

Git Initialization and Basic Operations – Lab Documentation

1. Objective

Use Git to perform the following tasks

- a) Setup and configuration(config etc.)
- b) Repository Management(init,clone etc.)
- c) Basic Snapshotting(status, commit,log etc.)

1. Experiment along with Description

```
Last login: Fri Jul  4 10:29:14 on ttys000
The operation couldn't be completed. Unable to locate a Java Runtime.
Please visit http://www.java.com for information on installing Java.

lokeshboddapu@Lokeshs-MacBook-Air ~ % git --version
git version 2.39.5 (Apple Git-154)
lokeshboddapu@Lokeshs-MacBook-Air ~ % pwd
/Users/lokeshboddapu
lokeshboddapu@Lokeshs-MacBook-Air ~ % mkdir DevLab
lokeshboddapu@Lokeshs-MacBook-Air ~ % cd DevLab
lokeshboddapu@Lokeshs-MacBook-Air DevLab % cd Lab-1-322103382008
cd: no such file or directory: Lab-1-322103382008
lokeshboddapu@Lokeshs-MacBook-Air DevLab % mkdir Lab-1-322103382008
lokeshboddapu@Lokeshs-MacBook-Air DevLab % cd Lab-1-322103382008
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % ls
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % ls -a
.
..
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git init
Initialized empty Git repository in /Users/lokeshboddapu/DevLab/Lab-1-322103382008/.git/
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % ls
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % ls -a
.
..
.git
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % touch hello.txt
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % touch world.txt
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % ls
hello.txt      world.txt
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % ls -a
.
..
.git           hello.txt      world.txt
```

The process begins by checking if Git is installed using the `git --version` command, which confirms its presence by showing the version. The current working directory is verified with `pwd`. A new directory named `DevLab` is created using `mkdir`, and navigated into with `cd`. An attempt to enter a subdirectory named `Lab-1-322103382008` fails since it doesn't exist, so it is created and accessed. Running `ls` and `ls -a` shows the folder is initially empty. A Git repository is initialised using `git init`, which creates a hidden `.git` folder. This is confirmed by listing all

files again with `ls -a`. Two empty files, `hello.txt` and `world.txt`, are created using the `touch` command. Listing the contents with `ls` and `ls -a` confirms the presence of the newly created files along with the `.git` directory, indicating that the folder is now under Git version control with tracked content ready for further operations.

```
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git add hello.txt
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git status
On branch main

No commits yet

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

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

lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % touch welcome.txt
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % ls
hello.txt      welcome.txt    world.txt
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % ls -a
.              .git           welcome.txt
..             hello.txt      world.txt
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git add --a
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git status
On branch main

No commits yet

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

lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git log
fatal: your current branch 'main' does not have any commits yet
```

The file `hello.txt` was added to the staging area using `git add hello.txt`. Running `git status` showed it as staged, while `world.txt` was still untracked. Then, a new file `welcome.txt` was created. After checking the directory contents, all files (`hello.txt`, `world.txt`, `welcome.txt`) were present. An incorrect command `git add --a` was used (should be `git add -A` or `git add .`), but still, all files got staged. `git status` confirmed all three files were ready to be committed. Finally, `git log` showed no commits had been made yet.

```

lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git commit -m "First Commit"
[main (root-commit) 39a6bfd] First Commit
3 files changed, 0 insertions(+), 0 deletions(-)
create mode 100644 hello.txt
create mode 100644 welcome.txt
create mode 100644 world.txt
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git status
On branch main
nothing to commit, working tree clean
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git log
commit 39a6bfd4964c0de3ebb04c44ff03420535ffae6a (HEAD -> main)
Author: BoddapuLokesh <lokeshboddapu1234@gmail.com>
Date: Fri Jul 4 10:55:19 2025 +0530

```

```

First Commit
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % touch helloworld.txt
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git status
On branch main
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    helloworld.txt

nothing added to commit but untracked files present (use "git add" to track)
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git log
commit 39a6bfd4964c0de3ebb04c44ff03420535ffae6a (HEAD -> main)
Author: BoddapuLokesh <lokeshboddapu1234@gmail.com>
Date: Fri Jul 4 10:55:19 2025 +0530

```

```

First Commit
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git add helloworld.txt
lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git status
On branch main
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   helloworld.txt

lokeshboddapu@Lokeshs-MacBook-Air Lab-1-322103382008 % git log
commit 39a6bfd4964c0de3ebb04c44ff03420535ffae6a (HEAD -> main)
Author: BoddapuLokesh <lokeshboddapu1234@gmail.com>
Date: Fri Jul 4 10:55:19 2025 +0530

```

First Commit

The first commit was made with the message "First Commit", including three files: `hello.txt`, `welcome.txt`, and `world.txt`. `git status` confirmed that the working directory was clean. `git log` showed the commit details. A new file `helloworld.txt` was created next. It was initially untracked as shown by `git status`. After running `git add helloworld.txt`, the file was staged. `git log` still showed only the first commit, meaning a second commit hadn't been made yet at that point.

4. Git Command Summary

Command	Description
<code>git init</code>	Initializes a new Git repository
<code>touch <file></code>	Creates a new empty file
<code>git add <file> / git add .</code>	Stages file(s) for commit
<code>git status</code>	Displays current staging area status
<code>git commit -m "message"</code>	Commits staged changes with a message
<code>git log</code>	Shows commit history