

Git Project

Objective:

You will work on a project involving a simple website. You will learn and practise various Git concepts including branching, merging, handling merge conflicts, rebasing, pulling, versioning, and rolling back changes. This project is designed to be completed in 1 hour.

Project Setup

1. **Install Git:** Ensure Git is installed on your system. Verify with `git --version`.

Set Up Git: Configure your Git username and email:

```
git config --global user.name "Your Name"  
git config --global user.email "your.email@example.com"
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2$ git config --global use  
r.name  
TankChirag1212  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2$ git config --global use  
r.email  
tankchirag17@gmail.com  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2$ █
```

2. **Create a GitHub Repository:**

- Go to GitHub and create a new repository named `website-project`.

Clone the repository to your local machine:

```
git clone https://github.com/your-username/website-project.git
```

3. **Initialize the Project:**

Navigate to the project directory:

```
cd website-project
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2$ git clone git@github.co  
m:TankChirag-1212/website-project.git  
Cloning into 'website-project'...  
remote: Enumerating objects: 3, done.  
remote: Counting objects: 100% (3/3), done.  
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0  
Receiving objects: 100% (3/3), done.  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2$ cd website-project/
```

Create initial project structure:

```
mkdir src
```

```
touch src/index.html
```

```
echo "<!DOCTYPE html><html><head><title>My  
Website</title></head><body><h1>Welcome to my  
website!</h1></body></html>" > src/index.html
```

Commit and push the initial project structure:

```
git add .
```

```
git commit -m "Initial commit: Added project structure and  
index.html"
```

```
git push origin master
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ vim index.html  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ cd ..  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git add .  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git status  
On branch master  
Your branch is up to date with 'origin/master'.  
  
Changes to be committed:  
(use "git restore --staged <file>..." to unstage)  
  new file:   src/index.html  
  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git commit -m "Initial  
commit: Added project structure and index.html"  
[master adf5f6d] Initial commit: Added project structure and index.html  
 1 file changed, 1 insertion(+)  
  create mode 100644 src/index.html  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git push origin master  
  
Enumerating objects: 5, done.  
Counting objects: 100% (5/5), done.  
Delta compression using up to 8 threads  
Compressing objects: 100% (3/3), done.  
Writing objects: 100% (4/4), 440 bytes | 440.00 KiB/s, done.  
Total 4 (delta 0), reused 0 (delta 0)  
To github.com:TankChirag-1212/website-project.git  
  0e61ea4..adf5f6d master -> master  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ █
```

Exercise 1: Branching and Basic Operations (10 minutes)

Create a New Branch:

```
git checkout -b feature/add-about-page
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git checkout -b featur  
e/add-about-page  
Switched to a new branch 'feature/add-about-page'  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git branch  
* feature/add-about-page  
  master  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ █
```

1. Add a New Page:

Create `about.html`:

```
touch src/about.html
```

```
echo "<!DOCTYPE html><html><head><title>About Us</title></head><body><h1>About Us</h1></body></html>" > src/about.html
```

```
euruchips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ ls
README.md  src
euruchips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ cd src/
euruchips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ ls
index.html
euruchips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ vim about.html
euruchips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ cat about.html
<!DOCTYPE html><html><head><title>About Us</title></head><body><h1>About Us</h1></body></html>
euruchips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ ls
about.html  index.html
euruchips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ █
```

Commit and push changes:

```
git add src/about.html
git commit -m "Added about page"
git push origin feature/add-about-page
```

```
euruchips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ git add .
euruchips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ git status
On branch feature/add-about-page
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   about.html

euruchips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ git commit -m "Added about page"
[feature/add-about-page d63c0e4] Added about page
 1 file changed, 1 insertion(+)
  create mode 100644 src/about.html
euruchips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ git push origin feature/add-about-page
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 423 bytes | 423.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0)
remote:
remote: Create a pull request for 'feature/add-about-page' on GitHub by visiting:
remote:     https://github.com/TankChirag-1212/website-project/pull/new/feature/add-about-
page
remote:
To github.com:TankChirag-1212/website-project.git
 * [new branch]      feature/add-about-page -> feature/add-about-page
euruchips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ █
```

Exercise 2: Merging and Handling Merge Conflicts (15 minutes)

Create Another Branch:

```
git checkout master
git checkout -b feature/update-homepage
```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ git branch
  feature/add-about-page
* master
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ git checkout -b feature/update-homepage
Switched to a new branch 'feature/update-homepage'
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ git branch
  feature/add-about-page
* feature/update-homepage
  master
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/src$ 

```

1. Update the Homepage:

Modify `index.html`:

```
echo "<p>Updated homepage content</p>" >> src/index.html
```

Commit and push changes:

```
git add src/index.html
git commit -m "Updated homepage content"
git push origin feature/update-homepage
```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ vim src/index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git status
On branch feature/update-homepage
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   src/index.html

no changes added to commit (use "git add" and/or "git commit -a")
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git add .
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git commit -m "Updated
homepage content"
[feature/update-homepage 47f227a] Updated homepage content
 1 file changed, 1 insertion(+)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git hist
* 47f227a (HEAD -> feature/update-homepage) Updated homepage content
| * 9b373d5 (origin/feature/add-about-page, feature/add-about-page) Added about page
|/
* f48d7ad (origin/master, master) Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git push origin featur
e/update-homepage
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (4/4), 354 bytes | 354.00 KiB/s, done.
Total 4 (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/update-homepage' on GitHub by visiting:
remote:     https://github.com/TankChirag-1212/website-project/pull/new/feature/update-ho
mepage
remote:
To github.com:TankChirag-1212/website-project.git
 * [new branch]      feature/update-homepage -> feature/update-homepage

```

2. Create a Merge Conflict:

Modify `index.html` on the `feature/add-about-page` branch:

```
git checkout feature/add-about-page
```

```

echo "<p>Conflict content</p>" >> src/index.html
git add src/index.html
git commit -m "Added conflicting content to homepage"
git push origin feature/add-about-page

```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git checkout feature/add-about-page
Switched to branch 'feature/add-about-page'
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ echo "<p>Conflict content</p>" >> src/index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git status
On branch feature/add-about-page
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
    (use "git restore <file>..." to discard changes in working directory)
      modified:   src/index.html

no changes added to commit (use "git add" and/or "git commit -a")
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git add .
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git commit -m "Added conflicting content to homepage"
[feature/add-about-page f304fc1] Added conflicting content to homepage
 1 file changed, 1 insertion(+)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git hist
* f304fc1 (HEAD -> feature/add-about-page) Added conflicting content to homepage
* 9b373d5 (origin/feature/add-about-page) Added about page
| * 47f227a (origin/feature/update-homepage, feature/update-homepage) Updated homepage content
|
* f48d7ad (origin/master, master) Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git push origin feature/add-about-page
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 388 bytes | 388.00 KiB/s, done.
Total 4 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To github.com:TankChirag-1212/website-project.git
  9b373d5..f304fc1  feature/add-about-page -> feature/add-about-page
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ 

```

3. Merge and Resolve Conflict:

Attempt to merge **feature/add-about-page** into **master**:

```

git checkout master
git merge feature/add-about-page
git push origin master

```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git merge feature/add-about-page
Updating f48d7ad..f304fc1
Fast-forward
 src/about.html | 1 +
 src/index.html | 1 +
 2 files changed, 2 insertions(+)
 create mode 100644 src/about.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git hist
* f304fc1 (HEAD -> master, origin/feature/add-about-page, feature/add-about-page) Added conflicting content to homepage
* 9b373d5 Added about page
| * 47f227a (origin/feature/update-homepage, feature/update-homepage) Updated homepage content
|/
* f48d7ad (origin/master) Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git push origin master
Total 0 (delta 0), reused 0 (delta 0)
To github.com:TankChirag-1212/website-project.git
  f48d7ad..f304fc1 master -> master
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ █

```

Exercise 3: Rebasing (10 minutes)

1. Rebase a Branch:

Rebase `feature/update-homepage` onto `master`:

```
git checkout feature/update-homepage
```

```
git rebase master
```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git checkout feature/update-homepage
Switched to branch 'feature/update-homepage'
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git hist
* f304fc1 (origin/master, origin/feature/add-about-page, master, feature/add-about-page) Added conflicting content to homepage
* 9b373d5 Added about page
| * 47f227a (HEAD -> feature/update-homepage, origin/feature/update-homepage) Updated homepage content
|/
* f48d7ad Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git rebase master
First, rewinding head to replay your work on top of it...
Applying: Updated homepage content
Using index info to reconstruct a base tree...
M      src/index.html
Falling back to patching base and 3-way merge...
Auto-merging src/index.html
CONFLICT (content): Merge conflict in src/index.html
error: Failed to merge in the changes.
Patch failed at 0001 Updated homepage content
hint: Use 'git am --show-current-patch' to see the failed patch
Resolve all conflicts manually, mark them as resolved with
"git add/rm <conflicted_files>", then run "git rebase --continue".
You can instead skip this commit: run "git rebase --skip".
To abort and get back to the state before "git rebase", run "git rebase --abort".
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ █

```

- Resolve any conflicts that arise during rebase.

Push the Rebased Branch:

```
git push -f origin feature/update-homepage
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git status
rebase in progress; onto f304fc1
You are currently rebasing branch 'feature/update-homepage' on 'f304fc1'.
  (all conflicts fixed: run "git rebase --continue")

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    modified:   src/index.html

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git rebase --continue
Applying: Updated homepage content
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git hist
* aa8b40c (HEAD -> feature/update-homepage) Updated homepage content
* f304fc1 (origin/master, origin/feature/add-about-page, master, feature/add-about-page) Added conflicting content to homepage
* 9b373d5 Added about page
| * 47f227a (origin/feature/update-homepage) Updated homepage content
|/
* f48d7ad Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$
```

Exercise 4: Pulling and Collaboration (10 minutes)

1. Pull Changes from Remote:

Ensure the `master` branch is up-to-date:

```
git checkout master
```

```
git pull origin master
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Asse... × einfochips@PUNELPT0436:~/DevopsTraining/Asse... ×
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git pull origin master
From github.com:TankChirag-1212/website-project
 * branch            master      -> FETCH_HEAD
Already up to date.
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$
```

2. Simulate a Collaborator's Change:

- Make a change on GitHub directly (e.g., edit `index.html`).

3. Pull Collaborator's Changes:

Pull the changes made by the collaborator:

```
git pull origin master
```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git hist
* aa8b40c (feature/update-homepage) Updated homepage content
* f304fc1 (HEAD -> master, origin/master, origin/feature/add-about-page, feature/add-about-page) Added conflicting content to homepage
* 9b373d5 Added about page
| * 47f227a (origin/feature/update-homepage) Updated homepage content
||
* f48d7ad Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git pull origin master
remote: Enumerating objects: 7, done.
remote: Counting objects: 100% (7/7), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 4 (delta 1), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (4/4), 1.00 KiB | 513.00 KiB/s, done.
From github.com:TankChirag-1212/website-project
 * branch           master      -> FETCH_HEAD
   f304fc1..e2b05f5  master      -> origin/master
Updating f304fc1..e2b05f5
Fast-forward
 src/index.html | 1 +
 1 file changed, 1 insertion(+)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ 

```

Exercise 5: Versioning and Rollback (15 minutes)

1. Tagging a Version:

Tag the current commit as v1.0:

```

git tag -a v1.0 -m "Version 1.0: Initial release"
git push origin v1.0

```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git tag -a v1.0 -m "Version 1.0: Initial release"
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git hist
* e2b05f5 (HEAD -> master, tag: v1.0, origin/master) Update index.html on github repo
| * aa8b40c (feature/update-homepage) Updated homepage content
||
* f304fc1 (origin/feature/add-about-page, feature/add-about-page) Added conflicting content to homepage
* 9b373d5 Added about page
| * 47f227a (origin/feature/update-homepage) Updated homepage content
||
* f48d7ad Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git push origin v1.0
Enumerating objects: 1, done.
Counting objects: 100% (1/1), done.
Writing objects: 100% (1/1), 177 bytes | 177.00 KiB/s, done.
Total 1 (delta 0), reused 0 (delta 0)
To github.com:TankChirag-1212/website-project.git
 * [new tag]           v1.0 -> v1.0
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ 

```

2. Make a Change that Needs Reversion:

Modify `index.html`:

```

echo "<p>Incorrect update</p>" >> src/index.html
git add src/index.html

```

```
git commit -m "Incorrect update"
git push origin master

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ echo "<p>Incorrect update</p>" >> src/index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git add .
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git commit -m "Incorrect update"
[master 218e739] Incorrect update
 1 file changed, 1 insertion(+)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git push origin master
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 374 bytes | 374.00 KiB/s, done.
Total 4 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To github.com:TankChirag-1212/website-project.git
  e2b05f5..218e739 master -> master
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ █
```

3. Revert to a Previous Version:

Use `git revert` to undo the last commit:

```
git revert HEAD
git push origin master
git reset --hard v1.0
git push -f origin master
```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git revert HEAD
[master 4c53881] Revert "Incorrect update"
 1 file changed, 1 deletion(-)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git push origin master

Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 376 bytes | 376.00 KiB/s, done.
Total 4 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To github.com:TankChirag-1212/website-project.git
  218e739..4c53881 master -> master
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ 
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git reset --hard v1.0
HEAD is now at e2b05f5 Update index.html on github repo
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git push -f origin master
Total 0 (delta 0), reused 0 (delta 0)
To github.com:TankChirag-1212/website-project.git
 + 4c53881...e2b05f5 master -> master (forced update)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git hist
* e2b05f5 (HEAD -> master, tag: v1.0, origin/master) Update index.html on github repo
| * aa8b40c (feature/update-homepage) Updated homepage content
|/
* f304fc1 (origin/feature/add-about-page, feature/add-about-page) Added conflicting content to homepage
* 9b373d5 Added about page
| * 47f227a (origin/feature/update-homepage) Updated homepage content
|/
* f48d7ad Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ 

```

Extra Activities (10 minutes)

1. Stashing Changes:

Make some local changes without committing:

```
echo "<p>Uncommitted changes</p>" >> src/index.html
```

Stash the changes:

```
git stash
```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ echo "<p>Uncommitted changes</p>" >> src/index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   src/index.html

no changes added to commit (use "git add" and/or "git commit -a")
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git stash
Saved working directory and index state WIP on master: e2b05f5 Update index.html on github repo
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ cat src/index.html
<!DOCTYPE html><html><head><title>My Website</title></head><body><h1>Welcome to my website</h1></body></html>
<p>Conflict content</p>
<p>Hello There!!</p>
```

Apply the stashed changes:

```
git stash apply
```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git stash apply
On branch master
Your branch is up to date with 'origin/master'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   src/index.html

no changes added to commit (use "git add" and/or "git commit -a")
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ cat src/index.html
<!DOCTYPE html><html><head><title>My Website</title></head><body><h1>Welcome to my website
!</h1></body></html>
<p>Conflict content</p>
<p>Hello There!!</p>
<p>Uncommitted changes</p>

```

2. Viewing Commit History:

Use `git log` to view commit history:

```
git log --oneline
```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git log --oneline
e2b05f5 (HEAD -> master, tag: v1.0, origin/master) Update index.html on github repo
f304fc1 (origin/feature/add-about-page, feature/add-about-page) Added conflicting content
to homepage
9b373d5 Added about page
f48d7ad Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ 

```

3. Cherry-Picking Commits:

Create a new branch and cherry-pick a commit from another branch and solving the conflict if any:

```
git checkout -b feature/cherry-pick
```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git branch
  feature/add-about-page
  feature/update-homepage
* master
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git checkout -b feature/cherry-pick
Switched to a new branch 'feature/cherry-pick'
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git hist
* e2b05f5 (HEAD -> feature/cherry-pick, tag: v1.0, origin/master, master) Update index.htm
l on github repo
| * aa8b40c (feature/update-homepage) Updated homepage content
|/
* f304fc1 (origin/feature/add-about-page, feature/add-about-page) Added conflicting conten
t to homepage
* 9b373d5 Added about page
| * 47f227a (origin/feature/update-homepage) Updated homepage content
|/
* f48d7ad Initial commit: Added project structure and index.html

```

```
git cherry-pick <commit-hash>
```

```
git cherry-pick --continue
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git cherry-pick 47f227a
Auto-merging src/index.html
CONFLICT (content): Merge conflict in src/index.html
error: could not apply 47f227a... Updated homepage content
hint: after resolving the conflicts, mark the corrected paths
hint: with 'git add <paths>' or 'git rm <paths>'
hint: and commit the result with 'git commit'
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ vim src/index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git status
On branch feature/cherry-pick
You are currently cherry-picking commit 47f227a.
  (fix conflicts and run "git cherry-pick --continue")
  (use "git cherry-pick --skip" to skip this patch)
  (use "git cherry-pick --abort" to cancel the cherry-pick operation)

Unmerged paths:
  (use "git add <file>..." to mark resolution)
    both modified:  src/index.html

no changes added to commit (use "git add" and/or "git commit -a")
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git status
On branch feature/cherry-pick
You are currently cherry-picking commit 47f227a.
  (all conflicts fixed: run "git cherry-pick --continue")
  (use "git cherry-pick --skip" to skip this patch)
  (use "git cherry-pick --abort" to cancel the cherry-pick operation)

Changes to be committed:
  modified:  src/index.html

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git cherry-pick --continue
[feature/cherry-pick 10e85f0] Updated homepage content
  Date: Fri Jul 12 19:44:00 2024 +0530
  1 file changed, 1 insertion(+)
```

git push origin feature/cherry-pick

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git push origin feature/cherry-pick
Enumerating objects: 11, done.
Counting objects: 100% (11/11), done.
Delta compression using up to 8 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (8/8), 728 bytes | 728.00 KiB/s, done.
Total 8 (delta 2), reused 0 (delta 0)
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
remote:
remote: Create a pull request for 'feature/cherry-pick' on GitHub by visiting:
remote:   https://github.com/TankChirag-1212/website-project/pull/new/feature/cherry-pick
remote:
To github.com:TankChirag-1212/website-project.git
 * [new branch]      feature/cherry-pick -> feature/cherry-pick
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ █
```

4. Interactive Rebase:

Use interactive rebase to squash commits:

```
git checkout master
```

```
git rebase -i HEAD~3
```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git hist
* 10e85f0 (origin/feature/cherry-pick, feature/cherry-pick) Updated homepage content
* f2a65c8 Adding index file on cherry-pick branch
* e2b05f5 (HEAD -> master, tag: v1.0, origin/master) Update index.html on github repo
| * aa8b40c (feature/update-homepage) Updated homepage content
|/
* f304fc1 (origin/feature/add-about-page, feature/add-about-page) Added conflicting content to homepage
* 9b373d5 Added about page
| * 47f227a (origin/feature/update-homepage) Updated homepage content
|/
* f48d7ad Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git checkout master
Already on 'master'
Your branch is up to date with 'origin/master'.
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git rebase -i HEAD~3
[detached HEAD ed2e9af] Added about page
Date: Fri Jul 12 19:41:30 2024 +0530
2 files changed, 3 insertions(+)
create mode 100644 src/about.html
Successfully rebased and updated refs/heads/master.
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git log ed2e9af
commit ed2e9af2ab76dcc7a36015f4128026bc2c696a73 (HEAD -> master)
Author: TankChirag1212 <tankchirag17@gmail.com>
Date: Fri Jul 12 19:41:30 2024 +0530

    Added about page

    Added conflicting content to homepage

    Update index.html on github repo

commit f48d7ad4867f1a3264dbd8ad3618bf8e0c825388
Author: TankChirag1212 <tankchirag17@gmail.com>
Date: Fri Jul 12 19:39:28 2024 +0530

    Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ 

```

Collaborative Blogging Platform

Objective:

You will work on a project to collaboratively develop a simple blogging platform. You will practice various Git concepts including branching, merging, handling merge conflicts, rebasing, pulling, versioning, rolling back changes, stashing, and cherry-picking commits. The project is designed to be completed in 1.5 Hours

1. Create a GitHub Repository:

- Go to GitHub and create a new repository named **blogging-platform**.

Clone the repository to your local machine:

```
git clone https://github.com/your-username/blogging-platform.git
```

2. Initialize the Project:

Navigate to the project directory:

```
cd blogging-platform
```

Create initial project structure:

```
mkdir src  
touch src/index.html  
echo "<!DOCTYPE html><html><head><title>Blogging Platform</title></head><body><h1>Welcome to the Blogging Platform!</h1></body></html>" > src/index.html
```

Commit and push the initial project structure:

```
git add .  
git commit -m "Initial commit: Added project structure and index.html"  
git push origin master
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git clone git@github.com:TankChirag-1212/blogging-platform.git  
Cloning into 'blogging-platform'...  
warning: You appear to have cloned an empty repository.  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ cd blogging-platform/  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ mkdir src  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ vim src/index.html  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git status  
On branch master  
  
No commits yet  
  
Untracked files:  
  (use "git add <file>..." to include in what will be committed)  
    src/  
  
nothing added to commit but untracked files present (use "git add" to track)  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git add .  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git commit -m "Initial commit: Added project structure and index.html"  
[master (root-commit) def70f7] Initial commit: Added project structure and index.html  
 1 file changed, 1 insertion(+)  
 create mode 100644 src/index.html  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ git push origin master  
Enumerating objects: 4, done.  
Counting objects: 100% (4/4), done.  
Delta compression using up to 8 threads  
Compressing objects: 100% (2/2), done.  
Writing objects: 100% (4/4), 378 bytes | 378.00 KiB/s, done.  
Total 4 (delta 0), reused 0 (delta 0)  
To github.com:TankChirag-1212/blogging-platform.git  
 * [new branch]      master -> master  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project$ █
```

Exercise 1: Branching and Adding Features (20 minutes)

Create a New Branch for Blog Post Feature:

```
git checkout -b feature/add-blog-post
```

1. Add a Blog Post Page:

Create `blog.html`:

```
touch src/blog.html
```

```
echo "<!DOCTYPE html><html><head><title>Blog Post</title></head><body><h1>My First Blog Post</h1></body></html>" > src/blog.html
```

Commit and push changes:

```
git add src/blog.html
```

```
git commit -m "Added blog post page"
```

```
git push origin feature/add-blog-post
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git checkout -b feature/add-blog-post
Switched to a new branch 'feature/add-blog-post'
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ vim src/blog.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git status
On branch feature/add-blog-post
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    src/blog.html

nothing added to commit but untracked files present (use "git add" to track)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git add .
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git commit -m "Added blog post page"
[feature/add-blog-post 04d788f] Added blog post page
 1 file changed, 1 insertion(+)
   create mode 100644 src/blog.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git push origin feature/add-blog-post
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 397 bytes | 397.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0)
remote:
remote: Create a pull request for 'feature/add-blog-post' on GitHub by visiting:
remote:     https://github.com/TankChirag-1212/blogging-platform/pull/new/feature/add-blog-post
remote:
To github.com:TankChirag-1212/blogging-platform.git
 * [new branch]      feature/add-blog-post -> feature/add-blog-post
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ █
```

Exercise 2: Collaborating with Merging and Handling Merge Conflicts (25 minutes)

1. Create Another Branch for Author Info:

```
git checkout master
```

```
git checkout -b feature/add-author-info
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git ch
eckout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git ch
eckout -b feature/add-author-info
Switched to a new branch 'feature/add-author-info'
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git br
anch
* feature/add-author-info
  feature/add-blog-post
  master
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ █
```

2. Add Author Info to Blog Page:

Modify `blog.html`:

```
echo "<p>Author: John Doe</p>" >> src/blog.html
```

Commit and push changes:

```
git add src/blog.html
```

```
git commit -m "Added author info to blog post"
```

```
git push origin feature/add-author-info
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ echo "<p>Auth
or: John Doe</p>" >> src/blog.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git status
On branch feature/add-author-info
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    src/blog.html

nothing added to commit but untracked files present (use "git add" to track)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git add .
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git commit -m
"Added author info to blog post"
[feature/add-author-info f8ec286] Added author info to blog post
 1 file changed, 1 insertion(+)
   create mode 100644 src/blog.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git push orgi
n feature/add-author-info
fatal: 'orgin' does not appear to be a git repository
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ █
```

3. Create a Merge Conflict:

Modify `blog.html` on the `feature/add-blog-post` branch:

```
git checkout feature/add-blog-post  
echo "<p>Published on: July 10, 2024</p>" >> src/blog.html  
git add src/blog.html  
git commit -m "Added publish date to blog post"  
git push origin feature/add-blog-post
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git checkout feature/add-blog-post  
Switched to branch 'feature/add-blog-post'  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ ^C  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ echo "<p>Published on: July 10, 2024</p>" >> src/blog.html  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git add .  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git status  
On branch feature/add-blog-post  
Changes to be committed:  
  (use "git restore --staged <file>..." to unstage)  
    modified:   src/blog.html  
  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git commit -m "Added publish date to blog post"  
[feature/add-blog-post 2059ddd] Added publish date to blog post  
 1 file changed, 1 insertion(+)  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git push origin feature/add-blog-post  
Enumerating objects: 7, done.  
Counting objects: 100% (7/7), done.  
Delta compression using up to 8 threads  
Compressing objects: 100% (3/3), done.  
Writing objects: 100% (4/4), 393 bytes | 393.00 KiB/s, done.  
Total 4 (delta 1), reused 0 (delta 0)  
remote: Resolving deltas: 100% (1/1), completed with 1 local object.  
To github.com:TankChirag-1212/blogging-platform.git  
  04d788f..2059ddd  feature/add-blog-post -> feature/add-blog-post  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ █
```

4. Merge and Resolve Conflict:

Attempt to merge `feature/add-blog-post` into `master`:

```
git checkout master  
git merge feature/add-blog-post  
git push origin master
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platfor
m$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platfor
m$ git merge feature/add-b
merge: feature/add-b - not something we can merge
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platfor
m$ git merge feature/add-blog-post
Updating def70f7..2059ddd
Fast-forward
  src/blog.html | 2 ++
  1 file changed, 2 insertions(+)
  create mode 100644 src/blog.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platfor
m$
```

Exercise 3: Rebasing and Feature Enhancement (25 minutes)

1. Rebase a Branch for Comment Feature:

Rebase `feature/add-author-info` onto `master`:

```
git checkout feature/add-author-info

git rebase master
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platfor
m$ git checkout feature/add-author-info
Switched to branch 'feature/add-author-info'
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platfor
m$ git hist
* 2059ddd (origin/feature/add-blog-post, master, feature/add-blog-post) Added publi
sh date to blog post
* 04d788f Added blog post page
| * f8ec286 (HEAD -> feature/add-author-info) Added author info to blog post
|/
* def70f7 (origin/master) Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platfor
m$ git rebase master
First, rewinding head to replay your work on top of it...
Applying: Added author info to blog post
Using index info to reconstruct a base tree...
Falling back to patching base and 3-way merge...
CONFLICT (add/add): Merge conflict in src/blog.html
Auto-merging src/blog.html
error: Failed to merge in the changes.
Patch failed at 0001 Added author info to blog post
hint: Use 'git am --show-current-patch' to see the failed patch
Resolve all conflicts manually, mark them as resolved with
"git add/rm <conflicted_files>", then run "git rebase --continue".
You can instead skip this commit: run "git rebase --skip".
To abort and get back to the state before "git rebase", run "git rebase --abort".
```

- Resolve any conflicts that arise during rebase.

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ git mergetool --tool=vimdiff
Merging:
src/blog.html

Normal merge conflict for 'src/blog.html':
{local}: created file
{remote}: created file
3 files to edit
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ git status
rebase in progress; onto 2059ddd
You are currently rebasing branch 'feature/add-author-info' on '2059ddd'.
(all conflicts fixed: run "git rebase --continue")

Changes to be committed:
(use "git restore --staged <file>..." to unstage)
modified: src/blog.html

Untracked files:
(use "git add <file>..." to include in what will be committed)
src/blog.html.orig

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ git rebase --continue
Applying: Added author info to blog post
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ █

```

2. Add Comment Section:

Modify `blog.html` to add a comment section:

```

echo "<h2>Comments</h2><p>No comments yet.</p>" >> src/blog.html

git add src/blog.html

git commit -m "Added comment section"

git push origin feature/add-author-info

```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ echo "<h2>Comments</h2><p>No comments yet.</p>" >> src/blog.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ git add .
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ git commit -m "Added comment section"
[feature/add-author-info b90d97d] Added comment section
 1 file changed, 1 insertion(+)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ git push origin feature/add-author-info
Enumerating objects: 11, done.
Counting objects: 100% (11/11), done.
Delta compression using up to 8 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (8/8), 716 bytes | 716.00 KiB/s, done.
Total 8 (delta 2), reused 0 (delta 0)
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
remote:
remote: Create a pull request for 'feature/add-author-info' on GitHub by visiting:
remote:      https://github.com/TankChirag-1212/blogging-platform/pull/new/feature/
add-author-info
remote:
To github.com:TankChirag-1212/blogging-platform.git
 * [new branch]      feature/add-author-info -> feature/add-author-info
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ █

```

Exercise 4: Pulling and Simulating Collaboration (20 minutes)

1. Pull Changes from Remote:

Ensure the `master` branch is up-to-date:

```
git checkout master
```

```
git pull origin master
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$ git checkout master
Switched to branch 'master'
Your branch is ahead of 'origin/master' by 2 commits.
  (use "git push" to publish your local commits)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$ git pull origin master
From github.com:TankChirag-1212/blogging-platform
 * branch            master      -> FETCH_HEAD
Already up to date.
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$
```

2. Simulate a Collaborator's Change:

- Make a change on GitHub directly (e.g., edit `blog.html` to add a new comment).

3. Pull Collaborator's Changes:

Pull the changes made by the collaborator:

```
git pull origin master
```

```
eininfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$ git pull origin master
remote: Enumerating objects: 7, done.
remote: Counting objects: 100% (7/7), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 4 (delta 1), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (4/4), 999 bytes | 499.00 KiB/s, done.
From github.com:TankChirag-1212/blogging-platform
 * branch            master      -> FETCH_HEAD
   def70f7..608e2e5  master      -> origin/master
Merge made by the 'recursive' strategy.
 src/index.html | 1 +
 1 file changed, 1 insertion(+)
eininfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$ git hist HEAD
* fcf4058 (HEAD -> master) Merge branch 'master' of github.com:TankChirag-1212/bl
ogging-platform
|\ \
| * 608e2e5 (origin/master) Update index.html on github repo
| | * b90d97d (origin/feature/add-author-info, feature/add-author-info) Added comme
nt section
| | * 867790f Added author info to blog post
| |
|/
* | 2059ddd (origin/feature/add-blog-post, feature/add-blog-post) Added publish dat
e to blog post
* | 04d788f Added blog post page
|/
* def70f7 Initial commit: Added project structure and index.html
eininfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$
```

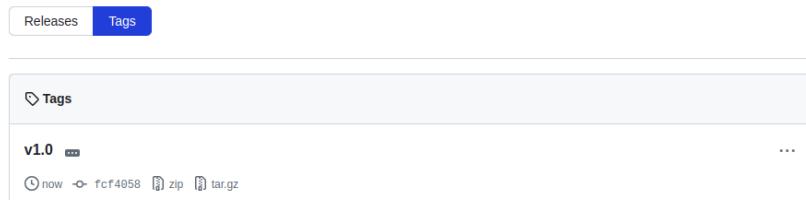
Exercise 5: Versioning and Rollback (30 minutes)

1. Tagging a Version:

Tag the current commit as `v1.0`:

```
git tag -a v1.0 -m "Version 1.0: Initial release"  
git push origin v1.0
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform  
m$ git tag -a v1.0 -m "Version 1.0: Initial release"  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform  
m$ git push origin v1.0  
Enumerating objects: 8, done.  
Counting objects: 100% (8/8), done.  
Delta compression using up to 8 threads  
Compressing objects: 100% (3/3), done.  
Writing objects: 100% (4/4), 520 bytes | 520.00 KiB/s, done.  
Total 4 (delta 0), reused 0 (delta 0)  
To github.com:TankChirag-1212/blogging-platform.git  
 * [new tag]           v1.0 -> v1.0  
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform  
m$
```



2. Make a Change that Needs Reversion:

Modify `blog.html`:

```
echo "<p>Incorrect comment</p>" >> src/blog.html  
git add src/blog.html  
git commit -m "Incorrect comment update"  
git push origin master
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ echo "<p>Incorrect comment</p>" >> src/blog.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git status
On branch master
Your branch is ahead of 'origin/master' by 3 commits.
  (use "git push" to publish your local commits)

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   src/blog.html

no changes added to commit (use "git add" and/or "git commit -a")
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git add .
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git commit -m "Incorrect comment update"
[master 8d317e9] Incorrect comment update
 1 file changed, 1 insertion(+)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git push origin master
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 377 bytes | 377.00 KiB/s, done.
Total 4 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To github.com:TankChirag-1212/blogging-platform.git
 608e2e5..8d317e9 master -> master
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$
```

3. Revert to a Previous Version:

Use `git revert` to undo the last commit:

```
git revert HEAD
git push origin master
```

Alternatively, reset to a specific commit (use with caution:`git reset --hard v1.0`)

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ git hist
* 8d317e9 (HEAD -> master, origin/master) Incorrect comment update
*   fcf4058 (tag: v1.0) Merge branch 'master' of github.com:TankChirag-1212/blogging-platform
| \
| * 608e2e5 Update index.html on github repo
| | * b90d97d (origin/feature/add-author-info, feature/add-author-info) Added comment section
| | * 867790f Added author info to blog post
| |
|/
|/
* | 2059ddd (origin/feature/add-blog-post, feature/add-blog-post) Added publish date to blog post
* | 04d788f Added blog post page
|/
* def70f7 Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ git revert HEAD
[master 6eddb8e] Revert "Incorrect comment update"
 1 file changed, 1 deletion(-)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ git hist -n 5
* 6eddb8e (HEAD -> master) Revert "Incorrect comment update"
* 8d317e9 (origin/master) Incorrect comment update
*   fcf4058 (tag: v1.0) Merge branch 'master' of github.com:TankChirag-1212/blogging-platform
| \
| * 608e2e5 Update index.html on github repo
| | * b90d97d (origin/feature/add-author-info, feature/add-author-info) Added comment section
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ 

```

Extra Activities (25 minutes)

1. Stashing Changes:

Make some local changes without committing:

```
echo "<p>Uncommitted changes</p>" >> src/blog.html
```

Stash the changes:

```
git stash
```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ echo "<p>Uncommitted changes</p>" >> src/blog.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   src/blog.html

no changes added to commit (use "git add" and/or "git commit -a")
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
m$ git stash
Saved working directory and index state WIP on master: 6eddb8e Revert "Incorrect comment update"

```

Apply the stashed changes:

```
git stash apply
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git stash list
stash@{0}: WIP on master: 6eddb8e Revert "Incorrect comment update"
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git stash apply
On branch master
Your branch is up to date with 'origin/master'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   src/blog.html

no changes added to commit (use "git add" and/or "git commit -a")
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git stash list
stash@{0}: WIP on master: 6eddb8e Revert "Incorrect comment update"
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$
```

2. Viewing Commit History:

Use `git log` to view commit history:

```
git log --oneline
```

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git log --oneline
6eddb8e (HEAD -> master, origin/master) Revert "Incorrect comment update"
8d317e9 Incorrect comment update
fcf4058 (tag: v1.0) Merge branch 'master' of github.com:TankChirag-1212/blogging-platform
608e2e5 Update index.html on github repo
2059ddd (origin/feature/add-blog-post, feature/add-blog-post) Added publish date to blog post
04d788f Added blog post page
def70f7 Initial commit: Added project structure and index.html
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$
```

3. Cherry-Picking Commits:

Create a new branch and cherry-pick a commit from another branch:

```
git checkout -b feature/cherry-pick
```

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$ git checkout -b feature/cherry-pick
Switched to a new branch 'feature/cherry-pick'
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$ git branch
  feature/add-author-info
  feature/add-blog-post
* feature/cherry-pick
  master
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$ git log --oneline --all
31fec88 (refs/stash) WIP on master: 6eddb8e Revert "Incorrect comment update"
e713a2b index on master: 6eddb8e Revert "Incorrect comment update"
6eddb8e (HEAD -> feature/cherry-pick, origin/master, master) Revert "Incorrect comment update"
8d317e9 Incorrect comment update
fcf4058 (tag: v1.0) Merge branch 'master' of github.com:TankChirag-1212/blogging-pl

```

git cherry-pick <commit-hash>

git push origin feature/cherry-pick

```

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$ git cherry-pick 8d317e9
Auto-merging src/blog.html
CONFLICT (content): Merge conflict in src/blog.html
error: could not apply 8d317e9... Incorrect comment update
hint: after resolving the conflicts, mark the corrected paths
hint: with 'git add <paths>' or 'git rm <paths>'
hint: and commit the result with 'git commit'
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$ git status
On branch feature/cherry-pick
You are currently cherry-picking commit 8d317e9.
  (all conflicts fixed: run "git cherry-pick --continue")
  (use "git cherry-pick --skip" to skip this patch)
  (use "git cherry-pick --abort" to cancel the cherry-pick operation)

Changes to be committed:
  modified:   src/blog.html

einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$ git cherry-pick --continue
[feature/cherry-pick 44ce480] Cherry-Pick: Incorrect comment update
  Date: Sat Jul 13 01:19:04 2024 +0530
  1 file changed, 2 insertions(+)
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform
$ git hist
* 44ce480 (HEAD -> feature/cherry-pick) Cherry-Pick: Incorrect comment update
* 7c7641e chaning blog.html on cherry branch
* 6eddb8e (origin/master, master) Revert "Incorrect comment update"
* 8d317e9 Incorrect comment update
* fcf4058 (tag: v1.0) Merge branch 'master' of github.com:TankChirag-1212/blogging-platform
\\

```

4. Interactive Rebase:

Use interactive rebase to squash commits:

git checkout master

git rebase -i HEAD~3

```
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git rebase -i HEAD~3
[detached HEAD 3d5241b] Update index.html on github repo
Author: TankChirag-1212 <106546348+TankChirag-1212@users.noreply.github.com>
Date: Sat Jul 13 01:15:16 2024 +0530
1 file changed, 1 insertion(+)
Successfully rebased and updated refs/heads/master.
einfochips@PUNELPT0436:~/DevopsTraining/Assesment2/website-project/blogging-platform$ git log -n 5
commit 3d5241bba22a5f4a32be44879d5d80dbbe158a3a (HEAD -> master)
Author: TankChirag-1212 <106546348+TankChirag-1212@users.noreply.github.com>
Date: Sat Jul 13 01:15:16 2024 +0530

    Update index.html on github repo

    Incorrect comment update

    Revert "Incorrect comment update"

    This reverts commit 8d317e95fd6f0187202c01451ab4f2b0a35e352a.

commit 2059ddd14703b33105ce6869cdb188b948dac9f0 (origin/feature/add-blog-post, feature/add-blog-post)
Author: TankChirag1212 <tankchirag17@gmail.com>
Date: Sat Jul 13 01:03:52 2024 +0530

    Added publish date to blog post

commit 04d788febfa6a94411e3598a06090be1934370c
Author: TankChirag1212 <tankchirag17@gmail.com>
Date: Sat Jul 13 00:39:10 2024 +0530

    Added blog post page

commit def70f7566386f9e51bcf11f3b41db32af49b21
Author: TankChirag1212 <tankchirag17@gmail.com>
Date: Sat Jul 13 00:35:50 2024 +0530
```

Git Cherry Pick

Scenario:

- You have two branches: **branch-A** and **branch-B**.
- You made a bug fix commit on **branch-A** that you now want to apply to **branch-B** without merging all changes from **branch-A** into **branch-B**.

Steps:

Identify the Commit:

First, find the commit hash of the bug fix commit on **branch-A**:

```
git log --oneline branch-A
```

1. Suppose the commit hash is abcdef1234567890.

Switch to branch-B:

Ensure you are on **branch-B** where you want to apply the bug fix:

```
git checkout branch-B
```

- 2.

Cherry-pick the Commit:

Apply the bug fix commit from **branch-A** to **branch-B**:

```
git cherry-pick abcdef1234567890
```

3. This command applies the changes introduced by the commit abcdef1234567890 onto **branch-B**.

Resolve Conflicts (if any):

```
git cherry-pick --continue
```

- 4.

Commit the Cherry-picked Changes:

After resolving conflicts (if any), commit the cherry-picked changes on **branch-B**:

```
git commit
```

5. This creates a new commit on **branch-B** that includes the changes from **branch-A**'s selected commit.

Git Stash

Step 1: Initialize a Git Repository

First, create a new directory for your project and initialize a Git repository:

```
mkdir git-stash-example  
cd git-stash-example  
git init
```

Step 2: Add and Commit Files

Create some files and add content to them:

```
echo "This is file1.txt" > file1.txt  
echo "This is file2.txt" > file2.txt
```

Add these files to the staging area and commit them:

```
git add file1.txt file2.txt  
git commit -m "Initial commit - Added file1.txt and file2.txt"
```

Step 3: Modify Files

Make some changes to `file1.txt`:

```
echo "Updated content in file1.txt" >> file1.txt
```

Step 4: Use `git stash`

Now, let's use `git stash` to temporarily store the changes in `file1.txt` without committing them:

```
git stash save "WIP: Work in progress changes"
```

This command saves your changes (in this case, the update to `file1.txt`) to a stash with a message "WIP: Work in progress changes".

Step 5: Verify Stash

You can verify the stash list using:

```
git stash list
```

It should show something like:

```
stash@{0}: On master: WIP: Work in progress changes
```

Step 6: Check Working Directory Status

Check the status of your working directory:

```
git status
```

It should indicate that your working directory is clean (no changes).

Step 7: Apply Stashed Changes

Let's apply the stashed changes back into your working directory:

```
git stash pop
```

Step 8: Verify Changes

Check the changes in `file1.txt`:

```
cat file1.txt
```

Step 9: Commit Stashed Changes

If you are satisfied with the changes, commit them:

```
git add file1.txt  
git commit -m "Updated file1.txt with stashed changes"
```