



A.Y. 2021 – 22

## **Experiment No. 9**

**DIV: A**

**Batch: A4**

### **Team Members:**

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**Aim:** Study of Configuration Management using GitHub

### **Theory:**

Git is a distributed revision control and source code management system with an emphasis on speed. Git was initially designed and developed by Linus Torvalds for Linux kernel development. Git is a free software distributed under the terms of the GNU General Public License version 2.

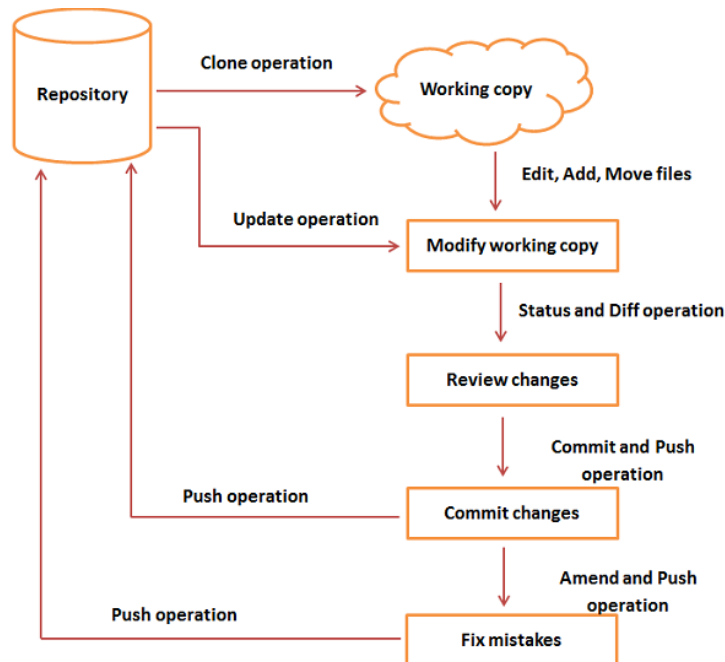
### **Git Life Cycle**

General workflow is as follows –

1. Clone the Git repository as a working copy.
2. Modify the working copy by adding/editing files.
3. If necessary, update the working copy by taking other developer's changes.
4. Review the changes before commit.
5. Commit changes. If everything is fine, then push the changes to the repository.
6. After committing, if something is wrong, then correct the last commit and push the changes to the repository.



A.Y. 2021 – 22



Git Life Cycle

## Git Commands:

```
pwd
mkdir
ls
```

```
MINGW64~/Users/junai/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM 6/SE/Experiment 9/project.git
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Deskt
op/DJSCE/SEM 6/SE/Experiment 9 (master)
$ pwd
/c/Users/junai/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM 6/SE
/Experiment 9
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Deskt
op/DJSCE/SEM 6/SE/Experiment 9 (master)
$ mkdir project.git
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM 6/SE/
Experiment 9 (master)
$ cd project.git/
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM 6/SE/
Experiment 9/project.git (master)
$ ls
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM 6/SE/
Experiment 9/project.git (master)
$ git --bare init
Initialized empty Git repository in C:/Users/junai/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM
6/SE/Experiment 9/project.git/
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM 6/SE/Experiment 9/
project.git (BARE:master)
$ ls
HEAD config description hooks/ info/ objects/ refs/
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM 6/SE/Experiment 9/
project.git (BARE:master)
$
```



A.Y. 2021 – 22

ssh-keygen

```
MINGW64:/c:/Users/junai/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM 6/SE/Experiment 9/project.git
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM 6/SE/Experiment 9/proje
ct.git (BARE:master)
$ pwd
/c:/Users/junai/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM 6/SE/Experiment 9/project.git
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM 6/SE/Experiment 9/proje
ct.git (BARE:master)
$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/c:/Users/junai/.ssh/id_rsa):
/c:/Users/junai/.ssh/id_rsa already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /c:/Users/junai/.ssh/id_rsa
Your public key has been saved in /c:/Users/junai/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:yyID9/ZgWHLShnToI9dwxR8ySx/tw0KICxFBpVQnlo4 junai@DESKTOP-T0060TG
The key's randomart image is:
+----[RSA 3072]-----+
| ..o*o=..|
| .B.=o+o|
| + o. O.B|
| + = . E + .|
| . = O S +|
| o @ + . .|
| + B o |
| = + |
| . |
+----[SHA256]-----+
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/SEM 6/SE/Experiment 9/proje
ct.git (BARE:master)
$
```

git init  
git status

```
MINGW64:/c:/Users/junai/OneDrive - Shri Vile Parle Kelavani Mandal/Deskto...
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Deskto
p/DJSCE/SEM 6/SE/Experiment 9 (master)
$ git init
Initialized empty Git repository in C:/Users/junai/OneDrive - Shri Vile Parle Ke
lavani Mandal/Desktop/DJSCE/SEM 6/SE/Experiment 9/.git/
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Deskto
p/DJSCE/SEM 6/SE/Experiment 9 (master)
$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    SS1.png
    project.git/
    ss2.png

nothing added to commit but untracked files present (use "git add" to track)
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Deskto
p/DJSCE/SEM 6/SE/Experiment 9 (master)
$
```

git add .



A.Y. 2021 – 22

```
MINGW64:/c/Users/junai/OneDrive - Shri Vile Parle Kelavani Mandal/Deskt...
Untracked files:
(use "git add <file>..." to include in what will be committed)
  SS1.png
  project.git/
  ss2.png

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

junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Deskt
op/DJSCE/SEM 6/SE/Experiment 9 (master)
$ git add .
warning: LF will be replaced by CRLF in project.git/HEAD.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in project.git/config.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in project.git/description.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in project.git/hooks/applypatch-msg.sample.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in project.git/hooks/commit-msg.sample.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in project.git/hooks/fsmonitor-watchman.sam
ple.
```



A.Y. 2021 – 22

git status

```
MINGW64:/c:/Users/junai/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/S...
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Deskt
op/DJSCE/SEM 6/SE/Experiment 9 (master)
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
    new file:   SS1.png
    new file:   SS4.png
    new file:   project.git/HEAD
    new file:   project.git/config
    new file:   project.git/description
    new file:   project.git/hooks/applypatch-msg.sample
    new file:   project.git/hooks/commit-msg.sample
    new file:   project.git/hooks/fsmonitor-watchman.sample
    new file:   project.git/hooks/post-update.sample
    new file:   project.git/hooks/pre-applypatch.sample
    new file:   project.git/hooks/pre-commit.sample
    new file:   project.git/hooks/pre-merge-commit.sample
    new file:   project.git/hooks/pre-push.sample
    new file:   project.git/hooks/pre-rebase.sample
    new file:   project.git/hooks/pre-receive.sample
    new file:   project.git/hooks/prepare-commit-msg.sample
    new file:   project.git/hooks/push-to-checkout.sample
    new file:   project.git/hooks/update.sample
    new file:   project.git/info/exclude
```

git commit

```
MINGW64:/c:/Users/junai/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/S...
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Deskt
op/DJSCE/SEM 6/SE/Experiment 9 (master)
$ git commit -m "First Commit"
[master (root-commit) b41f6cc] First Commit
20 files changed, 804 insertions(+)
create mode 100644 SS1.png
create mode 100644 SS4.png
create mode 100644 project.git/HEAD
create mode 100644 project.git/config
create mode 100644 project.git/description
create mode 100644 project.git/hooks/applypatch-msg.sample
create mode 100644 project.git/hooks/commit-msg.sample
create mode 100644 project.git/hooks/fsmonitor-watchman.sample
create mode 100644 project.git/hooks/post-update.sample
create mode 100644 project.git/hooks/pre-applypatch.sample
create mode 100644 project.git/hooks/pre-commit.sample
create mode 100644 project.git/hooks/pre-merge-commit.sample
create mode 100644 project.git/hooks/pre-push.sample
create mode 100644 project.git/hooks/pre-rebase.sample
create mode 100644 project.git/hooks/pre-receive.sample
create mode 100644 project.git/hooks/prepare-commit-msg.sample
create mode 100644 project.git/hooks/push-to-checkout.sample
create mode 100644 project.git/hooks/update.sample
create mode 100644 project.git/info/exclude
create mode 100644 ss2.png

junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE
/SEM 6/SE/Experiment 9 (master)
$ |
```



A.Y. 2021 – 22

```
git remote add origin
git branch -M master
git push -u origin master
```

```
MINGW64/c/Users/junai/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/S...
create mode 100644 project.git/hooks/update.sample
create mode 100644 project.git/info/exclude
create mode 100644 ss2.png

junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE
/SEM 6/SE/Experiment 9 (master)
$ git remote add origin https://github.com/junaidgirkar/SE_EXP_9.git

junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE
/SEM 6/SE/Experiment 9 (master)
$ git branch -M master

junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE
/SEM 6/SE/Experiment 9 (master)
$ git push -u origin master
Enumerating objects: 25, done.
Counting objects: 100% (25/25), done.
Delta compression using up to 12 threads
Compressing objects: 100% (23/23), done.
Writing objects: 100% (25/25), 136.33 KiB | 13.63 MiB/s, done.
Total 25 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), done.
To https://github.com/junaidgirkar/SE_EXP_9.git
 * [new branch]      master -> master
branch 'master' set up to track 'origin/master'.

junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE
/SEM 6/SE/Experiment 9 (master)
$
```

```
git add .
git stash
git pull
```

```
MINGW64/c/Users/junai/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/S...
SS8.png
Please move or remove them before you merge.
Aborting
Updating b41f6cc..9638b47

junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE
/SEM 6/SE/Experiment 9 (master)
$ git add .

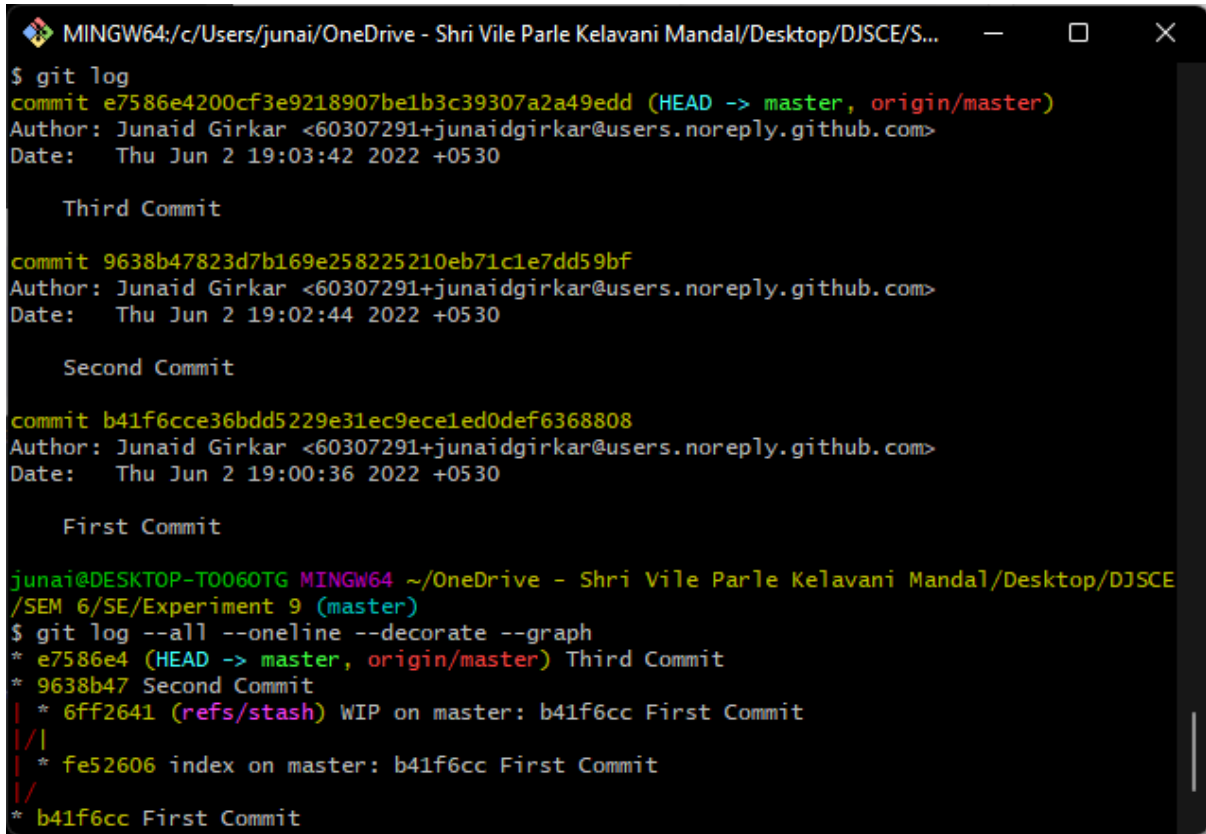
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE
/SEM 6/SE/Experiment 9 (master)
$ git stash
Saved working directory and index state WIP on master: b41f6cc First Commit

junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE
/SEM 6/SE/Experiment 9 (master)
$ git pull
Updating b41f6cc..9638b47
Fast-Forward
 SS5.png | Bin 0 -> 31910 bytes
 SS6.png | Bin 0 -> 36746 bytes
 SS7.png | Bin 0 -> 53736 bytes
 SS8.png | Bin 0 -> 50107 bytes
4 files changed, 0 insertions(+), 0 deletions(-)
create mode 100644 SS5.png
create mode 100644 SS6.png
create mode 100644 SS7.png
create mode 100644 SS8.png
```



A.Y. 2021 – 22

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



```
MINGW64:/c/Users/junai/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE/S...  
$ git log  
commit e7586e4200cf3e9218907be1b3c39307a2a49edd (HEAD -> master, origin/master)  
Author: Junaid Girkar <60307291+junaidgirkar@users.noreply.github.com>  
Date: Thu Jun 2 19:03:42 2022 +0530  
  
    Third Commit  
  
commit 9638b47823d7b169e258225210eb71c1e7dd59bf  
Author: Junaid Girkar <60307291+junaidgirkar@users.noreply.github.com>  
Date: Thu Jun 2 19:02:44 2022 +0530  
  
    Second Commit  
  
commit b41f6cce36bdd5229e31ec9ece1ed0def6368808  
Author: Junaid Girkar <60307291+junaidgirkar@users.noreply.github.com>  
Date: Thu Jun 2 19:00:36 2022 +0530  
  
    First Commit  
  
junai@DESKTOP-T0060TG MINGW64 ~/OneDrive - Shri Vile Parle Kelavani Mandal/Desktop/DJSCE  
/SEM 6/SE/Experiment 9 (master)  
$ git log --all --oneline --decorate --graph  
* e7586e4 (HEAD -> master, origin/master) Third Commit  
* 9638b47 Second Commit  
| * 6ff2641 (refs/stash) WIP on master: b41f6cc First Commit  
|/|  
| * fe52606 index on master: b41f6cc First Commit  
|/  
* b41f6cc First Commit
```

## CONCLUSION:

Git is a version control software that can store different versions of files on a local machine or can be integrated with remote file management systems such as Github and BitBucket. In this experiment, we used the git bash CLI to run some of the git commands and linked it to Github.