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Complete Git Hands-On Lab Solutions

LAB 1 : GitHub Setup and Configuration

Step 1: Setup your machine with Git Configuration

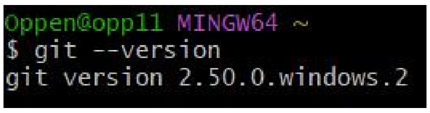
To create a new repository, signup with GitLab and register your credentials
Login to GitLab and create a "GitDemo" project

Step 1: Setting up Git Configuration

1.1 Verifying Git Installation

```
git --version
```

Output:



```
Oppen@opp11 MINGW64 ~
$ git --version
git version 2.50.0.windows.2
```

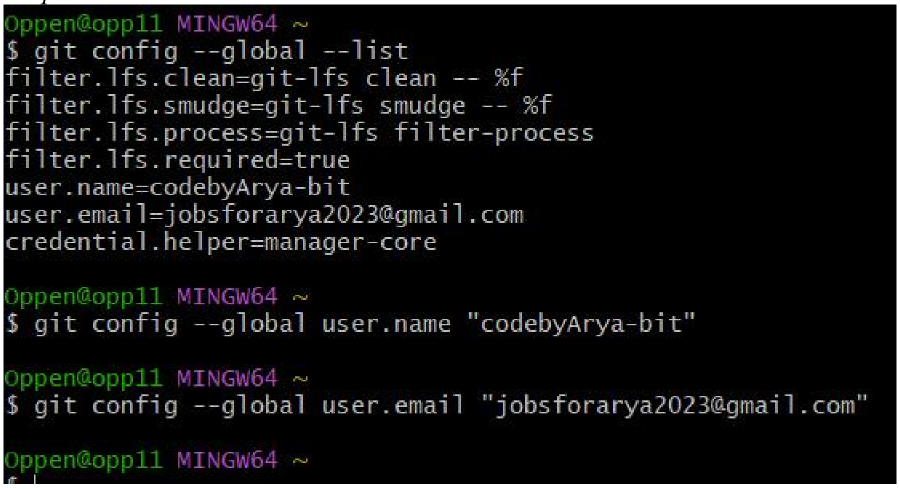
1.2 Configuring User Information

```
git config --global user.name "codebyArya-bit"
git config --global user.email "jobsforarya2023@gmail.com"
```

1.3 Verifying Configuration

```
git config --global --list
```

Output:



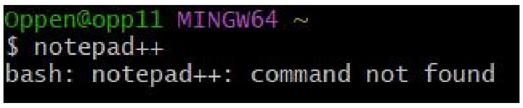
```
Oppen@opp11 MINGW64 ~
$ git config --global --list
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
filter.lfs.required=true
user.name=codebyArya-bit
user.email=jobsforarya2023@gmail.com
credential.helper=manager-core

Oppen@opp11 MINGW64 ~
$ git config --global user.name "codebyArya-bit"

Oppen@opp11 MINGW64 ~
$ git config --global user.email "jobsforarya2023@gmail.com"

Oppen@opp11 MINGW64 ~
```

Step 2: Configuring Notepad++ as Default Editor

2.1 Testing Notepad++ Command

```
notepad++
```

Output:



```
Oppen@opp11 MINGW64 ~
$ notepad++
bash: notepad++: command not found
```

2.2 Creating Alias for Notepad++

```
alias npp='notepad++.exe'
```

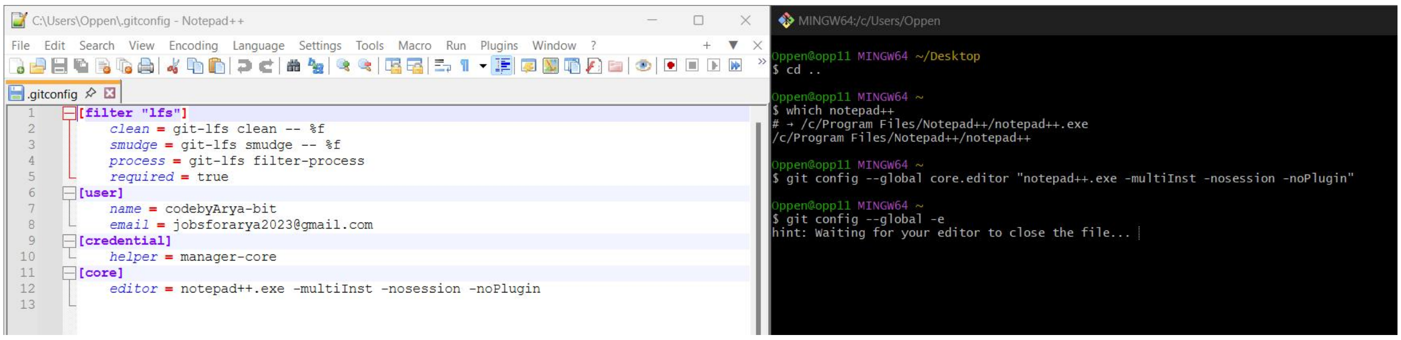
2.3 Setting Notepad++ as Git Editor

```
git config --global core.editor "notepad++.exe -multiInst -notabbar -nosession -noPlugin"
```

2.4 Testing Editor Configuration

```
git config --global -e
```

Result:


C:\Users\Oppen\.gitconfig - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
.gitconfig
MINGW64:/c/Users/Oppen

```
[filter "lfs"]
    clean = git-lfs clean -- %f
    smudge = git-lfs smudge -- %f
    process = git-lfs filter-process
    required = true
[user]
    name = codebyArya-bit
    email = jobsforarya2023@gmail.com
[credential]
    helper = manager-core
[core]
    editor = notepad++.exe -multiInst -nosession -noPlugin
```

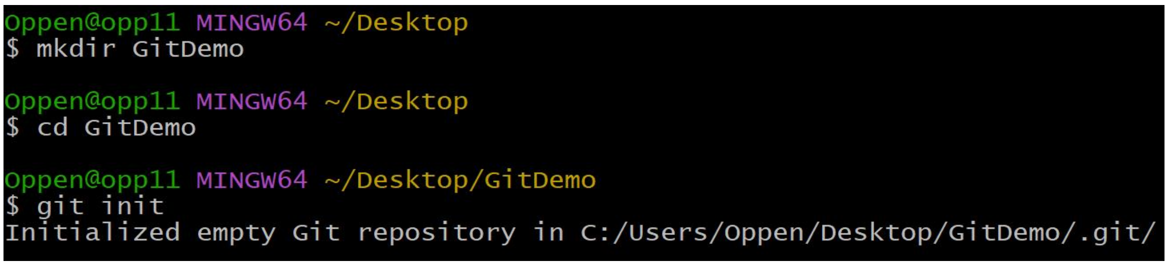
```
Oppen@opp11 MINGW64 ~/Desktop
$ cd ..

Oppen@opp11 MINGW64 ~
$ which notepad++
# → /c/Program Files/Notepad++/notepad++.exe
/c/Program Files/Notepad++/notepad++

Oppen@opp11 MINGW64 ~
$ git config --global core.editor "notepad++.exe -multiInst -nosession -noPlugin"

Oppen@opp11 MINGW64 ~
$ git config --global -e
hint: Waiting for your editor to close the file...
```

Step 3: Creating and Managing a Repository

3.1 Initializing Repository

```
mkdir GitDemo

cd GitDemo

git init
```

Output:

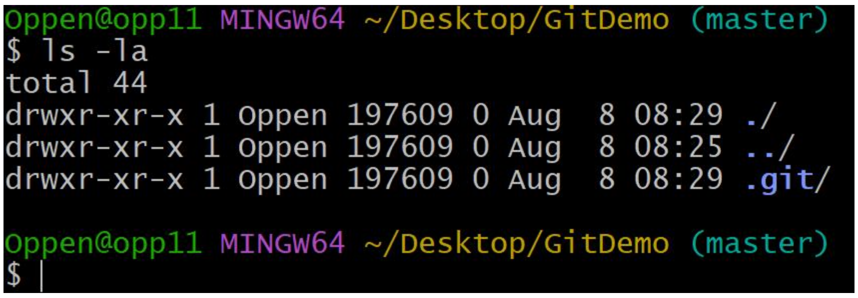


```
Oppen@opp11 MINGW64 ~/Desktop
$ mkdir GitDemo

Oppen@opp11 MINGW64 ~/Desktop
$ cd GitDemo

Oppen@opp11 MINGW64 ~/Desktop/GitDemo
$ git init
Initialized empty Git repository in C:/Users/Oppen/Desktop/GitDemo/.git/
```

3.2 Verifing Repository Structure

```
ls -la
```

Output:

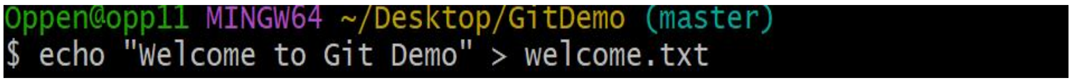


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ ls -la
total 44
drwxr-xr-x 1 Oppen 197609 0 Aug  8 08:29 ./
drwxr-xr-x 1 Oppen 197609 0 Aug  8 08:25 ../
drwxr-xr-x 1 Oppen 197609 0 Aug  8 08:29 .git/

Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ |
```

3.3 Creating and Adding Content to File

```
echo "Welcome to Git Demo" > welcome.txt
```

Output:

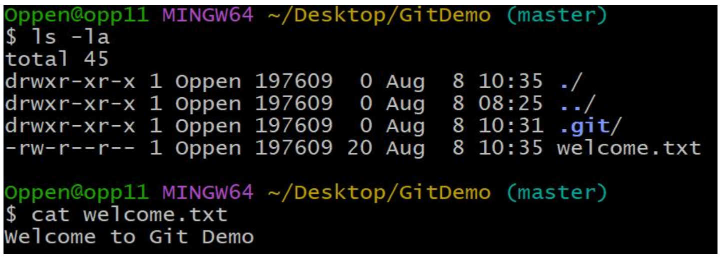


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ echo "Welcome to Git Demo" > welcome.txt
```

3.4 Verifying File Creation

```
ls -la
cat welcome.txt
```

Output:

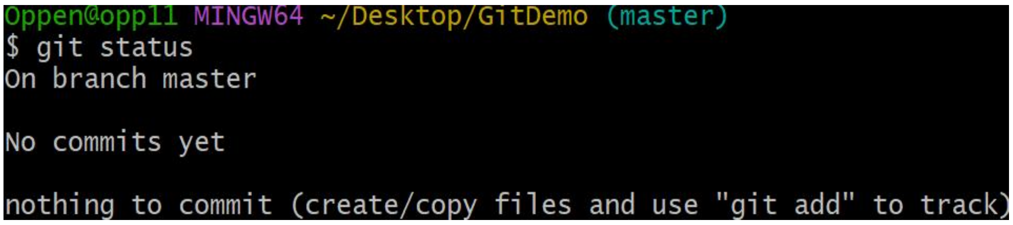


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ ls -la
total 45
drwxr-xr-x 1 Oppen 197609  0 Aug  8 10:35 ./
drwxr-xr-x 1 Oppen 197609  0 Aug  8 08:25 ../
drwxr-xr-x 1 Oppen 197609  0 Aug  8 10:31 .git/
-rw-r--r-- 1 Oppen 197609 20 Aug  8 10:35 welcome.txt

Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ cat welcome.txt
Welcome to Git Demo
```

3.5 Checking Git Status

```
git status
```

Output:



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git status
On branch master

No commits yet

nothing to commit (create/copy files and use "git add" to track)
```

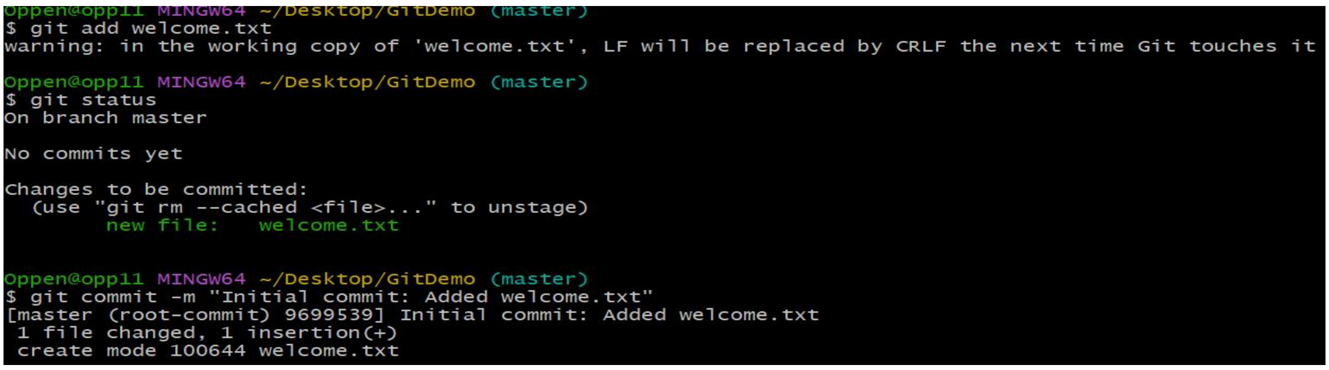
3.6 Adding File to Staging Area

```
git add welcome.txt
```

3.7 Commiting Changes

```
git commit -m "Initial commit: Added welcome.txt"
```

Output:

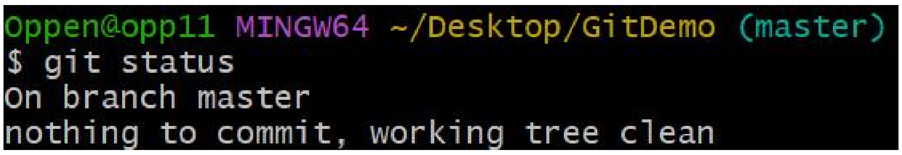


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git add welcome.txt
warning: in the working copy of 'welcome.txt', LF will be replaced by CRLF the next time Git touches it

Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   welcome.txt


Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git commit -m "Initial commit: Added welcome.txt"
[master (root-commit) 9699539] Initial commit: Added welcome.txt
 1 file changed, 1 insertion(+)
 create mode 100644 welcome.txt
```

3.8 Verifying Status After Commit

```
git status
```

Output:



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git status
On branch master
nothing to commit, working tree clean
```

LAB 2 : Git Ignore Implementation

Objectives

`.gitignore` is a plain-text file that tells Git which **unwanted** files or paths to ignore—so they don't clutter your commits or repository history. Here's how it works and how to use it:

---

1. Create a `.gitignore` file

At the root of your repo, add a file named exactly `.gitignore`:

```
cd your-repo/
touch .gitignore
```

---

2. Basic syntax & rules

In `.gitignore`, each line is a pattern:

- **Blank lines** or lines beginning with `#` are ignored (comments).
- **Literal filenames**:

  ```
  secret.txt        # ignore a single file
  ```

- **Directory names** (trailing slash):

  ```
  logs/             # ignore the entire logs/ folder
  ```

Wildcards:

```
*.log           # ignore all “.log” files
build/**/*.o    # ignore all “.o” files under build/
```

Negation (unstage a sub-path inside an ignored folder):

```
node_modules/   # ignore everything in node_modules/
!node_modules/keep-me.js
```

---

3. Typical use-cases

```
# OS artifacts
.DS_Store
Thumbs.db

# Editor / IDE settings
.vscode/
*.suo
*.swp

# Build outputs
/dist/
/build/
/*.exe
*.class

# Secrets & credentials
.env
```

---

4. Applying changes

New files matching your patterns will now be **untracked**.

To stop tracking a file that was already committed:

```
git rm --cached path/to/file
git commit -m "Stop tracking file and add to .gitignore"
```

---

5. Check what Git will ignore

```
git status
git check-ignore -v path/to/suspected.file
```

---

6. Global ignores (for your machine)

If you have OS or editor files you never want to track across all repos:

```
# 1) Create a global ignore file
touch ~/.gitignore_global

# 2) List patterns there, e.g. *.log, .DS_Store

# 3) Tell Git to use it
git config --global core.excludesfile ~/.gitignore_global
```

Best Practices

Commit your project-specific `.gitignore` to version control so everyone on the team shares the same ignore rules.

Keep secrets out of Git—use environment variables or a secrets manager instead of committing credentials.

With these rules in place, Git will automatically skip unwanted files, keeping your repository clean and focused on source code.

Create a **".log"** file and a **log folder** in the working directory of Git. Update the **.gitignore** file in such a way that on committing, these files (.log extensions and log folders) are ignored.
Verify if the git status reflects the same about working directory, local repository and git repository.

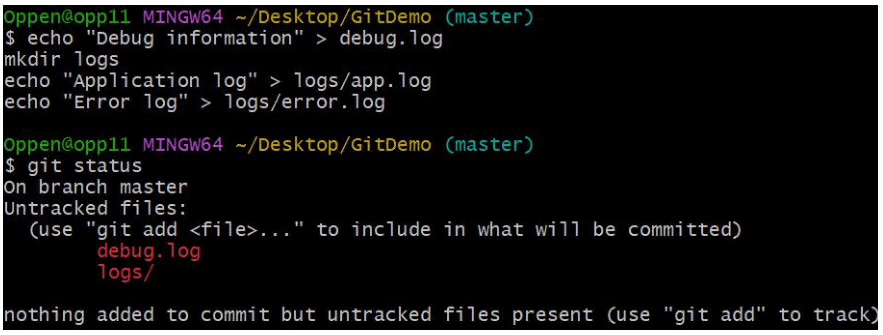
2.1 Creating Files to Ignore

```
echo "Debug information" > debug.log
mkdir logs
echo "Application log" > logs/app.log
echo "Error log" > logs/error.log
```

2.2 Checking Status Before .gitignore

```
git status
```

Output:

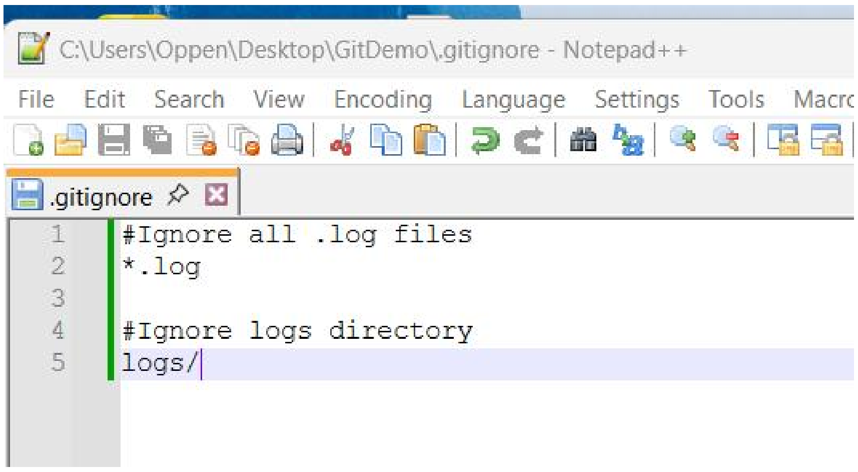


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ echo "Debug information" > debug.log
mkdir logs
echo "Application log" > logs/app.log
echo "Error log" > logs/error.log

Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git status
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        debug.log
        logs/

nothing added to commit but untracked files present (use "git add" to track)
```

2.3 Creating .gitignore File

```
notepad++.exe .gitignore
```

Adding/Editing:



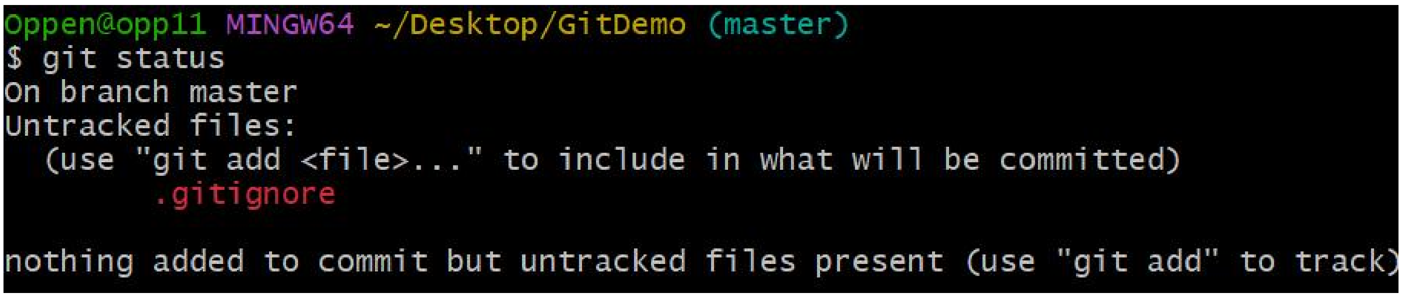
C:\Users\Oppen\Desktop\GitDemo\.gitignore - Notepad++
File Edit Search View Encoding Language Settings Tools Macro
.gitignore

```
#Ignore all .log files
*.log

#Ignore logs directory
logs/
```

2.4 Verifying .gitignore Effect

```
git status
```

Output:

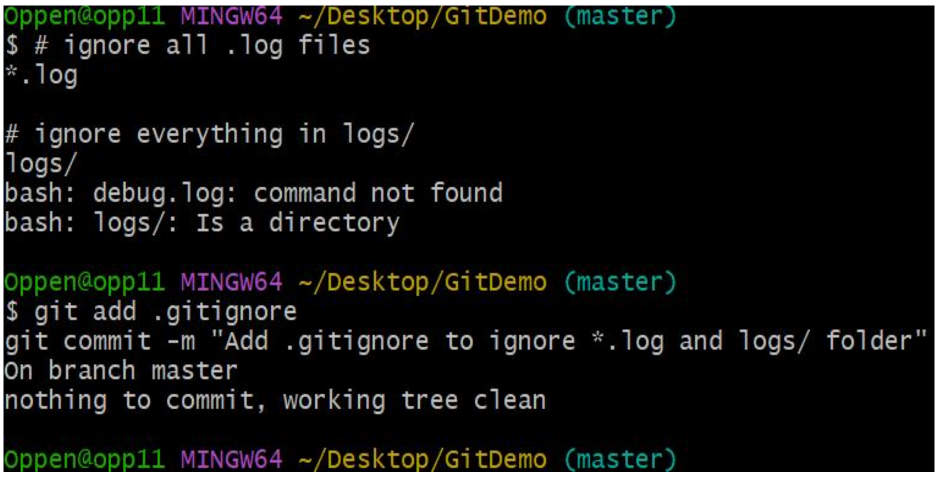


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git status
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        .gitignore

nothing added to commit but untracked files present (use "git add" to track)
```

2.5 Commiting .gitignore

```
git commit -m “Added .gitignore to exclude log files and folders”
```

Output:



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ # ignore all .log files
*.log

# ignore everything in logs/
logs/
bash: debug.log: command not found
bash: logs/: Is a directory

Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git add .gitignore
git commit -m "Add .gitignore to ignore *.log and logs/ folder"
On branch master
nothing to commit, working tree clean

Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
```

Lab 3: Branching and Merging

Objectives

Here’s an overview of how branching & merging works in Git, plus the GitLab-specific steps for creating a new branch and then opening a merge request.

---

1. Branching & Merging in Git

What is a branch?

A **branch** is simply a movable pointer to a commit.

By default every repo has a `main` (or `master`) branch.

Creating a new branch lets you work in isolation without touching `main`.

Common branch commands

```
# List all local branches
git branch

# Create & switch to a new branch “feature-xyz”
git checkout -b feature-xyz
# (or with Git ⩾2.23)
git switch -c feature-xyz

# Push your new branch up to the remote
git push -u origin feature-xyz
```

What is a merge?

A **merge** takes the commits from one branch and integrates them into another (usually `main`).

Git will fast-forward if no divergent commits exist, otherwise it performs a three-way merge.

```
# From main, merge in your feature branch
git checkout main
git pull                        # ensure main is up to date
git merge feature-xyz          # integrate changes
# If you see conflict markers (<<<<<<<), fix them in your editor, then:
git add <resolved-files>
git commit                     # completes the merge
git push
```

---

2. Creating a Branch in GitLab

You have two common ways to create a branch in your GitLab project:

A) Via the GitLab Web UI

Go to your project on GitLab.

Click **Repository** → **Branches** in the left sidebar.

Click **New branch**.

Enter your branch name (e.g. `feature-xyz`) and select the base branch (usually `main`).

Click **Create branch**.

Your new branch now exists on GitLab—anyone can check it out or create a merge request from it.

B) Via Git CLI (push a local branch)

```
git checkout -b feature-xyz      # create & switch locally
git push -u origin feature-xyz   # publish to GitLab
```

Once pushed, GitLab will show your branch under **Repository** → **Branches**, and often suggest you open a merge request right away.

---

3. Creating a Merge Request in GitLab

A **Merge Request** (MR) is how you ask to merge your branch into another branch (e.g. `main`):

Go to your project in GitLab.

Click **Merge Requests** in the sidebar, then **New merge request**.

Select source branch (your feature branch) **and target branch** (`main`).

Click **Compare branches and continue**.

Fill in:

Title: short summary (e.g. "Add user-profile endpoint").

Description: detailed notes, screenshots, links to issues.

Assignee(s) or **Reviewer(s)** if your workflow requires.

Labels, **Milestone**, **Pipeline trigger** settings as needed.

Click **Create merge request**.

Once created, reviewers can comment, request changes, and—when everything's approved—click **Merge** to bring your work into `main`.

Branching:

1. Create a new branch **"GitNewBranch".**
2. List all the local and remote branches available in the current trunk. Observe the "*" mark which denote the current pointing branch.
3. Switch to the newly created branch. Add some files to it with some contents.
4. Commit the changes to the branch.
5. Check the status with **"git status"** command.

Merging:

1. Switch to the master
2. List out all the differences between trunk and branch. These provide the differences in command line interface.
3. List out all the visual differences between master and branch using **P4Merge tool**.
4. Merge the source branch to the trunk.
5. Observe the logging after merging using **"git log –oneline –graph –decorate"**
6. Delete the branch after merging with the trunk and observe the git status.

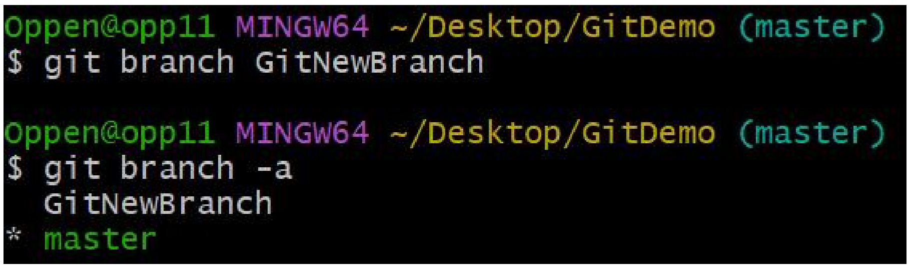
Objective: Practice branch creation, switching, and merging.

3.1 Creating New Branch

```
git branch GitNewBranch
```

3.2 Listing All Branches

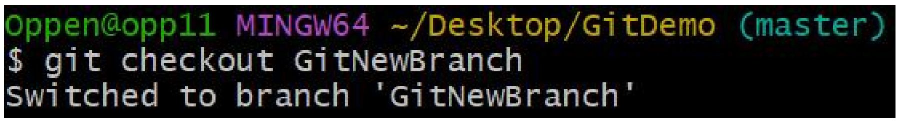
```
git branch -a
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git branch GitNewBranch

Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git branch -a
  GitNewBranch
* master
```

3.3 Switching to New Branch

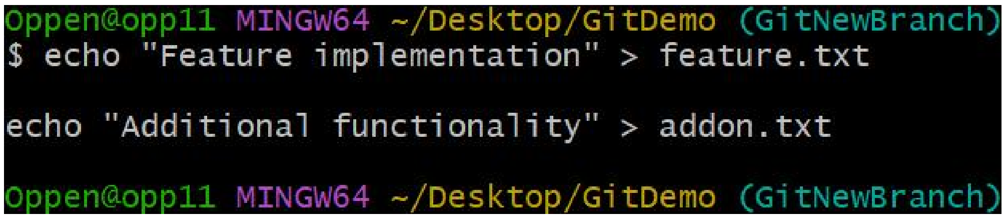
```
git checkout GitNewBranch
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git checkout GitNewBranch
Switched to branch 'GitNewBranch'
```

3.4 Adding Files to Branch

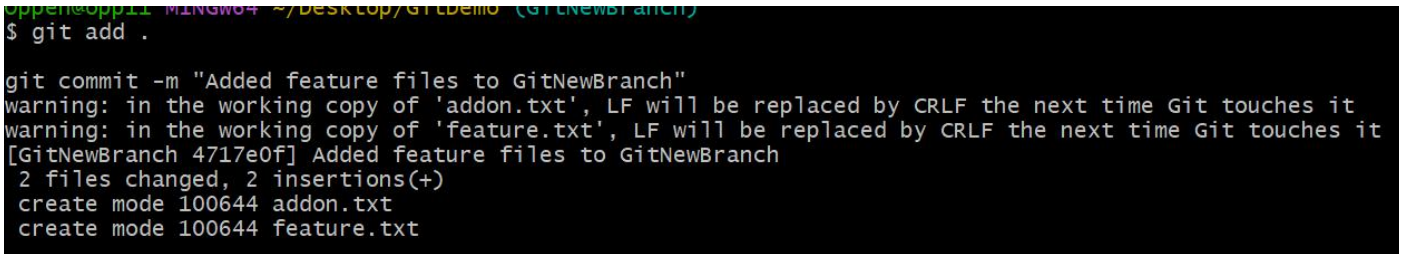
```
echo "Feature implementation" > feature.txt

echo "Additional functionality" > addon.txt
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (GitNewBranch)
$ echo "Feature implementation" > feature.txt

echo "Additional functionality" > addon.txt

Oppen@opp11 MINGW64 ~/Desktop/GitDemo (GitNewBranch)
```

3.5 Adding and Commiting Changes

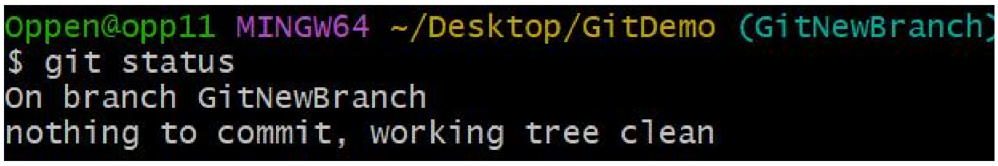
```
git add .

git commit -m "Added feature files to GitNewBranch"
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (GitNewBranch)
$ git add .

git commit -m "Added feature files to GitNewBranch"
warning: in the working copy of 'addon.txt', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'feature.txt', LF will be replaced by CRLF the next time Git touches it
[GitNewBranch 4717e0f] Added feature files to GitNewBranch
 2 files changed, 2 insertions(+)
 create mode 100644 addon.txt
 create mode 100644 feature.txt
```

3.6 Checking Status

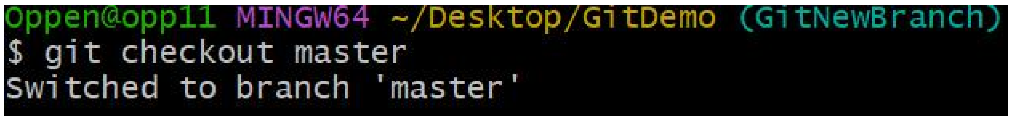
```
git status
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (GitNewBranch)
$ git status
On branch GitNewBranch
nothing to commit, working tree clean
```

3.7 Switching Back to Master

```
git checkout master
```

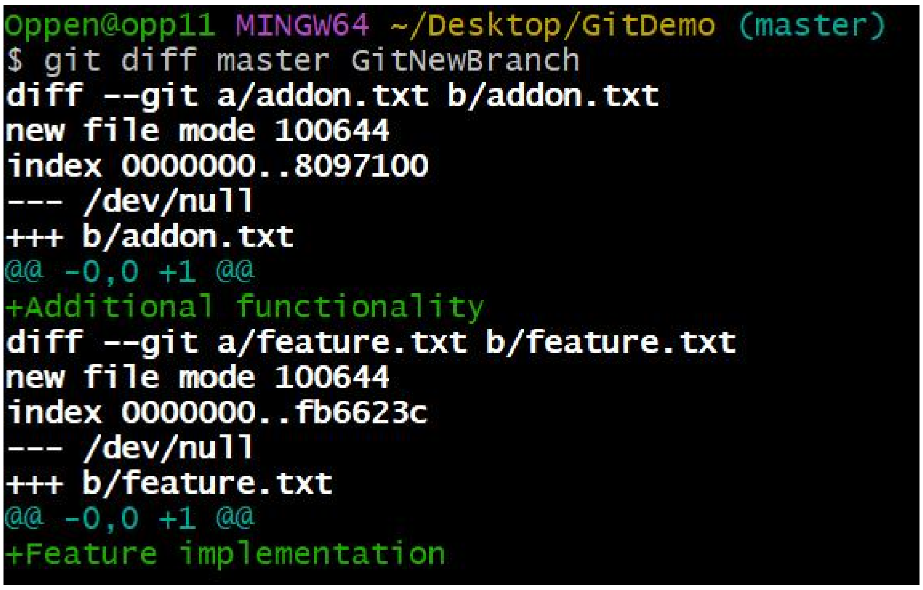


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (GitNewBranch)
$ git checkout master
Switched to branch 'master'
```

3.8 Comparing Branches

```
git diff master GitNewBranch
```

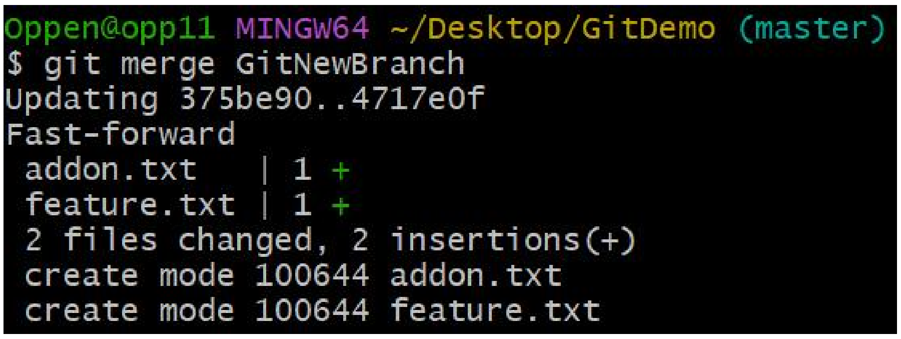
Output:



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git diff master GitNewBranch
diff --git a/addon.txt b/addon.txt
new file mode 100644
index 0000000..8097100
--- /dev/null
+++ b/addon.txt
@@ -0,0 +1 @@
+Additional functionality
diff --git a/feature.txt b/feature.txt
new file mode 100644
index 0000000..fb6623c
--- /dev/null
+++ b/feature.txt
@@ -0,0 +1 @@
+Feature implementation
```

3.9 Merging Branch to Master

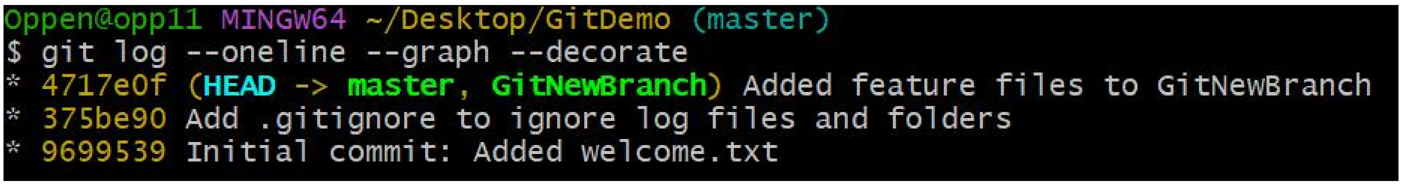
```
git merge GitNewBranch
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git merge GitNewBranch
Updating 375be90..4717e0f
Fast-forward
 addon.txt   | 1 +
 feature.txt | 1 +
 2 files changed, 2 insertions(+)
 create mode 100644 addon.txt
 create mode 100644 feature.txt
```

3.10 Viewing Merge History

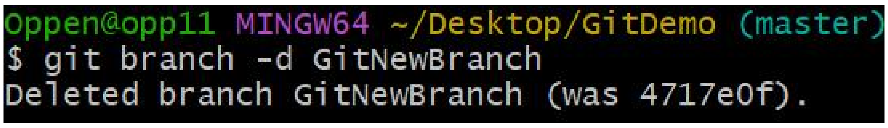
```
git log --oneline --graph --decorate
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git log --oneline --graph --decorate
* 4717e0f (HEAD -> master, GitNewBranch) Added feature files to GitNewBranch
* 375be90 Add .gitignore to ignore log files and folders
* 9699539 Initial commit: Added welcome.txt
```

3.11 Deleting Merged Branch

```
git branch -d GitNewBranch
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git branch -d GitNewBranch
Deleted branch GitNewBranch (was 4717e0f).
```

Lab 4: Conflict Resolution

Objectives

Explain how to resolve the conflict during merge.

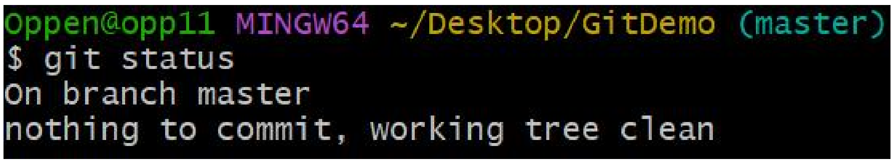
Please follow the instructions to complete the hands-on. Each instruction expect a command for the Git Bash.

1. Verify if master is in clean state.
2. Create a branch **“GitWork”.** Add a file “hello.xml”.
3. Update the content of “hello.xml” and observe the status
4. Commit the changes to reflect in the branch
5. Switch to master.
6. Add a file **“hello.xml”** to the master and add some different content than previous.
7. Commit the changes to the master
8. Observe the log by executing **“git log –oneline –graph –decorate –all”**
9. Check the differences with Git diff tool
10. For better visualization, use P4Merge tool to list out all the differences between master and branch
11. Merge the bran to the master
12. Observe the git mark up.
13. Use 3-way merge tool to resolve the conflict
14. Commit the changes to the master, once done with conflict
15. Observe the git status and add backup file to the .gitignore file.
16. Commit the changes to the .gitignore
17. List out all the available branches
18. Delete the branch, which merge to master.
19. Observe the log by executing **“git log –oneline –graph –decorate”**

Objective: Learn to handle merge conflicts.

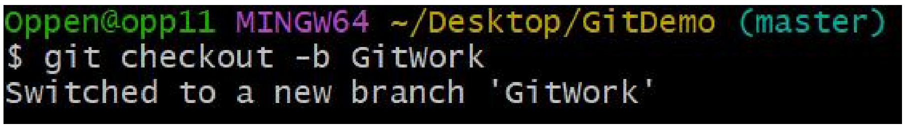
4.1 Verifying Clean Master State

```
git status
```


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git status
On branch master
nothing to commit, working tree clean
```

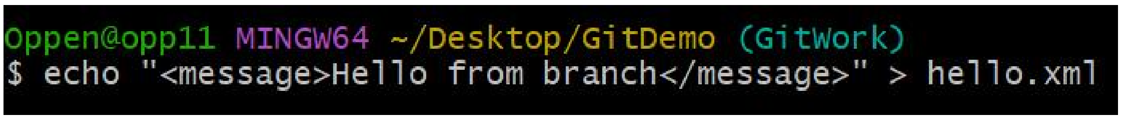
4.2 Creating and Switching to Work Branch

```
git checkout -b GitWork
```


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git checkout -b GitWork
Switched to a new branch 'GitWork'
```

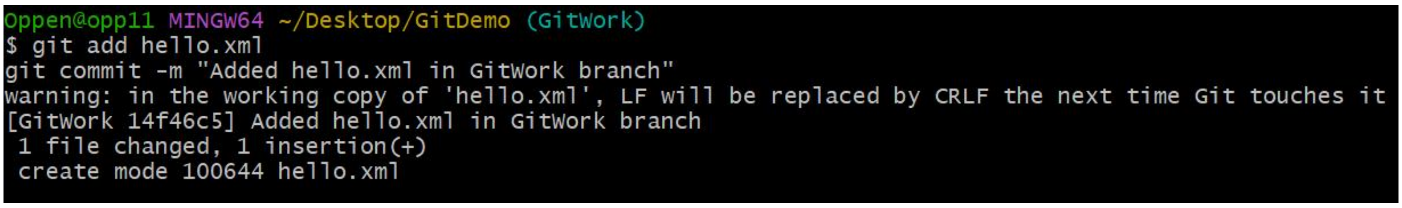
4.3 Creating hello.xml in Branch

```
echo "<message>Hello from branch</message>" > hello.xml
```


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (GitWork)
$ echo "<message>Hello from branch</message>" > hello.xml
```

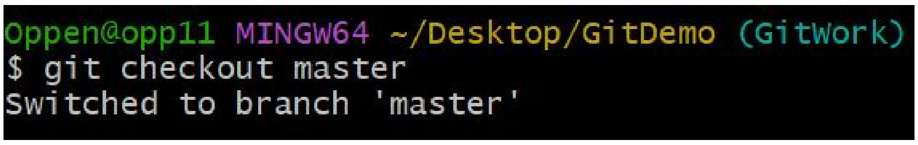
4.4 Commiting in Work Branch

```
git add hello.xml
git commit -m "Added hello.xml in GitWork branch"
```


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (GitWork)
$ git add hello.xml
git commit -m "Added hello.xml in GitWork branch"
warning: in the working copy of 'hello.xml', LF will be replaced by CRLF the next time Git touches it
[GitWork 14f46c5] Added hello.xml in GitWork branch
 1 file changed, 1 insertion(+)
 create mode 100644 hello.xml
```

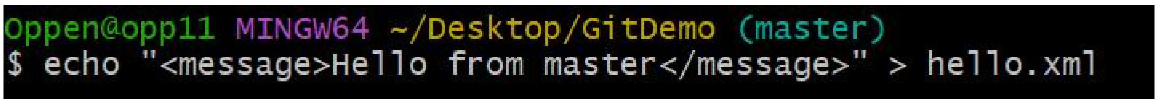
4.5 Switching to Master

```
git checkout master
```


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (GitWork)
$ git checkout master
Switched to branch 'master'
```

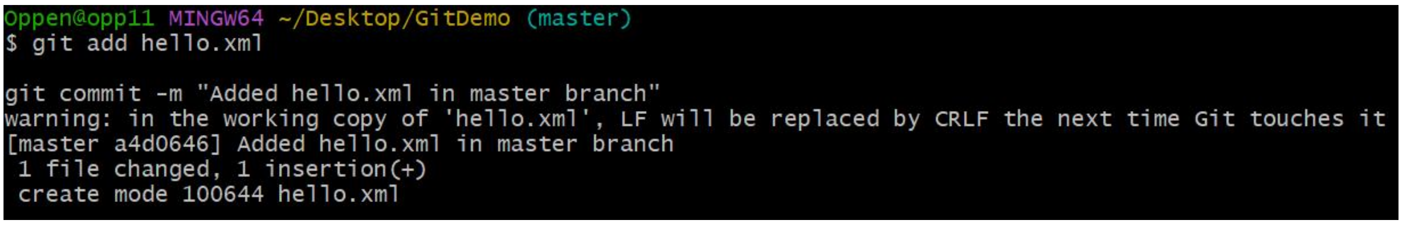
4.6 Create Conflicting hello.xml in Master

```
echo "<message>Hello from master</message>" > hello.xml
```


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ echo "<message>Hello from master</message>" > hello.xml
```

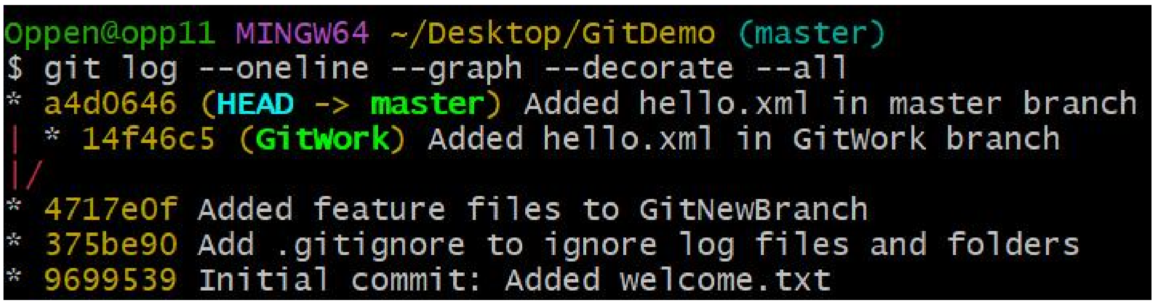
4.7 Commiting in Master

```
git add hello.xml

git commit -m "Added hello.xml in master branch"
```


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git add hello.xml

git commit -m "Added hello.xml in master branch"
warning: in the working copy of 'hello.xml', LF will be replaced by CRLF the next time Git touches it
[master a4d0646] Added hello.xml in master branch
 1 file changed, 1 insertion(+)
 create mode 100644 hello.xml
```

4.8 Viewing History

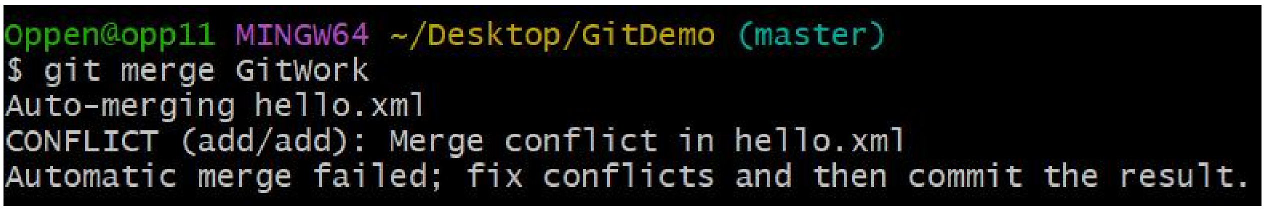
```
git log --oneline --graph --decorate --all
```


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git log --oneline --graph --decorate --all
* a4d0646 (HEAD -> master) Added hello.xml in master branch
| * 14f46c5 (GitWork) Added hello.xml in GitWork branch
|/
* 4717e0f Added feature files to GitNewBranch
* 375be90 Add .gitignore to ignore log files and folders
* 9699539 Initial commit: Added welcome.txt
```

4.9 Attempting to Merge

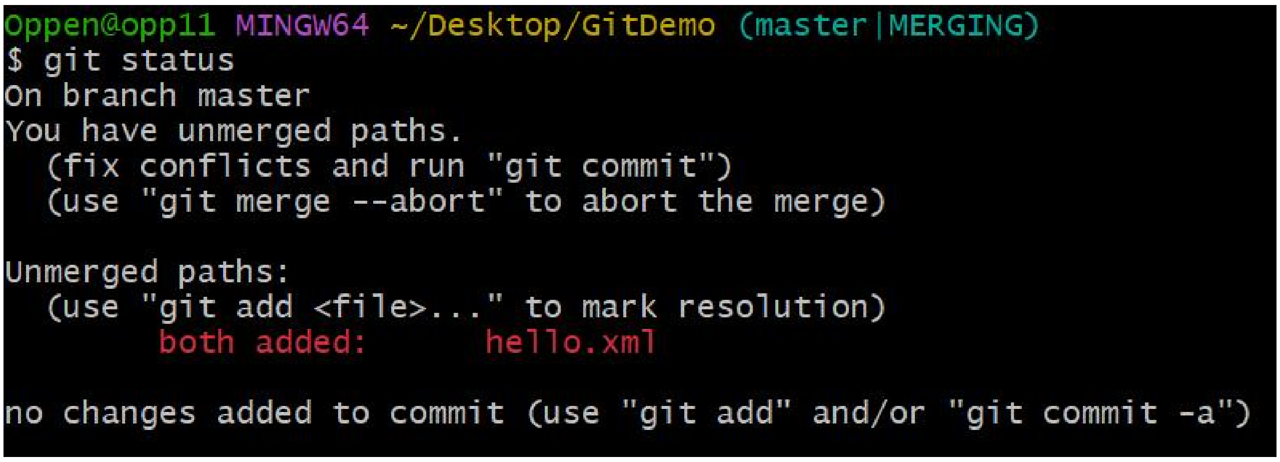
```
git merge GitWork
```

Output:


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git merge GitWork
Auto-merging hello.xml
CONFLICT (add/add): Merge conflict in hello.xml
Automatic merge failed; fix conflicts and then commit the result.
```

4.10 Checking Conflict Status

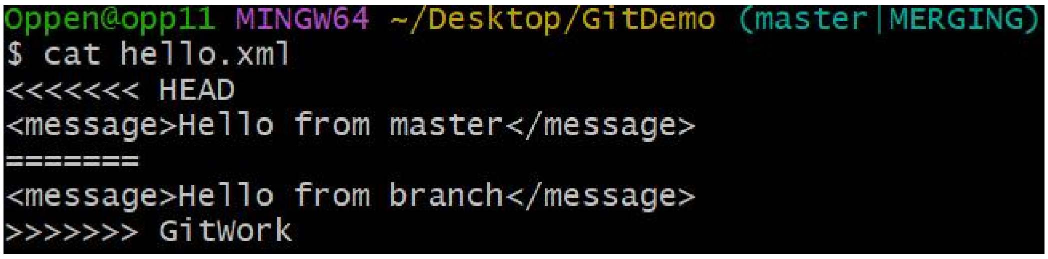
```
git status
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master|MERGING)
$ git status
On branch master
You have unmerged paths.
  (fix conflicts and run "git commit")
  (use "git merge --abort" to abort the merge)

Unmerged paths:
  (use "git add <file>..." to mark resolution)
        both added:      hello.xml

no changes added to commit (use "git add" and/or "git commit -a")
```

4.11 Viewing Conflict Markers

```
cat hello.xml
```

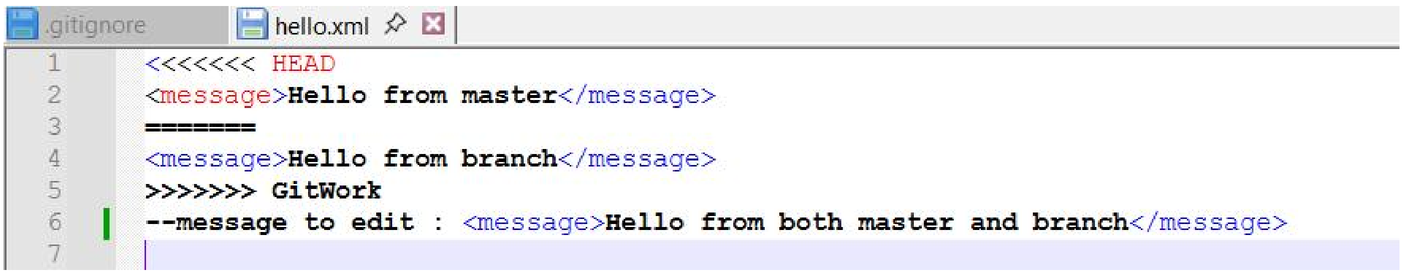


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master|MERGING)
$ cat hello.xml
<<<<<<< HEAD
<message>Hello from master</message>
=======
<message>Hello from branch</message>
>>>>>>> GitWork
```

4.12 Resolving Conflict Manually

Edit hello.xml:

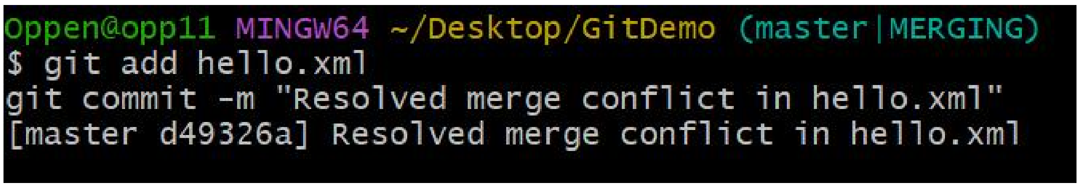
```
notepad++.exe hello.xml
--message to edit : <message>Hello from both master and branch</message>
```



```
<<<<<<< HEAD
<message>Hello from master</message>
=======
<message>Hello from branch</message>
>>>>>>> GitWork
--message to edit : <message>Hello from both master and branch</message>
```

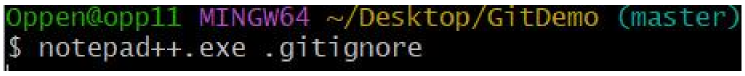
4.13 Adding Resolved File and Commit

```
git add hello.xml
git commit -m "Resolved merge conflict in hello.xml"
```

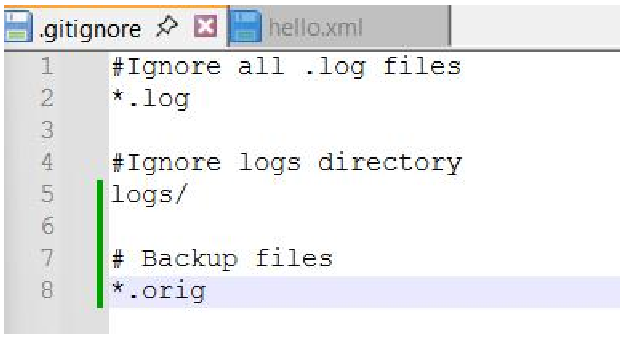


```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master|MERGING)
$ git add hello.xml
git commit -m "Resolved merge conflict in hello.xml"
[master d49326a] Resolved merge conflict in hello.xml
```

4.14 Updating .gitignore for Backup Files



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ notepad++.exe .gitignore
```

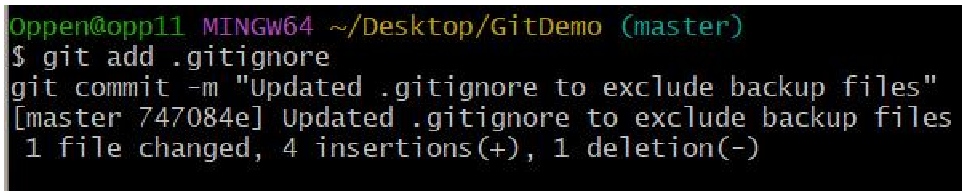


```
#Ignore all .log files
*.log

#Ignore logs directory
logs/

# Backup files
*.orig
```

Adding to .gitignore:
Backup files
*.orig

4.15 Commiting .gitignore Update

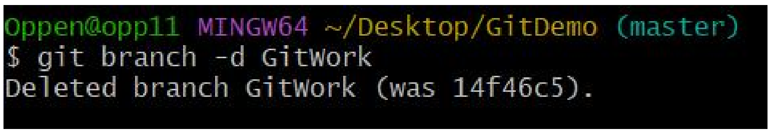
```
git add .gitignore
git commit -m "Updated .gitignore to exclude backup files"
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git add .gitignore
git commit -m "Updated .gitignore to exclude backup files"
[master 747084e] Updated .gitignore to exclude backup files
 1 file changed, 4 insertions(+), 1 deletion(-)
```

4.16 Deleting Work Branch

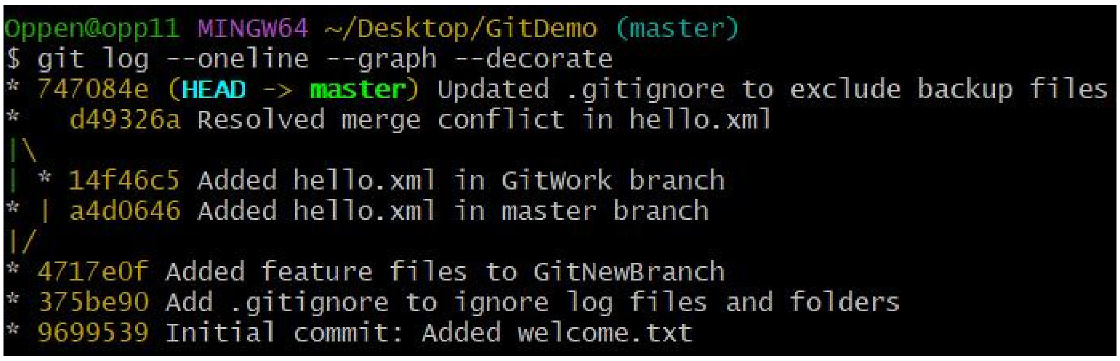
```
git branch -d GitWork
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git branch -d GitWork
Deleted branch GitWork (was 14f46c5).
```

4.17 Viewing Final History

```
git log --oneline --graph --decorate
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git log --oneline --graph --decorate
* 747084e (HEAD -> master) Updated .gitignore to exclude backup files
*   d49326a Resolved merge conflict in hello.xml
|\
| * 14f46c5 Added hello.xml in GitWork branch
* | a4d0646 Added hello.xml in master branch
|/
* 4717e0f Added feature files to GitNewBranch
* 375be90 Add .gitignore to ignore log files and folders
* 9699539 Initial commit: Added welcome.txt
```

Lab 5: Remote Repository Operations

Objectives

Here's a typical "clean up and push" workflow once you've finished working locally and want your repo to be tidy and fully synced with the remote:

---

1. Review & stage your changes

See what's changed

```
git status
```

Stage only the files you intend

```
git add path/to/file1 path/to/file2
```

Or stage everything new/modified:

```
git add .
```

---

2. Commit with a clear message

```
git commit -m "Short summary of what you added/fixed"
```

If you've got leftover uncommitted work you're not ready to include, you can **stash** it:

```
git stash save "WIP: some notes"
```

---

3. Clean untracked files (optional)

To remove files Git hasn't seen before (be **very** sure—you can't undo this):

```
git clean -fd   # -f = force, -d = include directories
```

To preview what would be deleted:

```
git clean -nfd
```

---

4. Update your main branch

If you've been working on a feature branch, switch back and bring `main` up to date:

```
git checkout main
git fetch origin
git pull --rebase origin main
```

---

5. Merge your feature (if you haven't already)

```
git merge --no-ff feature-branch-name
```

Resolve any conflicts (look for <<<<<<< markers), then

```
git add <resolved-files>
git commit      # completes the merge
```

---

6. Push your changes to the remote

```
git push origin main
```

If you're still on a feature branch and want to publish it:

```
git push -u origin feature-branch-name
```

---

7. Clean up merged branches

Once your feature is merged and pushed, delete the branch **locally**:

```
git branch -d feature-branch-name
```

—and **remotely**:

```
git push origin --delete feature-branch-name
```

---

8. Prune stale remotes (optional)

To remove references to branches that no longer exist on origin:

```
git fetch --prune
```

Putting it all together (example)

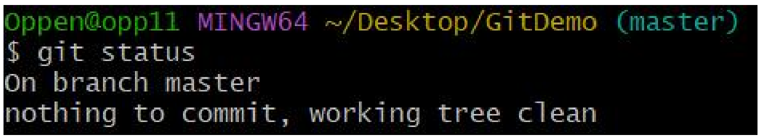
```
# 1. Stage & commit your work
git add .
git commit -m "Implement X feature"

# 2. Clean up any stray untracked files
git clean -nfd    # preview
git clean -fd     # actually delete

# 3. Switch to main and update it
git checkout main
git pull --rebase

# 4. Merge your feature branch
git merge --no-ff feature/X

# 5. Push main to remote
git push origin main

# 6. Delete your feature branch
git branch -d feature/X
git push origin --delete feature/X

# 7. Prune any stale remote-tracking refs
git fetch --prune
```

Please follow the instructions to complete the hands-on. Each instruction expects a command for the Git Bash.

20. Verify if master is in clean state.
21. List out all the available branches.
22. Pull the remote git repository to the master
23. Push the changes, which are pending from **"Git-T03-HOL_002"** to the remote repository.
24. Observe if the changes are reflected in the remote repository.

5.1 Verifying Clean Master State

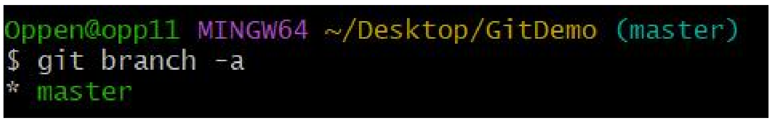
```
git status
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git status
On branch master
nothing to commit, working tree clean
```

5.2 Listing Branches

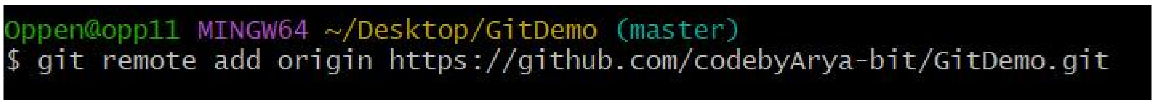
```
git branch -a
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git branch -a
* master
```

5.3 Adding Remote Repository

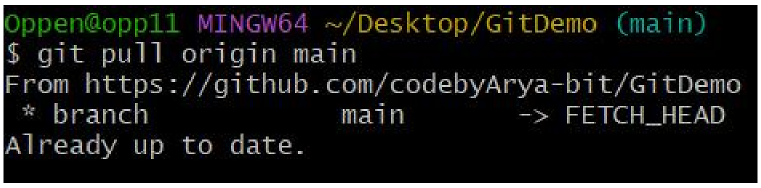
```
git remote add origin https://github.com/codebyArya-bit/GitDemo.git
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ git remote add origin https://github.com/codebyArya-bit/GitDemo.git
```

5.4 Pulling from Remote

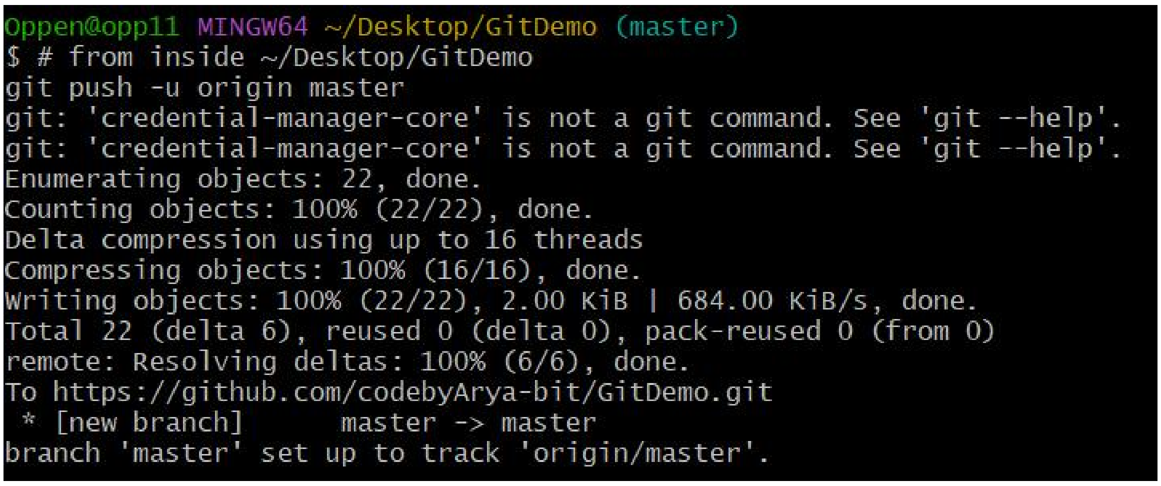
```
git pull origin main
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (main)
$ git pull origin main
From https://github.com/codebyArya-bit/GitDemo
 * branch            main       -> FETCH_HEAD
Already up to date.
```

5.5 Push Changes to Remote

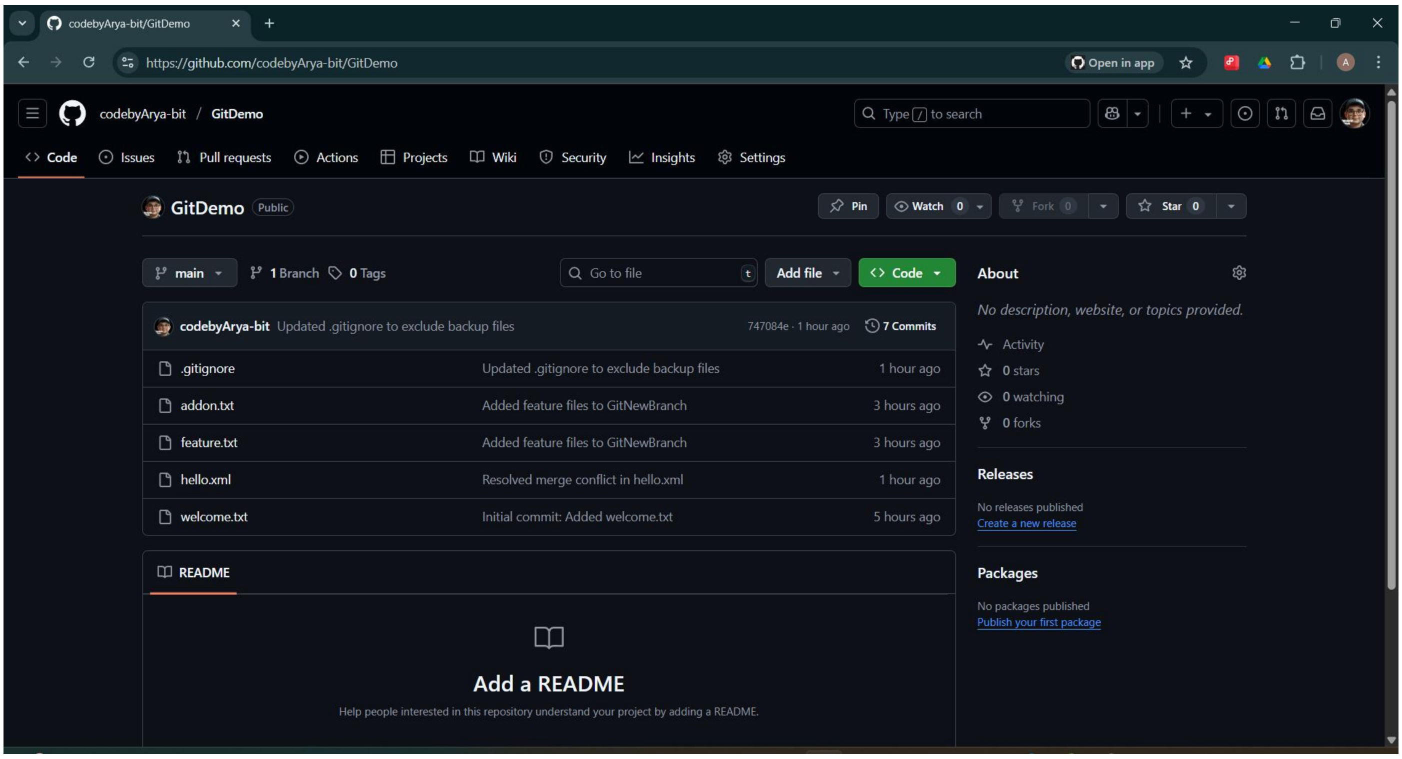
```
git push -u origin main
```



```
Oppen@opp11 MINGW64 ~/Desktop/GitDemo (master)
$ # from inside ~/Desktop/GitDemo
git push -u origin master
git: 'credential-manager-core' is not a git command. See 'git --help'.
git: 'credential-manager-core' is not a git command. See 'git --help'.
Enumerating objects: 22, done.
Counting objects: 100% (22/22), done.
Delta compression using up to 16 threads
Compressing objects: 100% (16/16), done.
Writing objects: 100% (22/22), 2.00 KiB | 684.00 KiB/s, done.
Total 22 (delta 6), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (6/6), done.
To https://github.com/codebyArya-bit/GitDemo.git
 * [new branch]      master -> master
branch 'master' set up to track 'origin/master'.
```

5.6 Verifying

Online



codebyArya-bit Updated .gitignore to exclude backup files 747084e · 1 hour ago 7 Commits

.gitignore	Updated .gitignore to exclude backup files	1 hour ago
addon.txt	Added feature files to GitNewBranch	3 hours ago
feature.txt	Added feature files to GitNewBranch	3 hours ago
hello.xml	Resolved merge conflict in hello.xml	1 hour ago
welcome.txt	Initial commit: Added welcome.txt	5 hours ago

README

Add a README

Help people interested in this repository understand your project by adding a README.

About

No description, website, or topics provided.

Activity
0 stars
0 watching
0 forks

Releases

No releases published
Create a new release

Packages

No packages published
Publish your first package