

AIM : To Perform various GIT operations on local and Remote repositories using GIT Cheat-Sheet 4.

THEORY :

What is GIT?

By far, the most widely used modern version control system in the world today is Git.

Git is a mature, actively maintained open source project originally developed in 2005 by Linus Torvalds, the famous creator of the Linux operating system kernel.

A staggering number of software projects rely on Git for version control, including commercial projects as well as open source.

Developers who have worked with Git are well represented in the pool of available software development talent and it works well on a wide range of operating systems and IDEs (Integrated Development Environments).

Having a distributed architecture, Git is an example of a DVCS (hence Distributed Version Control System).

Rather than have only one single place for the full version history of the software as is common in once-popular version control systems like CVS or Subversion (also known as SVN), in Git, every developer's working copy of the code is also a repository that can contain the full history of all changes.

In addition to being distributed, Git has been designed with performance, security and flexibility in mind.

Local repositories are physical, locally-managed repositories into which you can deploy artifacts.

Using local repositories, Artifactory gives you a central location to store your internal binaries.

Through repository replication, you can even share binaries with teams that are located in remote locations.

Remote repository in Git, also called a remote, is a Git repository that's hosted on the Internet or another network.

OUTPUT :

PERFORMING VARIOUS GIT OPERATIONS

```
Hi@DESKTOP-PEFNV41 MINGW64 ~ $  
git init  
Initialized empty Git repository in C:/Users/Hi/.git/
```

```
Hi@DESKTOP-PEFNV41 MINGW64 ~ (master) $  
git --version  
git version 2.32.0.windows.2
```

```
Hi@DESKTOP-PEFNV41 MINGW64 ~ (master) $  
git init  
Reinitialized existing Git repository in C:/Users/Hi/.git/
```

```
Hi@DESKTOP-PEFNV41 MINGW64 ~ (master) $ git status warning: could not open  
directory 'Application Data/': Permission denied warning: could not open directory  
'Cookies/': Permission denied warning: could not open directory 'Local Settings/':  
Permission denied warning: could not open directory 'My Documents/': Permission  
denied warning: could not open directory 'NetHood/': Permission denied warning:  
could not open directory 'PrintHood/': Permission denied warning: could not open  
directory 'Recent/': Permission denied warning: could not open directory 'SendTo/':  
Permission denied warning: could not open directory 'Start Menu/': Permission  
denied warning: could not open directory 'Templates/': Permission denied
```

On branch master

No commits yet

Untracked files:

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

```
.AndroidStudio3.4/  
.AndroidStudio3.5/  
.AndroidStudio3.6/  
.VirtualBox/  
.android/  
.appletviewer  
.argouml/  
.bash_history  
.gradle/  
.idlerc/  
.packettracer  
.vscode/  
AndroidStudioProjects/  
AppData/
```

```
Cisco Packet Tracer 7.3.1/
Contacts/
Desktop/
Documents/
Favorites/
IntelGraphicsProfiles/
Links/
Music/
NPProt.bkp
NPProt.exe
NTUSER.DAT
NTUSER.DAT{cb56a6d7-0c49-11e6-a90e-c8aa52d4e633}.TM.blf      NTUSER.DAT{cb56a6d7-
0c49-11e6-a90e-
c8aa52d4e633}.TMContainer000000000000000000000001.regtrans-ms      NTUSER.DAT{cb56a6d7-
0c49-11e6-a90e-
c8aa52d4e633}.TMContainer000000000000000000000002.regtrans-ms
OneDrive/
Pictures/
PycharmProjects/
Saved Games/
Searches/    Videos/
ntuser.dat.LOG1
ntuser.dat.LOG2
ntuser.ini
```

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

```
Hi@DESKTOP-PEFNV41 MINGW64 ~ (master) $
git config --global user.name 'Rutaj'
```

```
Hi@DESKTOP-PEFNV41 MINGW64 ~ (master)
$ git config --global user.email 'rutajdamodare@gmail.com'
```

```
Hi@DESKTOP-PEFNV41 MINGW64 ~
(master) $ git config --global --list user.name=Rutaj
user.email=rutajdamodare@gmail.com
```

```
Hi@DESKTOP-PEFNV41      MINGW64 ~
(master) $
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj $
git init
Initialized empty Git repository in C:/rutaj/.git/
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)
$ git status
```

On branch master

No commits yet

Untracked files:

(use "git add <file>..." to include in what will be committed)
Exp2.docx exp1.docx exp3.docx exp4 (2).docx

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

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)
$ git config --global --list
user.name=Rutaj
user.email=rutajdamodare@gmail.com
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)
$ git status
On branch master
```

No commits yet

Untracked files:

(use "git add <file>..." to include in what will be committed)
Exp2.docx exp1.docx exp3.docx exp4 (2).docx

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

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)
$ git add Exp2.docx
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)
$ git status
On branch master
```

No commits yet

Changes to be committed:

(use "git rm --cached <file>..." to unstage) new file: Exp2.docx

Untracked files:

(use "git add <file>..." to include in what will be committed) exp1.docx
exp3.docx exp4 (2).docx

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master) $
git commit -m 'First Commit'
```

```
[master (root-commit) 48f2fca] First Commit 1 file changed,  
0 insertions(+), 0 deletions(-) create mode 100644  
Exp2.docx
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)  
$ git status  
On branch master Untracked  
files:  
(use "git add <file>..." to include in what will be committed) exp1.docx  
exp3.docx exp4 (2).docx  
  
nothing added to commit but untracked files present (use "git add" to track)
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)  
$ git add exp1.docx
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)  
$ git status  
On branch master  
Changes to be committed:  
(use "git restore --staged <file>..." to unstage) new file: exp1.docx  
  
Untracked files:
```

```
(use "git add <file>..." to include in what will be committed) exp3.docx  
exp4 (2).docx
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)  
$ git commit -m 'commit 2 exp1 added'  
[master 409c6f4] commit 2 exp1 added  
1 file changed, 0 insertions(+), 0 deletions(-) create mode 100644  
exp1.docx
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)  
$ git status  
On branch master Untracked  
files:  
(use "git add <file>..." to include in what will be committed) exp3.docx  
exp4 (2).docx  
  
nothing added to commit but untracked files present (use "git add" to track)
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)
```

\$

Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)

\$ git status

On branch master

No commits yet

Changes to be committed:

```
(use "git rm --cached <file>..." to unstage)      new
file: Exp2.docx      new file: exp1.docx      new file:
exp3.docx      new file: exp4.docx
```

Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master) \$

git commit -m 'First commit'

```
[master (root-commit) 5c9fce8] First commit 4 files
changed, 0 insertions(+), 0 deletions(-) create mode
100644 Exp2.docx create mode 100644 exp1.docx create
mode 100644 exp3.docx create mode 100644 exp4.docx
```

Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)

\$ git log

```
commit 5c9fce8e156d846feaac0718fcd21f7e614e5fe0 (HEAD -> master) Author:
Rutaj <rutajdamodare@gmail.com>
```

Date: Mon Aug 30 19:28:05 2021 +0530

First commit

Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master) \$

git log --oneline

5c9fce8 (HEAD -> master) First commit

Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)

\$ git log --oneline Exp2.docx

5c9fce8 (HEAD -> master) First commit

Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)

\$ git remote add origin https://github.com/Rutaj03/exp-2.git

Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)

\$ git remote show origin

* remote origin

```
Fetch URL: https://github.com/Rutaj03/exp-2.git
Push URL: https://github.com/Rutaj03/exp-2.git HEAD
branch: main  Remote branch:
  main new (next fetch will store in remotes/origin)
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master) $
git push -u origin master
Enumerating objects: 11, done.
Counting objects: 100% (11/11), done.
Delta compression using up to 4 threads
Compressing objects: 100% (11/11), done.
Writing objects: 100% (11/11), 2.01 MiB | 3.20 MiB/s, done. Total 11 (delta 2),
reused 0 (delta 0), pack-reused 0 remote: Resolving deltas: 100% (2/2), done.
remote: remote: Create a pull request for 'master' on GitHub by visiting:
remote:
```

```
https://github.com/Rutaj03/exp-2/pull/new/master
```

```
remot
e:
```

```
https://github.com/Rutaj03/exp-2.git
```

```
* [new branch]  master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)
$ git pull remote: Enumerating objects: 9, done. remote: Counting objects:
100% (9/9), done. remote: Compressing objects: 100% (5/5), done. remote:
Total 9 (delta 1), reused 0 (delta 0), pack-reused 0  Unpacking objects: 100%
(9/9), 1.80 KiB | 4.00 KiB/s, done.
```

```
From https://github.com/Rutaj03/exp-2
```

```
* [new branch]  main -> origin/main
* [new branch]  new-branch -> origin/new-branch * [new branch]
demo -> origin/demo Already up to date.
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)
$ git fetch
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)
$ git merge origin/master
Already up to date
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)
$ git status
On branch master
```

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

Changes not staged for commit:

(use "git add/rm <file>..." to update what will be committed)

(use "git restore <file>..." to discard changes in working directory)

exp3.docx exp4.docx

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

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master) $  
git log --oneline
```

```
5c9fce8 (HEAD -> master, origin/master) Commit 1 Exp2.added
```

```
8bdf62e First Commit
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master) $
```

PERFORMING VARIOUS GIT OPERATIONS USING GIT CHEAT SHEET

Setup:

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)  
$ git config --global color.ui auto  
  
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)  
$ git config --global --list  
user.name=Rutaj Damodare  
user.email=rutajdamodare@gmail.com  
color.ui=auto  
  
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)  
$ |
```

Setup & Init:

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git init  
Initialized empty Git repository in C:/Users/Hi/Desktop/TE IT/devops/Rutaj1/.git/  
  
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git clone https://github.com/Rutaj03/exp-2.git  
Cloning into 'exp-2'...  
remote: Enumerating objects: 9, done.  
remote: Counting objects: 100% (9/9), done.  
remote: Compressing objects: 100% (7/7), done.  
remote: Total 9 (delta 1), reused 0 (delta 0), pack-reused 0R  
Receiving objects: 100% (9/9), 96.39 KiB | 6.43 MiB/s, done.  
Resolving deltas: 100% (1/1), done.
```

Stage & Snapshot:

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    exp-2/

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

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git add .
warning: adding embedded git repository: exp-2
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git diff
diff --git a/Devops-lab b/Devops-lab
--- a/Devops-lab
+++ b/Devops-lab
@@ -1 +1 @@
-Subproject commit fc87f976da16739f6dd44860c40e8aa36651dcc3
+Subproject commit fc87f976da16739f6dd44860c40e8aa36651dcc3-dirty
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git reset
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    exp-2/

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

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git commit -m "File added"
[master (root-commit) 9337183] File added
 2 files changed, 2 insertions(+)
 create mode 100644 demo.txt
 create mode 160000 exp-2
```

Branch & Merge:

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git branch temp  
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git branch  
* master  
  temp
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git checkout temp  
Switched to branch 'temp'
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git merge temp  
Already up to date.
```

Inspect & Compare:

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git log  
commit 933718389314a0b5043a3b05559ad014d210d088 (HEAD -> temp, master)  
Author: Rutaj Damodare <rutajdamodare@gmail.com>  
Date: Tue Aug 31 20:57:55 2021 +0530  
  
File added
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git log --follow -- demo.txt  
commit 933718389314a0b5043a3b05559ad014d210d088 (HEAD -> temp, master)  
Author: Rutaj Damodare <rutajdamodare@gmail.com>  
Date: Tue Aug 31 20:57:55 2021 +0530  
  
File added
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git show [SHA]
```

Tracking Path Changes:

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git rm demo.txt  
rm 'demo.txt'
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git mv demo.txt rutaj1.txt  
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git status  
On branch temp  
Changes to be committed:  
  (use "git restore --staged <file>..." to unstage)  
    renamed:   demo.txt -> rutaj1.txt
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git log --stat -M
commit 933718389314a0b5043a3b05559ad014d210d088 (HEAD -> temp, master)
Author: Rutaj Damodare <rutajdamodare@gmail.com>
Date: Tue Aug 31 20:57:55 2021 +0530

  File added

  demo.txt | 1 +
  exp-2    | 1 +
  2 files changed, 2 insertions(+)
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git config --global core.excludesfile .gitignore
```

Share and Update:

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git remote add temp https://github.com/Rutaj03/exp-2.git
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git fetch temp
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (9/9), done.
remote: Compressing objects: 100% (7/7), done.
remote: Total 9 (delta 1), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (9/9), 96.37 KiB | 109.00 KiB/s, done.
From https://github.com/Rutaj03/exp-2
 * [new branch]      main        -> temp/main
```

```
Hi@DESKTOP-PEFNV41 MINGW64 /c/rutaj (master)
$ git merge origin/master
Already up to date
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git pull https://github.com/Rutaj03/exp-2.git --allow-unrelated-histories
From https://github.com/Rutaj03/exp-2
 * branch            HEAD      -> FETCH_HEAD
Merge made by the 'recursive' strategy.
 README.md | 1 +
 1 file changed, 1 insertion(+)
 create mode 100644 README.md
```

Rewrite History

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git rebase master
Current branch temp is up to date.
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git reset --hard
HEAD is now at 9337183 File added
```

Temporary Commits

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git stash  
Saved working directory and index state WIP on master: 8a0d848 Merge https://github.com/  
Shrey3009/Devops-lab
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git stash list  
stash@{0}: WIP on master: 8a0d848 Merge https://github.com/Shrey3009/Devops-lab
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git stash pop  
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:   README.md  
  
no changes added to commit (use "git add" and/or "git commit -a")  
Dropped refs/stash@{0} (a3196fae8a3eda1916b0d5e29c10f0cb6152fca6)
```

```
C:\Users\Hi\Desktop\TE IT\devops\Rutaj1>git stash drop  
No stash entries found.
```

CONCLUSION : HENCE VARIOUS GIT OPERATIONS IN LOCAL AND REMOTE REPOSITORIES USING GIT CHEAT SHEET WERE SUCCESSFULLY STUDIED AND IMPLEMENTED.