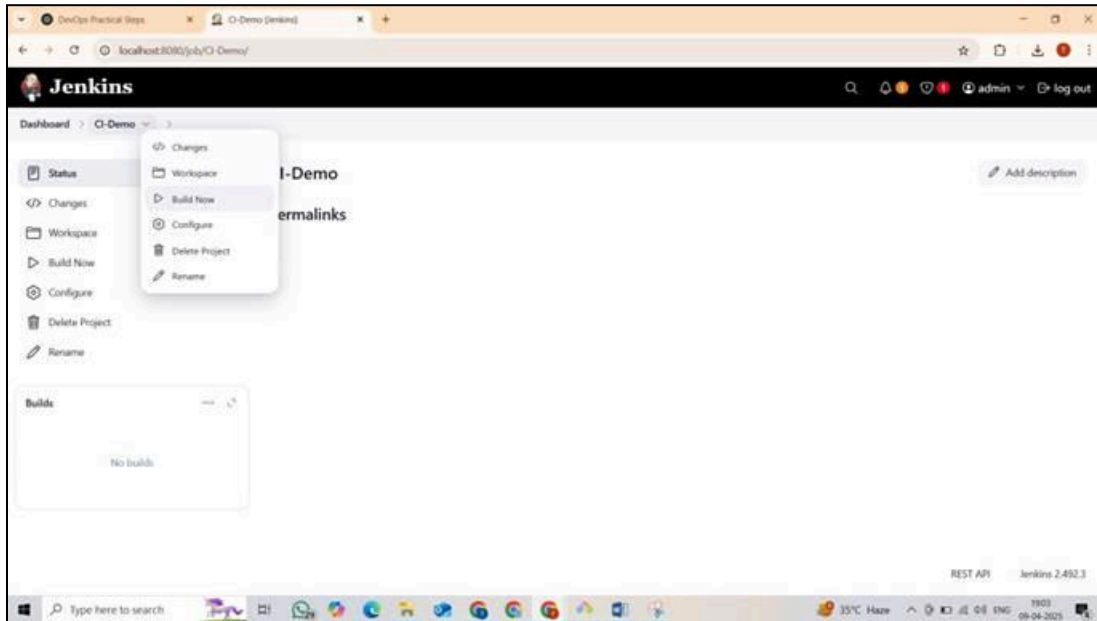
echo "Building Project..."

echo "Run tests..."



The screenshot shows the 'Configure' page for 'Build Steps'. The left sidebar has a menu with 'General', 'Source Code Management', 'Triggers', 'Environment', 'Build Steps', and 'Post-build Actions'. The 'Build Steps' section is active. It includes checkboxes for 'Terminate a build if it's stuck' and 'With Ant'. Below, there's a 'Build Steps' section with a description: 'Automate your build process with ordered tasks like code compilation, testing, and deployment.' A 'Execute shell' step is added, showing a 'Command' field with the text: 'echo "Building Project..."' and 'echo "Run tests..."'. There are 'Advanced' and 'Add build step' buttons. 'Save' and 'Apply' buttons are at the bottom right.

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.**

```
FROM node

WORKDIR /testapp

COPY . .

RUN npm install

EXPOSE 3000

CMD ["npm", "start"]
```

## IMAGES

### Docker image ls

lists all locally stored Docker images along with their repository, tag, image ID, creation time, and size.

```
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker image ls
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
<none>	<none>	7837a88b33fe	About a minute ago	1.41GB

**docker build -t <image\_name> .**

Build an Image from a Dockerfile

```

PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker build -t sakibtheseeker/image1 .
[+] Building 3.6s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 136B
=> [internal] load metadata for docker.io/library/node:latest
=> [auth] library/node:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/4] FROM docker.io/library/node:latest@sha256:c5bfe90b30e795ec57bcc0040065ca6f284af84a1dafd22a207bd6b48c39ce01
=> [internal] load build context
=> => transferring context: 4.57kB
=> CACHED [2/4] WORKDIR /testapp
=> CACHED [3/4] COPY . .
=> CACHED [4/4] RUN npm install
=> exporting to image
=> => exporting layers
=> => writing image sha256:d2ad3484e2d51a91e1d26d39ea5b63e5fad591d209b51009dce394da1a8cee13
=> => naming to docker.io/sakibtheseeker/image1

```

## docker build --no-cache -t <image\_name> .

Build an Image from a Dockerfile without the cache

```

PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker build --no-cache -t sakibtheseeker/image1 .
>>
[+] Building 1657.2s (7/8)
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 136B
=> [internal] load metadata for docker.io/library/node:latest
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/4] FROM docker.io/library/node:latest@sha256:c5bfe90b30e795ec57bcc0040065ca6f284af84a1dafd22a207bd6b48c39ce01
=> [internal] load build context
=> => transferring context: 4.57kB
=> CACHED [2/4] WORKDIR /testapp
=> [3/4] COPY . .
=> [4/4] RUN npm install
=> => # Run `npm audit` for details.
=> => # npm notice
=> => # npm notice New major version of npm available! 10.9.2 -> 11.3.0
=> => # npm notice Changelog: https://github.com/npm/cli/releases/tag/v11.3.0
=> => # npm notice To update run: npm install -g npm@11.3.0
=> => # npm notice

```

## docker images

List local images

```

PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker images

```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
<none>	<none>	2cf0635c1cd2	12 minutes ago	1.45GB

## docker rmi <image\_name>

Delete an Image

```

PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker rmi 7837a88b33fe
Deleted: sha256:7837a88b33fe6b574e69df6d76601d7c14218673c386d746abb0199d2f7c8d6e

```

**docker image prune**

Remove all unused images

```
● PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker image prune
WARNING! This will remove all dangling images.
Are you sure you want to continue? [y/N] y
Total reclaimed space: 0B
```

**DOCKER HUB****docker login -u <username>**

Login into Docker

```
● PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker login -u sakibtheseeker

Info → A Personal Access Token (PAT) can be used instead.
       To create a PAT, visit https://app.docker.com/settings

Password:
Login Succeeded
```

**docker push <username>/<image\_name>**

Publish an image to Docker Hub

```
● PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker push sakibtheseeker/image1
Using default tag: latest
The push refers to repository [docker.io/sakibtheseeker/image1]
5da5f392adeb: Pushed
f05aeb5bfe25: Pushed
6e31715d48b2: Pushed
e37d7127ca71: Mounted from library/node
090904c3c0d9: Mounted from library/node
b1d7e40bae33: Mounted from library/node
8c76c6aff648: Pushed
6c7c1b88da61: Mounted from library/node
b2bcbd8ebb2b: Mounted from library/node
7f0053786e6e: Mounted from library/node
f7f2b929d8a5: Mounted from library/node
latest: digest: sha256:5bd32ea3f9cfd3fde25f7be78d95e4d0527482c8d28ce50385da1c3bdd4cbfe6 size: 2633
```

**docker search <image\_name>**

Search Hub for an image

```

PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker search sha256:2cf0635c1cd2
NAME                                DESCRIPTION                                STARS     OFFICIAL
runshenzhujm/sha256                0
ggt3jfnxnkc/sha256                0
david236/sha256                    0
tsarkar1/sha256                    0
gbarlop330/sha256                  0
dashresearch/sha256                0
donslon/sha256                     0
invain55/sha256                    0
mintrees/sha256                    0
alaren123/sha256                   0
jynkkidocker/sha256               0
matheusandrade4dev/sha256          0
barristars/sha256                  0      leverage document recommendation assistant
ahm3dka/sha256                     0
duplexa/sha256                     0
the1ahmed/sha256                   0      jar application
minicokr/sha256                    0
8846228343484/sha256              0
17662437552/sha256                0
pmichalikcc/sha256                 0
denic5/sha256                      0
johnf1103/sha256                   0
lastbraincell/sha256               0
kgb1997/sha256                     0
ariear/sha256                      0

```

### docker pull <image\_name>

Pull an image from a Docker Hub

```

PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker pull sakibtheseeker/image1
Using default tag: latest
latest: Pulling from sakibtheseeker/image1
Digest: sha256:5bd32ea3f9cfd3fde25f7be78d95e4d0527482c8d28ce50385da1c3bdd4cbfe6
Status: Image is up to date for sakibtheseeker/image1:latest
docker.io/sakibtheseeker/image1:latest

```

## CONTAINERS

### docker run --name <container\_name> <image\_name>

Create and run a container from an image, with a custom name:



**Name: Prathmesh Mane**

**Roll No:101 Div: B**

```
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker run --name lamboyant_euclid sakibthseeker/image1

> testapp@0.1.0 start
> react-scripts start

(node:26) [DEP_WEBPACK_DEV_SERVER_ON_AFTER_SETUP_MIDDLEWARE] DeprecationWarning: 'onAfterSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' option.
(Use `node --trace-deprecation ...` to show where the warning was created)
(node:26) [DEP_WEBPACK_DEV_SERVER_ON_BEFORE_SETUP_MIDDLEWARE] DeprecationWarning: 'onBeforeSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' option.
Starting the development server...

Compiled successfully!

You can now view testapp in the browser.

  Local:            http://localhost:3000
  On Your Network:  http://172.17.0.7:3000

Note that the development build is not optimized.
To create a production build, use npm run build.

webpack compiled successfully
Compiling...
Compiled successfully!
webpack compiled successfully
```

**Run a container with and publish a container's port(s) to the host.**

**docker run -p <host\_port>:<container\_port> <image\_name>**

```
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker run -p 3000:3000 7837a88b33fe

> testapp@0.1.0 start
> react-scripts start

(node:26) [DEP_WEBPACK_DEV_SERVER_ON_AFTER_SETUP_MIDDLEWARE] DeprecationWarning: 'onAfterSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' option.
(Use `node --trace-deprecation ...` to show where the warning was created)
(node:26) [DEP_WEBPACK_DEV_SERVER_ON_BEFORE_SETUP_MIDDLEWARE] DeprecationWarning: 'onBeforeSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' option.
Starting the development server...

Compiled successfully!

You can now view testapp in the browser.

  Local:            http://localhost:3000
  On Your Network:  http://172.17.0.2:3000

Note that the development build is not optimized.
To create a production build, use npm run build.

webpack compiled successfully
Compiling...
Compiled successfully!
webpack compiled successfully
```

**docker run -d <image\_name>**

**Run a container in the background**

```
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker run -d sha256:2cf0635c1cd262f1cdaac4fb65c920c5f8d9ea7bb40db904b942be1f1d728a5615f393d6540c
```

**docker start|stop <container\_name> (or <container-id>)**

Start or stop an existing container:

```
● PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker start sweet_poitras
sweet_poitras
```

```
● PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker stop sweet_poitras
sweet_poitras
```

**docker rm <container\_name>**

Remove a stopped container:

```
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS        NAMES
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker rmi 7837a88b33fe
Error response from daemon: conflict: unable to delete 7837a88b33fe (must be forced) - image is being used by stopped container b0b2204c28dd
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker image ls
REPOSITORY      TAG         IMAGE ID      CREATED        SIZE
<none>          <none>     7837a88b33fe  50 minutes ago  1.41GB
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker rmi 7837a88b33fe
Error response from daemon: conflict: unable to delete 7837a88b33fe (must be forced) - image is being used by stopped container b0b2204c28dd
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker rm b0b2204c28dd
>>
b0b2204c28dd
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker rmi 7837a88b33fe
Deleted: sha256:7837a88b33fe6b574e69df6d76601d7c14218673c386d746abb0199d2f7c8d6e
```

```
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker rm b0b2204c28dd
>>
b0b2204c28dd
```

**docker exec -it <container\_name> sh**

Open a shell inside a running container:

```
● PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker exec -it sweet_poitras sh
#
```

**docker logs -f <container\_name>**

Fetch and follow the logs of a container:

```
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker logs -f sweet_poitras

> testapp@0.1.0 start
> react-scripts start

(node:26) [DEP_WEBPACK_DEV_SERVER_ON_AFTER_SETUP_MIDDLEWARE] DeprecationWarning: 'onAfterSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' option.
(Use 'node --trace-deprecation ...' to show where the warning was created)
(node:26) [DEP_WEBPACK_DEV_SERVER_ON_BEFORE_SETUP_MIDDLEWARE] DeprecationWarning: 'onBeforeSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' option.
Starting the development server...

Compiled successfully!

You can now view testapp in the browser.

Local:      http://localhost:3000
On Your Network:  http://172.17.0.2:3000

Note that the development build is not optimized.
To create a production build, use npm run build.

webpack compiled successfully
Compiling...
Compiled successfully!
webpack compiled successfully
```

**docker inspect <container\_name> (or <container\_id>)**

To inspect a running container:

```
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker inspect sweet_poitras
[
  {
    "Id": "e5a5c932ccf407c52302b7dfc248f29dd524ab5e08a4bd7173de2e069638de51",
    "Created": "2025-04-10T18:21:55.089285064Z",
    "Path": "docker-entrypoint.sh",
    "Args": [
      "npm",
      "start"
    ],
    "State": {
      "Status": "running",
      "Running": true,
      "Paused": false,
      "Restarting": false,
      "OOMKilled": false,
      "Dead": false,
      "Pid": 2321,
      "ExitCode": 0,
      "Error": "",
      "StartedAt": "2025-04-10T18:21:55.21173184Z",
      "FinishedAt": "0001-01-01T00:00:00Z"
    },
    "Image": "sha256:d2ad3484e2d51a91e1d26d39ea5b63e5fad591d209b51009dce394da1a8cee13",
    "ResolvConfPath": "/var/lib/docker/containers/e5a5c932ccf407c52302b7dfc248f29dd524ab5e08a4bd7173de2e069638de51/resolv.conf",
    "HostnamePath": "/var/lib/docker/containers/e5a5c932ccf407c52302b7dfc248f29dd524ab5e08a4bd7173de2e069638de51/hostname",
    "HostsPath": "/var/lib/docker/containers/e5a5c932ccf407c52302b7dfc248f29dd524ab5e08a4bd7173de2e069638de51/hosts",
    "LogPath": "/var/lib/docker/containers/e5a5c932ccf407c52302b7dfc248f29dd524ab5e08a4bd7173de2e069638de51/e5a5c932ccf407c52302b7dfc248f29dd524ab5e08a4bd7173de2e069638de51-json.log",
    "Name": "/sweet_poitras",
    "RestartCount": 0,
    "Driver": "overlay2",
    "Platform": "linux",
    "MountLabel": "",
    "ProcessLabel": ""
  }
]
```

**docker ps**

To list currently running containers:

```
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
b0b2204c28dd	7837a88b33fe	"docker-entrypoint.s..."	About a minute ago	Up About a minute	0.0.0.0:3000->3000/tcp	priceless_dewdney

**docker ps --all**

List all docker containers (running and stopped):

```
PS C:\Users\Sakib\OneDrive\Desktop\Docker\testapp> docker ps -all
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
56ae3c0b5715	sha256:2cf0635c1cd	"docker-entrypoint.s..."	4 minutes ago	Exited (127) 4 minutes ago		friendly_chatelet

**docker container stats**

View resource usage stats

CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
e5a5c932ccf4	sweet_poitras	0.03%	321MiB / 7.387GiB	4.24%	1.17kB / 126B	0B / 0B	30

# Practical 10

**Aim: Develop a simple containerized application using Docker.**

## Code:

### Index.ejs

```
<!DOCTYPE html>
<html>
<head>
  <title>Blog - Home</title>
  <link rel="stylesheet" href="/style.css">
</head>
<body>
  <nav>
    <a href="/">Home</a> | <a href="/about">About</a> | <a href="/contact">Contact</a> | <a
href="/create">Create Post</a>
  </nav>

  <h1>Welcome to My Blog!</h1>
  <p>Latest Posts:</p>

  <!-- Blog Posts List -->
  <ul>
    <% posts.forEach(post => { %>
      <li>
        <h2><a href="/post/<%= post.id %>"><%= post.title %></a></h2>
        <p><%= post.description %></p>
      </li>
    <% }> %>
  </ul>

  <!-- Add message about the app being inside the Docker container -->
  <div id="docker-message">
    <p><strong>This app is running inside a Docker container!</strong></p>
  </div>
</body>
</html>
```

### About.ejs

```
<!DOCTYPE html>
```

```
<html>
<head>
  <title>About</title>
  <link rel="stylesheet" href="/style.css">
</head>
<body>
  <nav>
    <a href="/">Home</a> | <a href="/about">About</a> | <a href="/contact">Contact</a>
  </nav>
  <h1>About This App</h1>
  <p>This is a sample application built with Node.js and Docker. It's great for learning how to containerize
  apps.</p>
</body>
</html>
```

## Create.ejs

```
<!DOCTYPE html>
<html>
<head>
  <title>Create a New Post</title>
  <link rel="stylesheet" href="/style.css">
</head>
<body>
  <nav>
    <a href="/">Home</a> | <a href="/about">About</a> | <a href="/contact">Contact</a> | <a
href="/create">Create Post</a>
  </nav>

  <h1>Create a New Blog Post</h1>

  <!-- Form to Create Post -->
  <form action="/create" method="POST">
    <input type="text" name="title" placeholder="Title" required>
    <textarea name="description" placeholder="Description" required></textarea>
    <button type="submit">Publish</button>
  </form>
</body>
</html>
```

## Output:

```
PS C:\Users\Sakib\OneDrive\Desktop\Docker\node-docker-app> docker build -t node-docker-app .
>> docker run -p 3000:3000 node-docker-app
>>
[+] Building 3.4s (11/11) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 353B
=> [internal] load metadata for docker.io/library/node:18
=> [auth] library/node:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/5] FROM docker.io/library/node:18@sha256:df9fa4e0e39c9b97e30240b5bb1d99bdb861573a82002b2c52ac7d6b8d6d773e
=> [internal] load build context
=> => transferring context: 58.98kB
=> CACHED [2/5] WORKDIR /app
=> CACHED [3/5] COPY package*.json ./
=> CACHED [4/5] RUN npm install
=> [5/5] COPY . .
=> exporting to image
=> => exporting layers
=> => writing image sha256:1d9a70d57dfd66b00bfe67599b65a145a90be162cd1099682ea55abdda8e4a03
=> => naming to docker.io/library/node-docker-app

> node-docker-app@1.0.0 start
> node app.js

App running at http://localhost:3000
```

[Home](#) | [About](#) | [Contact](#) | [Create Post](#)

## Welcome to My Blog!

Latest Posts:

- [First Blog Post](#)

This is the first post!

- [Learning Node.js](#)

Here's my journey with Node.js.

**This app is running inside a Docker container!**

[Home](#) | [About](#) | [Contact](#) | [Create Post](#)

# First Blog Post

This is the first post!

[Back to Home](#)

[Home](#) | [About](#) | [Contact](#)

## About This App

This is a sample application built with Node.js and Docker. It's great for learning how to containerize apps.

# Practical 11

**Aim:Ad-hoc Ansible commands.**

## Wsl --install

```
C:\Windows\System32>wsl --install
Downloading: Ubuntu
Installing: Ubuntu
Distribution successfully installed. It can be launched via 'wsl.exe -d Ubuntu'
```

## wsl --install -d Ubuntu-22.04

```
C:\Windows\System32>wsl --install -d Ubuntu-22.04
wsl: Using legacy distribution registration. Consider using a tar based distribution instead.
Installing: Ubuntu 22.04 LTS
Ubuntu 22.04 LTS has been installed.
Launching Ubuntu 22.04 LTS...
Installing, this may take a few minutes...
Please create a default UNIX user account. The username does not need to match your Windows username.
For more information visit: https://aka.ms/wslusers
Enter new UNIX username: sakib
New password:
Retype new password:
passwd: password updated successfully
Installation successful!
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

Welcome to Ubuntu 22.04.5 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 Sun May 18 22:53:19 IST 2025

System load:  0.7               Processes:            54
Usage of /:   0.1% of 1006.85GB Users logged in:       0
Memory usage: 5%               IPv4 address for eth0: 172.28.184.172
Swap usage:   0%

This message is shown once a day. To disable it please create the
/home/sakib/.hushlogin file.
sakib@LAPTOP-BPSVF1HI:~$
```

## wsl -l -v



```
C:\Windows\System32>wsl -l -v
  NAME                STATE      VERSION
* docker-desktop     Stopped    2
  Ubuntu-22.04        Stopped    2
  Ubuntu               Stopped    2
```

## **wsl -d Ubuntu-22.04**

```
C:\Windows\System32>wsl -d Ubuntu-22.04
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

sakib@LAPTOP-BPSVF1HI:/mnt/c/Windows/System32$
```

## **sudo apt update && sudo apt upgrade -y**

```
sakib@LAPTOP-BPSVF1HI:/mnt/c/Windows/System32$ sudo apt update && sudo apt upgrade -y
[sudo] password for sakib:
Hit:1 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [2338 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [354 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [13.6 kB]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [3429 kB]
Get:10 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [613 kB]
Get:11 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 c-n-f Metadata [624 B]
Get:12 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [974 kB]
Get:13 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [210 kB]
Get:14 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [21.7 kB]
Get:15 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [39.6 kB]
Get:16 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [8716 B]
Get:17 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [368 B]
Get:18 http://archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:19 http://archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:20 http://archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:21 http://archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:22 http://archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:23 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [2583 kB]
Get:24 http://archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [418 kB]
Get:25 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [18.5 kB]
Get:26 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [3549 kB]
Get:27 http://archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [631 kB]
Get:28 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 c-n-f Metadata [676 B]
Get:29 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1203 kB]
Get:30 http://archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [297 kB]
Get:31 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [28.7 kB]
Get:32 http://archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [46.5 kB]
Get:33 http://archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [11.8 kB]
Get:34 http://archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [592 B]
Get:35 http://archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [68.8 kB]
Get:36 http://archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [11.4 kB]
Get:37 http://archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [392 B]
Get:38 http://archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:39 http://archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [30.0 kB]
Get:40 http://archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [16.5 kB]
Get:41 http://archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [672 B]
Get:42 http://archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Fetched 37.7 MB in 15s (2499 kB/s)
```

**sudo apt install ansible -y**

Name: Prathmesh Mane

Roll No:101 Div: B

```
sakib@LAPTOP-BPSVF1HI:/mnt/c/Windows/System32$ sudo apt install ansible -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  ieee-data python3-argcomplete python3-dnspython python3-jmespath python3-kerberos python3-libcloud python3-lockfile python3-netaddr python3-ntlm-auth python3-packaging python3-pycryptodome
  python3-requests-kerberos python3-requests-ntlm python3-requests-toolbelt python3-selinux python3-simplejson python3-winnrm python3-xmltodict
Suggested packages:
  cowsay sshpass python3-sniffio python3-trio python-lockfile-doc ipython3 python-netaddr-docs
The following NEW packages will be installed:
  ansible ieee-data python3-argcomplete python3-dnspython python3-jmespath python3-kerberos python3-libcloud python3-lockfile python3-netaddr python3-ntlm-auth python3-packaging python3-pycryptodome
  python3-requests-kerberos python3-requests-ntlm python3-requests-toolbelt python3-selinux python3-simplejson python3-winnrm python3-xmltodict
0 upgraded, 19 newly installed, 0 to remove and 0 not upgraded.
Need to get 22.9 MB of archives.
After this operation, 243 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu jammy/main amd64 python3-packaging all 21.3-1 [30.7 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 python3-pycryptodome amd64 3.11.0+dfsg1-3ubuntu0.1 [1029 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy/main amd64 python3-dnspython all 2.1.0-1ubuntu1 [123 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy/main amd64 ieee-data all 20210605.1 [1887 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy/main amd64 python3-netaddr all 0.8.0-2 [309 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy/universe amd64 ansible all 2.10.7+merged-base+2.10.8+dfsg-1 [17.5 MB]
Get:7 http://archive.ubuntu.com/ubuntu jammy/universe amd64 python3-argcomplete all 1.8.1-1.5 [27.2 kB]
Get:8 http://archive.ubuntu.com/ubuntu jammy/main amd64 python3-jmespath all 0.10.0-1 [21.7 kB]
Get:9 http://archive.ubuntu.com/ubuntu jammy/universe amd64 python3-kerberos amd64 1.1.14-3.1build5 [23.0 kB]
Get:10 http://archive.ubuntu.com/ubuntu jammy/main amd64 python3-lockfile all 1:0.12.2-2.2 [14.6 kB]
Get:11 http://archive.ubuntu.com/ubuntu jammy/main amd64 python3-simplejson amd64 3.17.6-1build1 [54.7 kB]
Get:12 http://archive.ubuntu.com/ubuntu jammy/universe amd64 python3-libcloud all 3.2.0-2 [1554 kB]
Get:13 http://archive.ubuntu.com/ubuntu jammy/universe amd64 python3-ntlm-auth all 1.4.0-1 [20.4 kB]
Get:14 http://archive.ubuntu.com/ubuntu jammy/universe amd64 python3-requests-kerberos all 0.12.0-2 [11.9 kB]
Get:15 http://archive.ubuntu.com/ubuntu jammy/universe amd64 python3-requests-ntlm all 1.1.0-1.1 [6160 B]
Get:16 http://archive.ubuntu.com/ubuntu jammy/main amd64 python3-requests-toolbelt all 0.9.1-1 [38.0 kB]
Get:17 http://archive.ubuntu.com/ubuntu jammy/universe amd64 python3-selinux amd64 3.3-1build2 [159 kB]
Get:18 http://archive.ubuntu.com/ubuntu jammy/universe amd64 python3-xmltodict all 0.12.0-2 [12.6 kB]
Get:19 http://archive.ubuntu.com/ubuntu jammy/universe amd64 python3-winnrm all 0.3.0-2 [21.7 kB]
Fetched 22.9 MB in 10s (2280 kB/s)
Selecting previously unselected package python3-packaging.
(Reading database ... 42598 files and directories currently installed.)
Preparing to unpack .../00-python3-packaging_21.3-1_all.deb ...
Unpacking python3-packaging (21.3-1) ...
Selecting previously unselected package python3-pycryptodome.
Preparing to unpack .../01-python3-pycryptodome_3.11.0+dfsg1-3ubuntu0.1_amd64.deb ...
Unpacking python3-pycryptodome (3.11.0+dfsg1-3ubuntu0.1) ...
Selecting previously unselected package python3-dnspython.
```

## ansible --version

```
sakib@LAPTOP-BPSVF1HI:/mnt/c/Windows/System32$ ansible --version
ansible 2.10.8
  config file = None
  configured module search path = ['/home/sakib/.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 = 3.10.12 (main, Feb  4 2025, 14:57:36) [GCC 11.4.0]
```

## sudo mkdir -p /etc/ansible

## sudo vi /etc/ansible/hosts

```
sakib@LAPTOP-BPSVF1HI:/mnt/c/Windows/System32$ sudo mkdir -p /etc/ansible
sakib@LAPTOP-BPSVF1HI:/mnt/c/Windows/System32$ sudo vi /etc/ansible/hosts
```

```
[local]
localhost ansible_connection=local
~
~
~
~
~
~
~
~
~
~
~
```

**ansible local -m ping**

```
sakib@LAPTOP-BPSVF1HI:/mnt/c/Windows/System32$ ansible local -m ping
localhost | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
```

**ansible local -m shell -a "ls -la /home/\$USER"**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m shell -a "ls -la /home/$USER"
localhost | CHANGED | rc=0 >>
total 32
drwxr-x--- 4 sakib sakib 4096 May 18 23:13 .
drwxr-xr-x 3 root  root  4096 May 18 22:53 ..
drwxr-xr-x 3 sakib sakib 4096 May 18 23:13 .ansible
-rw----- 1 sakib sakib   27 May 18 23:00 .bash_history
-rw-r--r-- 1 sakib sakib  220 May 18 22:53 .bash_logout
-rw-r--r-- 1 sakib sakib 3771 May 18 22:53 .bashrc
drwx----- 2 sakib sakib 4096 May 18 22:53 .cache
-rw-r--r-- 1 sakib sakib    0 May 18 22:53 .motd_shown
-rw-r--r-- 1 sakib sakib  807 May 18 22:53 .profile
-rw-r--r-- 1 sakib sakib    0 May 18 23:06 .sudo_as_admin_successful
```

**sakib@LAPTOP-BPSVF1HI:/etc/ansible\$ ansible local -m shell -a "echo 'Hello' > /tmp/hello.txt"**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m shell -a "echo 'Hello' > /tmp/hello.txt"
localhost | CHANGED | rc=0 >>
```

**ansible local -m shell -a "ls -l /tmp | grep hello"**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m shell -a "ls -l /tmp | grep hello"
localhost | CHANGED | rc=0 >>
-rw-r--r-- 1 sakib sakib 6 May 18 23:41 hello.txt
```

**ansible local -m command -a "uptime"**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m command -a "uptime"
localhost | CHANGED | rc=0 >>
23:51:59 up 55 min, 1 user, load average: 0.00, 0.01, 0.00
```

**ansible local -m command -a "cat /etc/os-release"**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m command -a "cat /etc/os-release"
localhost | CHANGED | rc=0 >>
PRETTY_NAME="Ubuntu 22.04.5 LTS"
NAME="Ubuntu"
VERSION_ID="22.04"
VERSION="22.04.5 LTS (Jammy Jellyfish)"
VERSION_CODENAME=jammy
ID=ubuntu
ID_LIKE=debian
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
BUG_REPORT_URL="https://bugs.launchpad.net/ubuntu/"
PRIVACY_POLICY_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-policy"
UBUNTU_CODENAME=jammy
```

**ansible local -m command -a "name=nginx state=present" -b**

```
localhost | FAILED! => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "module_stderr": "sudo: a password is required\n",
  "module_stdout": "",
  "msg": "MODULE FAILURE\nSee stdout/stderr for the exact error",
  "rc": 1
}
```

**ansible local -m apt -a "name=nginx state=present" -b  
--ask-become-pass**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m apt -a "name=nginx state=present" -b --ask-become-pass
BECOME password:
localhost | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "cache_update_time": 1747589790,
  "cache_updated": false,
  "changed": true,
  "stderr": "",
  "stderr_lines": [],
  "stdout": "Reading package lists...\nBuilding dependency tree...\nReading state information...\nThe following additional packages will be installed:\n libgd3 libnginx-mod-http-geoip2 libnginx-mod-http-image-filter\n libnginx-mod-http-xslt-filter libnginx-mod-mail libnginx-mod-stream\n libnginx-mod-stream-geoip2 libxpm4 libxslt1.1 nginx-common nginx-core\nSuggested packages:\n libgd-tools fcgiwrap nginx-doc ssl-cert\nThe following NEW packages will be installed:\n libgd3 libnginx-mod-http-geoip2 libnginx-mod-http-image-filter\n libnginx-mod-http-xslt-filter libnginx-mod-mail libnginx-mod-stream\n libnginx-mod-stream-geoip2 libxpm4 libxslt1.1 nginx nginx-common nginx-core\n0 upgraded, 12 newly installed, 0 to remove and 0 not upgraded.\nNeed to get 1028 kB of archives.\nAfter this operation, 3466 kB of additional disk space will be used."
}
```

**ansible local -m apt -a "name=nginx state=present" -b**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m apt -a "name=nginx state=present" -b
localhost | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "cache_update_time": 1747589790,
  "cache_updated": false,
  "changed": false
}
```

**dpkg -l | grep nginx**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ dpkg -l | grep nginx
ii  libnginx-mod-http-geoip2      1.18.0-6ubuntu14.6      amd64      GeoIP2 HTTP module for Nginx
ii  libnginx-mod-http-image-filter 1.18.0-6ubuntu14.6      amd64      HTTP image filter module for Nginx
ii  libnginx-mod-http-xslt-filter 1.18.0-6ubuntu14.6      amd64      XSLT Transformation module for Nginx
ii  libnginx-mod-mail             1.18.0-6ubuntu14.6      amd64      Mail module for Nginx
ii  libnginx-mod-stream           1.18.0-6ubuntu14.6      amd64      Stream module for Nginx
ii  libnginx-mod-stream-geoip2    1.18.0-6ubuntu14.6      amd64      GeoIP2 Stream module for Nginx
ii  nginx                         1.18.0-6ubuntu14.6      amd64      small, powerful, scalable web/proxy server
ii  nginx-common                  1.18.0-6ubuntu14.6      all        small, powerful, scalable web/proxy server - common files
ii  nginx-core                    1.18.0-6ubuntu14.6      amd64      nginx web/proxy server (standard version)
```

**ansible local -m apt -a "name=nginx state=absent" -b**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m apt -a "name=nginx state=absent" -b
localhost | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "stderr": "",
  "stderr_lines": [],
  "stdout": "Reading package lists...\nBuilding dependency tree...\nReading state information...\nThe following packages
were automatically installed and are no longer required:\n libgd3 libnginx-mod-http-geoip2 libnginx-mod-http-image-f
ilter\n libnginx-mod-http-xslt-filter libnginx-mod-mail libnginx-mod-stream\n libnginx-mod-stream-geoip2 libxpm4 libxs
l1.1 nginx-common nginx-core\nUse 'sudo apt autoremove' to remove them.\nThe following packages will be REMOVED:\n ngi
nx\n0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.\nAfter this operation, 50.2 kB disk space will be fre
ed.\n(Reading database ... \r(Reading database ... 5%\r(Reading database ... 10%\r(Reading database ... 15%\r(Reading da
atabase ... 20%\r(Reading database ... 25%\r(Reading database ... 30%\r(Reading database ... 35%\r(Reading database ... 4
0%\r(Reading database ... 45%\r(Reading database ... 50%\r(Reading database ... 55%\r(Reading database ... 60%\r(Reading
database ... 65%\r(Reading database ... 70%\r(Reading database ... 75%\r(Reading database ... 80%\r(Reading database ..
85%\r(Reading database ... 90%\r(Reading database ... 95%\r(Reading database ... 100%\r(Reading database ... 81172 fil
```

**ansible local -m user -a "name=testuser state=present" -b**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m user -a "name=testuser state=present" -b
localhost | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "comment": "",
  "create_home": true,
  "group": 1001,
  "home": "/home/testuser",
  "name": "testuser",
  "shell": "/bin/sh",
  "state": "present",
  "system": false,
  "uid": 1001
}
```

**cat /etc/passwd | grep testuser**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ cat /etc/passwd | grep testuser
testuser:x:1001:1001::/home/testuser:/bin/sh
```

**ansible local -m user -a "name=testuser state=absent" -b**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m user -a "name=testuser state=absent" -b
localhost | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "force": false,
  "name": "testuser",
  "remove": false,
  "state": "absent"
}
```

**ansible local -m file -a "path=/tmp/myfile.txt state=touch"**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m file -a "path=/tmp/myfile.txt state=touch"
localhost | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "dest": "/tmp/myfile.txt",
  "gid": 1000,
  "group": "sakib",
  "mode": "0644",
  "owner": "sakib",
  "size": 0,
  "state": "file",
  "uid": 1000
}
```

**ansible local -m shell -a "echo 'This is a first line.' > /tmp/myfile.txt"**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m shell -a "echo 'This is a first line.' > /tmp/myfile.txt"
localhost | CHANGED | rc=0 >>
```

**ansible local -m shell -a "echo 'This is an additional line.' >> /tmp/myfile.txt"**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m shell -a "echo 'This is an additional line.' >> /tmp/myfile.txt"
localhost | CHANGED | rc=0 >>
```

**ansible local -m command -a "cat /tmp/myfile.txt"**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m command -a "cat /tmp/myfile.txt"
localhost | CHANGED | rc=0 >>
This is a first line.
This is an additional line.
```

**ansible local -m file -a "path=/tmp/myfile.txt state=absent"**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m file -a "path=/tmp/myfile.txt state=absent"
localhost | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "path": "/tmp/myfile.txt",
  "state": "absent"
}
```

**ansible local -m file -a "path=/tmp/mydire state=directory mode=0755"**



```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m file -a "path=/tmp/mydire state=directory mode=0755"
localhost | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "gid": 1000,
  "group": "sakib",
  "mode": "0755",
  "owner": "sakib",
  "path": "/tmp/mydire",
  "size": 4096,
  "state": "directory",
  "uid": 1000
}
```

**ls -la /tmp | grep mydire**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ls -la /tmp | grep mydire
drwxr-xr-x  2 sakib sakib 4096 May 19 00:57 mydire
```

**ansible local -m file -a "path=/tmp/mydire state=absent"**

```
sakib@LAPTOP-BPSVF1HI:/etc/ansible$ ansible local -m file -a "path=/tmp/mydire state=absent"
localhost | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "path": "/tmp/mydire",
  "state": "absent"
}
```

# Practical 12

**Aim:Using Ansible playbooks.**

**Sudo mkdir myansibleprj**

```
sakib@LAPTOP-BPSVF1HI:/home$ sudo mkdir myansibleprj
sakib@LAPTOP-BPSVF1HI:/home$ ls
myansibleprj  sakib  testuser
```

## 1.PLAYBOOK FOR DEMO PROJECT

**nano firstplaybook.yml**

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ nano firstplaybook.yml
```

**cat firstplaybook.yml**

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ cat firstplaybook.yml
---
- name: Sakib's First Ansible Playbook
  hosts: localhost
  gather_facts: no
  tasks:
    - name: Print Hello Message
      debug:
        msg: "Hello from Sakib!"
```

**ansible-playbook firstplaybook.yml**

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ ansible-playbook firstplaybook.yml
PLAY [Sakib's First Ansible Playbook] *****

TASK [Print Hello Message] *****
ok: [localhost] => {
  "msg": "Hello from Sakib!"
}

PLAY RECAP *****
localhost                : ok=1    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

nano firstplaybook.yml

cat firstplaybook.yml

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ nano firstplaybook.yml
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ cat firstplaybook.yml
---
- name: Sakib's First Ansible Playbook
  hosts: localhost
  tasks:
    - name: Print Hello Message
      debug:
        msg: "Hello from Sakib!"
    - name: print host name
      debug:
        var: ansible_hostname
    - name: print Ubuntu version
      debug:
        var: ansible_distribution
```

ansible-playbook firstplaybook.yml

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ ansible-playbook firstplaybook.yml

PLAY [Sakib's First Ansible Playbook] *****
*****
TASK [Gathering Facts] *****
*****ok: [localhost]

TASK [Print Hello Message] *****
*****ok: [localhost] => {
  "msg": "Hello from Sakib!"
}

TASK [print host name] *****
*****ok: [localhost] => {
  "ansible_hostname": "LAPTOP-BPSVF1HI"
}

TASK [print Ubuntu version] *****
*****ok: [localhost] => {
  "ansible_distribution": "Ubuntu"
}

PLAY RECAP *****
*****localhost : ok=4    changed=0    unreachable=0    failed=0
skipped=0    rescued=0    ignored=0
```

## 2.INSTALLING AND RUNNING APACHE USING PLAYBOOK

nano startapache.yml

cat startapache.yml

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ nano startapache.yml
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ cat startapache.yml
---
- name: Install and Start Apache
  hosts: local
  become: yes
  tasks:
    - name: Install Apache
      apt:
        name: apache2
        state: present

    - name: Start Apache Service
      service:
        name: apache2
        state: started
        enabled: yes
```

ansible-playbook startapache.yml

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ ansible-playbook startapache.yml
PLAY [Install and Start Apache] *****

TASK [Gathering Facts] *****
ok: [localhost]

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

TASK [Start Apache Service] *****
ok: [localhost]

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

**sudo systemctl start apache2**

**sudo systemctl status apache2**

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ sudo systemctl start apache2
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2025-05-19 10:44:01 IST; 3min 0s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 1866 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
  Main PID: 1870 (apache2)
    Tasks: 55 (limit: 9068)
   Memory: 18.1M
   CGroup: /system.slice/apache2.service
           └─1870 /usr/sbin/apache2 -k start
             └─1871 /usr/sbin/apache2 -k start
               └─1872 /usr/sbin/apache2 -k start

May 19 10:44:01 LAPTOP-BPSVF1HI systemd[1]: Starting The Apache HTTP Server...
May 19 10:44:01 LAPTOP-BPSVF1HI systemd[1]: Started The Apache HTTP Server.
```

### 3.PLAYBOOK FOR INFRASTRUCTURE AS A CODE

nano infraascode2.yml

cat infraascode2.yml

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ nano infraascode2.yml
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ cat infraascode2.yml
---
- name: Simple Infrastructure Setup
  hosts: localhost
  become: yes

  tasks:
    - name: Install Apache
      apt:
        name: apache2
        state: present
        update_cache: yes

    - name: Start Apache service
      service:
        name: apache2
        state: started
        enabled: yes

    - name: Deploy index.html
      copy:
        content: "<h1> Hello World from Sakib ....! </h1>"
        dest: /var/www/html/index.html
```

ansible-playbook infraascode2.yml

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ ansible-playbook infraascode2.yml

PLAY [Simple Infrastructure Setup] *****

TASK [Gathering Facts] *****
ok: [localhost]

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

TASK [Start Apache service] *****
ok: [localhost]

TASK [Deploy index.html] *****
changed: [localhost]

PLAY RECAP *****
localhost : ok=4    changed=1    unreachable=0    failed=0    skipped=0    rescue
d=0    ignored=0
```

## 4.PLAYBOOK FOR APPLICATION DEPLOYMENT

**nano appdeployplaybook.yml**

**cat appdeployplaybook.yml**

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ cat appdeployplaybook.yml
- name: Deploy a PHP Web Application
  hosts: localhost
  become: yes
  tasks:
    - name: Install Apache and PHP
      apt:
        name:
          - apache2
          - php
        state: present

    - name: Deploy a PHP application
      copy:
        content: |
          <?php
            echo "<h1>Hello from Ansible and PHP!</h1>";
            echo "<body>This is demo page</body>";
          ?>
        dest: /var/www/html/index.php

    - name: Restart Apache
      service:
        name: apache2
        state: restarted
```

**ansible-playbook appdeployplaybook.yml**



## 5.Playbook for Running HelloWorld.java

### sudo apt install openjdk-21-jdk-headless

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ sudo apt install openjdk-21-jdk-headless
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libgd3 libnginx-mod-http-geoip2 libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter
  libnginx-mod-mail libnginx-mod-stream libnginx-mod-stream-geoip2 libxpm4 libxslt1.1
  nginx-common nginx-core
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  alsa-topology-conf alsa-ucm-conf ca-certificates-java java-common libasound2 libasound2-data
  libnspr4 libnss3 libpcsc-lite1 openjdk-21-jre-headless
Suggested packages:
  default-jre libasound2-plugins alsa-utils pcscd openjdk-21-demo openjdk-21-source libnss-mdns
  fonts-dejavu-extra fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei
  | fonts-wqy-zenhei fonts-indic
The following NEW packages will be installed:
  alsa-topology-conf alsa-ucm-conf ca-certificates-java java-common libasound2 libasound2-data
  libnspr4 libnss3 libpcsc-lite1 openjdk-21-jdk-headless openjdk-21-jre-headless
0 upgraded, 11 newly installed, 0 to remove and 0 not upgraded.
Need to get 131 MB of archives.
After this operation, 306 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu jammy/main amd64 alsa-topology-conf all 1.2.5.1-2 [15.5 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy/main amd64 libasound2-data all 1.2.6.1-1ubuntu1 [19.1
kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy/main amd64 libasound2 amd64 1.2.6.1-1ubuntu1 [390 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 alsa-ucm-conf all 1.2.6.3-1ubuntu1
.12 [43.5 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy/main amd64 java-common all 0.72build2 [6782 B]
```

### sudo apt install openjdk-21-jre-headless

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ sudo apt install openjdk-21-jre-headless
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
openjdk-21-jre-headless is already the newest version (21.0.7+6~us1-0ubuntu1~22.04).
openjdk-21-jre-headless set to manually installed.
The following packages were automatically installed and are no longer required:
  libgd3 libnginx-mod-http-geoip2 libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter
  libnginx-mod-mail libnginx-mod-stream libnginx-mod-stream-geoip2 libxpm4 libxslt1.1
  nginx-common nginx-core
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

### java -version

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ java -version
openjdk version "21.0.7" 2025-04-15
OpenJDK Runtime Environment (build 21.0.7+6-Ubuntu-0ubuntu122.04)
OpenJDK 64-Bit Server VM (build 21.0.7+6-Ubuntu-0ubuntu122.04, mixed mode, sharing)
```



## javac -version

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ javac -version
javac 21.0.7
```

## nano HelloWorld.java

## cat HelloWorld.java

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ nano HelloWorld.java
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ cat HelloWorld.java
class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}
```

## nano javaplaybook.yml

## cat javaplaybook.yml

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ nano javaplaybook.yml
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ cat javaplaybook.yml
- name: Run Java Program using Ansible
  hosts: localhost
  gather_facts: no
  tasks:
    - name: Compile Java Program
      command: javac HelloWorld.java
      args:
        chdir: /home/myansibleprj
      register: compile_output

    - name: Run Java Program
      command: java -cp . HelloWorld
      args:
        chdir: /home/myansibleprj
      register: run_output

    - name: Display Java Program Output
      debug:
        msg: "{{ run_output.stdout }}"
```

## ansible-playbook javaplaybook.yml

```
sakib@LAPTOP-BPSVF1HI:/home/myansibleprj$ ansible-playbook javaplaybook.yml

PLAY [Run Java Program using Ansible] *****

TASK [Compile Java Program] *****
changed: [localhost]

TASK [Run Java Program] *****
changed: [localhost]

TASK [Display Java Program Output] *****
ok: [localhost] => {
  "msg": "Hello World"
}

PLAY RECAP *****
localhost          : ok=3    changed=2    unreachable=0    failed=0    skipped=0    rescue
d=0    ignored=0
```