

HANDSON EXERCISES - WEEK 8**Skill : GIT****File : 1. Git-HOL.docx****Exercise : Git Setup and Repository Push to GitLab****Git Installation Check**

```
[(base) rafi@RafiSBMs-MacBook-Air Week 8 % git --version  
git version 2.15.0  
(base) rafi@RafiSBMs-MacBook-Air Week 8 %
```

Git Global Configuration

```
[(base) rafi@RafiSBMs-MacBook-Air Week 8 % git config --global user.name "Rafi-Luffy"  
(base) rafi@RafiSBMs-MacBook-Air Week 8 % git config --global user.email "786astragaming999@gmail.com"  
(base) rafi@RafiSBMs-MacBook-Air Week 8 %
```

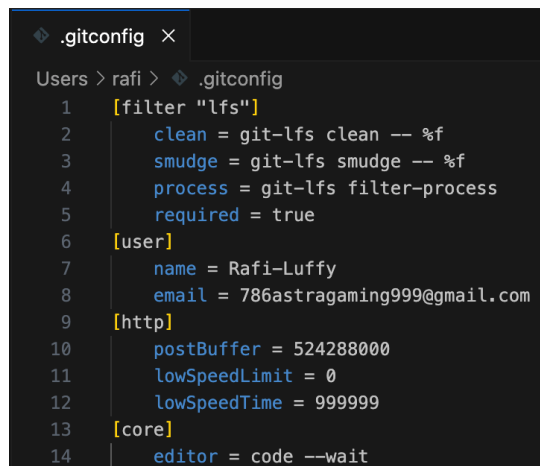
```
[(base) rafi@RafiSBMs-MacBook-Air Week 8 % git config --global --list  
filter.lfs.clean=git-lfs clean -- %f  
filter.lfs.smudge=git-lfs smudge -- %f  
filter.lfs.process=git-lfs filter-process  
filter.lfs.required=true  
user.name=Rafi-Luffy  
user.email=786astragaming999@gmail.com  
http.postbuffer=524288000  
http.lowspeedlimit=0  
http.lowspeedtime=999999  
(base) rafi@RafiSBMs-MacBook-Air Week 8 %
```

Setting VS Code as Default Git Editor

```
● (base) rafi@RafiSBMs-MacBook-Air Week 8 % git config --global core.editor "code --wait"  
○ (base) rafi@RafiSBMs-MacBook-Air Week 8 %
```

```
● (base) rafi@RafiSBMs-MacBook-Air Week 8 % code --version  
1.103.0  
e3550cfac4b63ca4eafca7b601f0d2885817fd1f  
arm64  
○ (base) rafi@RafiSBMs-MacBook-Air Week 8 %
```

Opening .gitconfig in VS Code



```

.gitconfig x
Users > rafi > .gitconfig
1  [filter "lfs"]
2      clean = git-lfs clean -- %f
3      smudge = git-lfs smudge -- %f
4      process = git-lfs filter-process
5      required = true
6  [user]
7      name = Rafi-Luffy
8      email = 786astragaming999@gmail.com
9  [http]
10     postBuffer = 524288000
11     lowSpeedLimit = 0
12     lowSpeedTime = 999999
13 [core]
14     editor = code --wait
  
```

Initializing Git Repository

```

(base) rafi@RafiSBMs-MacBook-Air Week 8 % mkdir GitDemo
(base) rafi@RafiSBMs-MacBook-Air Week 8 % cd GitDemo
(base) rafi@RafiSBMs-MacBook-Air GitDemo % git init
Initialized empty Git repository in /Users/rafi/Downloads/Cognizant Work_Progress/Week 8/GitDemo/.git/
(base) rafi@RafiSBMs-MacBook-Air GitDemo %
  
```

Creating the File & viewing its contents

```

(base) rafi@RafiSBMs-MacBook-Air GitDemo % echo "Welcome rafi to Git Hands-On Lab" > welcome.txt
(base) rafi@RafiSBMs-MacBook-Air GitDemo % ls -la
.
..
.git
welcome.txt
(base) rafi@RafiSBMs-MacBook-Air GitDemo % cat welcome.txt
Welcome rafi to Git Hands-On Lab
(base) rafi@RafiSBMs-MacBook-Air GitDemo %
  
```

Checking Git Status (Untracked)

```

(base) rafi@RafiSBMs-MacBook-Air GitDemo % git status

On branch master

No commits yet

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

    welcome.txt

nothing added to commit but untracked files present (use "git add" to track)
(base) rafi@RafiSBMs-MacBook-Air GitDemo %
  
```

Adding File to Staging

```

(base) rafi@RafiSBMs-MacBook-Air GitDemo % git add welcome.txt
(base) rafi@RafiSBMs-MacBook-Air GitDemo % git status

On branch master

No commits yet

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

    new file:   welcome.txt

(base) rafi@RafiSBMs-MacBook-Air GitDemo %
  
```

Committing Changes with VS Code Editor

```
(base) rafi@RafiSBMs-MacBook-Air GitDemo % git commit

[master (root-commit) 7f44525] Initial commit - Added welcome.txt file - Prepared project structure
1 file changed, 1 insertion(+)
 create mode 100644 welcome.txt
(base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Remote Repository Creation & Linking Remote to Local

```
(base) rafi@RafiSBMs-MacBook-Air GitDemo % clear
(base) rafi@RafiSBMs-MacBook-Air GitDemo % git remote set-url origin https://gitlab.com/kaze3244315/gitdemo.git
```

```
(base) rafi@RafiSBMs-MacBook-Air GitDemo % git remote -v
origin https://gitlab.com/kaze3244315/gitdemo.git (fetch)
origin https://gitlab.com/kaze3244315/gitdemo.git (push)
(base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Successful Push to Remote

```
(base) rafi@RafiSBMs-MacBook-Air GitDemo % git push -u origin master

Counting objects: 3, done.
Writing objects: 100% (3/3), 294 bytes | 294.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
remote:
remote: To create a merge request for master, visit:
remote: https://gitlab.com/kaze3244315/gitdemo/-/merge_requests/new?merge_request%5Bsource_branch%5D=master
remote:
To https://gitlab.com/kaze3244315/gitdemo.git
 * [new branch] master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
(base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Final Repository on GitLab



File : 2. Git-HOL.docx**Exercise :** Ignoring Unwanted Files and Folders in Git using .gitignore**Current Repository**

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % pwd
/Users/rafi/Downloads/Cognizant Work_Progress/Week 8/GitDemo
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo % █

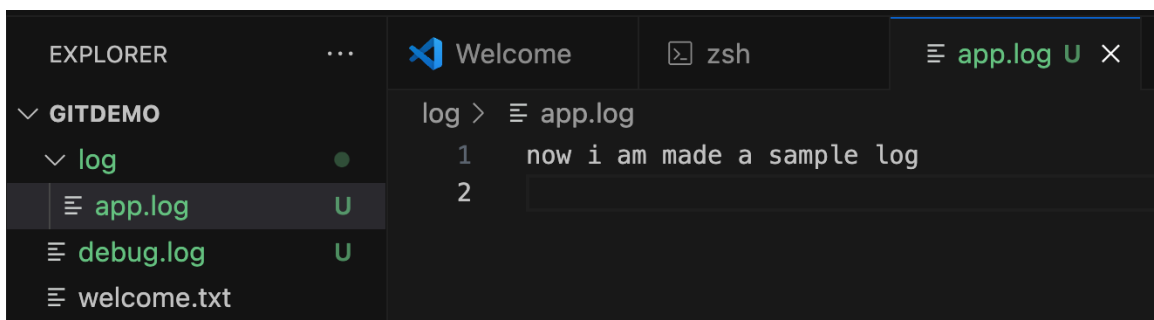
```

Creating Log File and Folder

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % touch debug.log
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % mkdir log
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % echo "now i am made a sample log" > log/app.log
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo % █

```

**Git Status Before Ignoring**

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git status

On branch master
Your branch is up to date with 'origin/master'.

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

    debug.log
    log/

nothing added to commit but untracked files present (use "git add" to track)
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo % █

```

Updating .gitignore File

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % echo "*.log" > .gitignore
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % echo "log/" >> .gitignore
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % cat .gitignore
*.log
log/
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo % █

```

Git Status After Ignoring

```
(base) rafi@RafiSBMs-MacBook-Air GitDemo % git status

On branch master
Your branch is up to date with 'origin/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)
(base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Committing .gitignore File

```
(base) rafi@RafiSBMs-MacBook-Air GitDemo % git add .gitignore
(base) rafi@RafiSBMs-MacBook-Air GitDemo % git commit -m "Added .gitignore to ignore log files and folder"
[master 2ea4425] Added .gitignore to ignore log files and folder
1 file changed, 2 insertions(+)
create mode 100644 .gitignore
(base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Pushing Changes to Remote

```
(base) rafi@RafiSBMs-MacBook-Air GitDemo % git push

Counting objects: 3, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 319 bytes | 319.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
remote:
remote: To create a merge request for master, visit:
remote:   https://gitlab.com/kaze3244315/gitdemo/-/merge_requests/new?merge_request%5Bsource_branch%5D=master
remote:
To https://gitlab.com/kaze3244315/gitdemo.git
7f44525..2ea4425 master -> master
(base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Verifying on GitLab

The top screenshot shows the GitLab repository page for 'gitdemo'. It displays a notification 'You pushed to master' and a table of commits. The latest commit is 'Added .gitignore to ignore log files and folder' by 'SBM RAFI' at 2ea4425, committed 2 minutes ago.

Name	Last commit	Last update
.gitignore	Added .gitignore to ignore log files and folder	2 minutes ago
welcome.txt	Initial commit	1 hour ago

The bottom screenshot shows the file view for '.gitignore'. It displays the content of the file:

```
* Log
Log/
Log/
```

File : 3. Git-HOL.docx**Exercise : Git Branching and Merging****Listing Local and Remote Branches**

```
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % clear
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git branch GitNewBranch

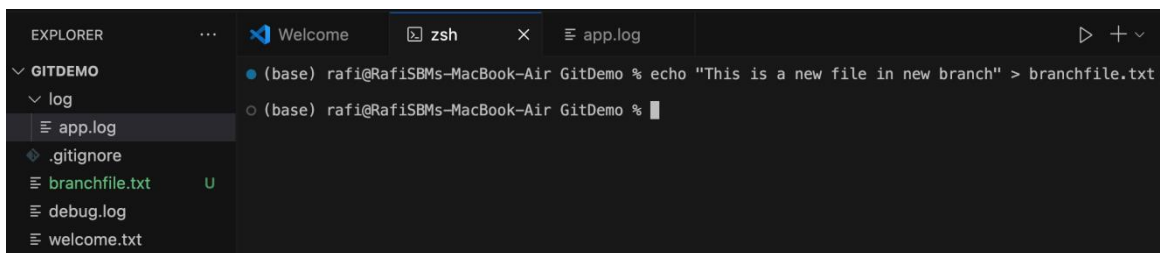
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git branch -a

    GitNewBranch
* master
  remotes/origin/master
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Switching to New Branch

```
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git checkout GitNewBranch

Switched to branch 'GitNewBranch'
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Creating a File in New Branch

```
EXPLORER
  ...
  Welcome
  zsh
  app.log
  GitDemo
  log
  app.log
  .gitignore
  branchfile.txt
  debug.log
  welcome.txt

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % echo "This is a new file in new branch" > branchfile.txt
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Committing Changes in the Branch

```
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git add branchfile.txt
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git commit -m "Added branchfile.txt in GitNewBranch"
[GitNewBranch 52899d4] Added branchfile.txt in GitNewBranch
 1 file changed, 1 insertion(+)
 create mode 100644 branchfile.txt
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Pushing Branch to GitLab

```
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git push -u origin GitNewBranch

Counting objects: 3, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 370 bytes | 370.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
remote:
remote: To create a merge request for GitNewBranch, visit:
remote:   https://gitlab.com/kaze3244315/gitdemo/-/merge_requests/new?merge_request%5Bsource_branch%5D=GitNewBranch
remote:
To https://gitlab.com/kaze3244315/gitdemo.git
 * [new branch]      GitNewBranch -> GitNewBranch
Branch 'GitNewBranch' set up to track remote branch 'GitNewBranch' from 'origin'.
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Creating Merge Request in GitLab

The top screenshot shows the GitLab repository page for 'gitdemo'. A notification at the top indicates 'You pushed to GitNewBranch 1 minute ago' with a 'Create merge request' button. The repository files list includes .gitignore, branchfile.txt, and welcome.txt. The bottom screenshot shows the 'Initial commit' page for the merge request. It includes an 'Overview' tab, a list of changes (Added welcome.txt file, Prepared project structure), and a 'Ready to merge!' section with options to 'Delete source branch', 'Squash commits', or 'Edit commit message'. The 'Merge' button is visible at the bottom.

Switching Back to Master

```

EXPLORER  ...  Welcome  zsh  app.log

GITDEMO
└─ log
   └─ app.log
      .gitignore
      debug.log
      welcome.txt

  (base) rafi@RafiSBMs-MacBook-Air GitDemo % git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
(base) rafi@RafiSBMs-MacBook-Air GitDemo %

```

Viewing CLI Differences Between Branch and Master

```

(base) rafi@RafiSBMs-MacBook-Air GitDemo % git diff master GitNewBranch

diff --git a/branchfile.txt b/branchfile.txt
new file mode 100644
index 0000000..4056526
--- /dev/null
+++ b/branchfile.txt
@@ -0,0 +1 @@
+This is a new file in new branch
(base) rafi@RafiSBMs-MacBook-Air GitDemo %

```

Merging Branch into Master

```
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git merge GitNewBranch

Updating 2ea4425..52899d4
Fast-forward
 branchfile.txt | 1 +
 1 file changed, 1 insertion(+)
 create mode 100644 branchfile.txt
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo % █
```

Viewing Merge History

```
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git log --oneline --graph --decorate

* 52899d4 (HEAD -> master, origin/GitNewBranch, GitNewBranch) Added branchfile.txt in GitNewBranch
* 2ea4425 (origin/master) Added .gitignore to ignore log files and folder
* 7f44525 Initial commit - Added welcome.txt file - Prepared project structure
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo % █
```

Deleting Branch After Merge

```
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git branch -d GitNewBranch

Deleted branch GitNewBranch (was 52899d4).
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo % █
```

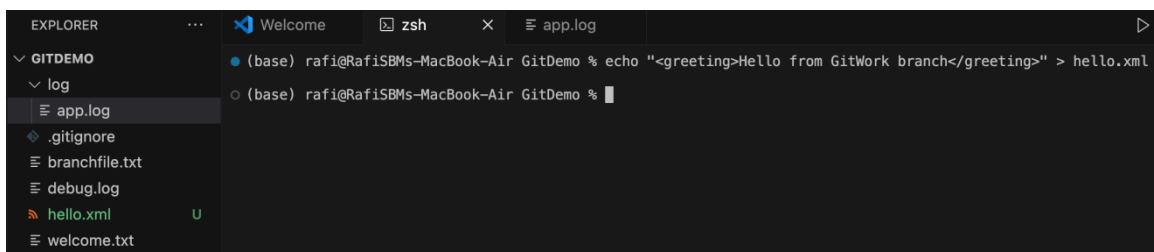

File : 4. Git-HOL.docx**Exercise : Merge Conflict Resolution in Git****Master Branch Clean State**

```
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git checkout master
Already on 'master'
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % 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
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Creating and Switching to GitWork Branch

```
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git branch GitWork
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git checkout GitWork
Switched to branch 'GitWork'
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Creating hello.xml in GitWork**Committing hello.xml in GitWork**

```
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git add hello.xml
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git commit -m "Add hello.xml in GitWork"
[GitWork 373a43b] Add hello.xml in GitWork
 1 file changed, 1 insertion(+)
 create mode 100644 hello.xml
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Creating Different hello.xml in Master

```
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git checkout master
Switched to branch 'master'
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % echo "<greeting>Hello from Master branch</greeting>" > hello.xml
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

Committing hello.xml in Master

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git add hello.xml
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git commit -m "Added hello.xml in master"
[master 5d58349] Added hello.xml in master
 1 file changed, 1 insertion(+)
 create mode 100644 hello.xml
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %

```

Viewing Diverged Branch History

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git log --oneline --graph --decorate --all

* 5d58349 (HEAD -> master) Added hello.xml in master
| * 373a43b (GitWork) Add hello.xml in GitWork
|/
* 52899d4 (origin/GitNewBranch) Added branchfile.txt in GitNewBranch
* 2ea4425 (origin/master) Added .gitignore to ignore log files and folder
* 7f44525 Initial commit - Added welcome.txt file - Prepared project structure
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %

```

Merge Conflict Occurs

```

⊗ (base) rafi@RafiSBMs-MacBook-Air GitDemo % 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.
✧ (base) rafi@RafiSBMs-MacBook-Air GitDemo %

```

Resolving Conflict in VS Code & Committing the Resolved Conflict

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % code hello.xml
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git add hello.xml
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git commit -m "Resolved merge conflict in hello.xml"

[master aa6feab] Resolved merge conflict in hello.xml
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %

```

Adding Backup File Ignore Rule

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % echo "*~" >> .gitignore
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git add .gitignore
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git commit -m "Ignore backup files"
[master 6e0c9c6] Ignore backup files
 1 file changed, 1 insertion(+)
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %

```

Deleting GitWork Branch

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git branch -d GitWork

Deleted branch GitWork (was 373a43b).
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %

```

Final Commit History After Merge

```
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git log --oneline --graph --decorate

* 6e0c9c6 (HEAD -> master) Ignore backup files
* aa6feab Resolved merge conflict in hello.xml
| \
| * 373a43b Add hello.xml in GitWork
* | 5d58349 Added hello.xml in master
| /
* 52899d4 (origin/GitNewBranch) Added branchfile.txt in GitNewBranch
* 2ea4425 (origin/master) Added .gitignore to ignore log files and folder
* 7f44525 Initial commit - Added welcome.txt file - Prepared project structure
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %
```

File : 5. Git-HOL.docx**Exercise : Cleaning Up and Pushing to Remote Git****Master Branch Clean State**

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git checkout master
Already on 'master'
Your branch is ahead of 'origin/master' by 5 commits.
(use "git push" to publish your local commits)
● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git status
On branch master
Your branch is ahead of 'origin/master' by 5 commits.
(use "git push" to publish your local commits)

nothing to commit, working tree clean
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %

```

Listing all available branches

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git branch -a
* master
  remotes/origin/GitNewBranch
  remotes/origin/master
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %

```

Pulling latest changes from remote

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git pull origin master

From https://gitlab.com/kaze3244315/gitdemo
* branch                master      -> FETCH_HEAD
Already up to date.
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %

```

Pushing pending changes to remote

```

● (base) rafi@RafiSBMs-MacBook-Air GitDemo % git push origin master

Counting objects: 12, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (8/8), done.
Writing objects: 100% (12/12), 1.19 KiB | 1.19 MiB/s, done.
Total 12 (delta 4), reused 0 (delta 0)
remote:
remote: To create a merge request for master, visit:
remote:   https://gitlab.com/kaze3244315/gitdemo/-/merge_requests/new?merge_request%5Bsource_branch%5D=master
remote:
To https://gitlab.com/kaze3244315/gitdemo.git
2ea4425..6e0c9c6  master -> master
○ (base) rafi@RafiSBMs-MacBook-Air GitDemo %

```

Verifying changes on GitLab

The screenshot shows the GitLab web interface for a repository named 'gitdemo'. A green notification banner at the top states 'You pushed to master' 36 seconds ago. The left sidebar contains navigation links: Project, Pinned, Issues, Merge requests, Manage, Plan, Code, Merge requests, Repository (selected), Branches, Commits, and Tags. The main content area shows the commit history for the 'master' branch. A table lists the commits:

Name	Last commit	Last update
gitignore	Ignore backup files	10 minutes ago
branchfile.txt	Added branchfile.txt in GitNewBranch	11 hours ago
hello.xml	Resolved merge conflict in hello.xml	11 minutes ago
welcome.txt	Initial commit	13 hours ago