Software Engineering and Project Management
EXPERIMENT – 3

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Batch: T21

Roll No: 87

AIM:

To Perform various GIT operations on local and Remote repositories using GIT Cheat Sheet

THEORY:

Git is a distributed version control system (DVCS) that helps developers track, manage, and collaborate on code changes efficiently. It allows you to maintain a complete history of your code, revert to previous versions, and work seamlessly with other developers. Designed for projects of all sizes, Git ensures speed and reliability.

Key Git Operations:

- **Initialize (git init)** – Creates a new Git repository in the specified directory.
- **Add (git add)** – Stages changes, preparing them for the next commit.
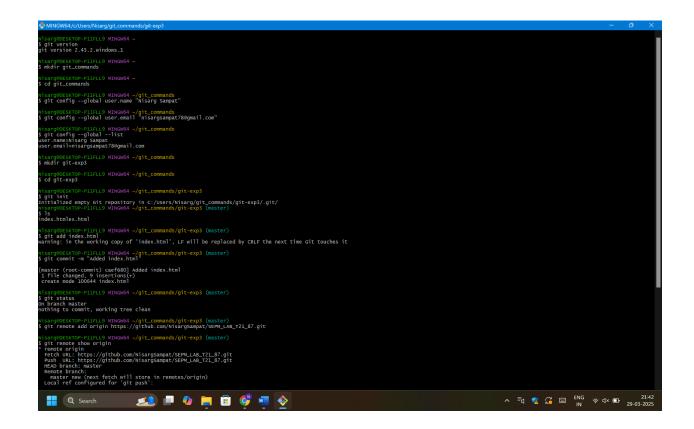- **Commit (git commit)** – Saves staged changes with a message, creating a version checkpoint.
- **Pull (git pull)** – Fetches and merges updates from a remote repository into the local one.
- **Push (git push)** – Uploads committed changes from the local repository to a remote repository.

Git simplifies code management, making collaboration and version control seamless.

OUTPUT:

```
MINGW64:/c/Users/Nisarg/git_commands/git-exp3

Nisarg@DESKTOP-P11FLL9 MINGW64 ~
$ git version
git version 2.45.2.windows.1

Nisarg@DESKTOP-P11FLL9 MINGW64 ~
$ mkdir git_commands

Nisarg@DESKTOP-P11FLL9 MINGW64 ~
$ cd git_commands

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands
$ git config --global user.name "Nisarg Sampat"

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands
$ git config --global user.email "nisargsampat78@gmail.com"

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands
$ git config --global --list
user.name=Nisarg Sampat
user.email=nisargsampat78@gmail.com
```



```
MINGW64:/c/Users/Nisarg/git_commands/git-exp3

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git version 2.45.2.windows.1

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Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands
$ git config --global --list
user.name=Nisarg Sampat
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Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands
$ mkdir git-exp3

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands
$ cd git-exp3

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3
$ git init
Initialized empty Git repository in C:/Users/Nisarg/git_commands/git-exp3/.git/
Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (master)
$ ls
index.htmlex.html

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (master)
$ git add index.html
warning: in the working copy of 'index.html', LF will be replaced by CRLF the next time Git touches it

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (master)
$ git commit -m "Added index.html"

[master (root-commit) caef680] Added index.html
 1 file changed, 9 insertions(+)
 create mode 100644 index.html

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (master)
$ git status
On branch master
nothing to commit, working tree clean

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (master)
$ git remote add origin https://github.com/NisargSampat/SEPM_LAB_T21_87.git

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (master)
$ git remote show origin
* remote origin
  Fetch URL: https://github.com/NisargSampat/SEPM_LAB_T21_87.git
  Push  URL: https://github.com/NisargSampat/SEPM_LAB_T21_87.git
  HEAD branch: master
  Remote branch:
    master new (next fetch will store in remotes/origin)
  Local ref configured for 'git push':
```

```
Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands
$ cd git-exp3

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3
$ git init
Initialized empty Git repository in C:/Users/Nisarg/git_commands/git-exp3/.git/
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$ git add index.html
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Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (master)
$ git commit -m "Added index.html"

[master (root-commit) caef680] Added index.html
 1 file changed, 9 insertions(+)
 create mode 100644 index.html

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (master)
$ git status
On branch master
nothing to commit, working tree clean

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (master)
$ git remote add origin https://github.com/NisargSampat/SEPM_LAB_T21_87.git

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (master)
$ git remote show origin
* remote origin
  Fetch URL: https://github.com/NisargSampat/SEPM_LAB_T21_87.git
  Push  URL: https://github.com/NisargSampat/SEPM_LAB_T21_87.git
  HEAD branch: master
  Remote branch:
    master new (next fetch will store in remotes/origin)
  Local ref configured for 'git push':
    master pushes to master (local out of date)

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (master)
$ git branch -M main

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (main)
$ git push -u origin main

Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 312 bytes | 312.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'main' on GitHub by visiting:
remote:      https://github.com/NisargSampat/SEPM_LAB_T21_87/pull/new/main
remote:
To https://github.com/NisargSampat/SEPM_LAB_T21_87.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.

Nisarg@DESKTOP-P11FLL9 MINGW64 ~/git_commands/git-exp3 (main)
$
```

CONCLUSION:

Thus, we have successfully studied and performed various GIT operations on local and Remote repositories using GIT Cheat-Sheet.