Experiment No: 03

Experiment Date: 05.06.2022

Experiment Name: *Introduction to Basic Git commands & its use.*

Theory:

Git is a **modern**, **open source** and widely used **distributed version control** system in the world. It is developed to manage projects with high speed and efficiency. The version control system allows us to monitor and work together with our team members at the same workspace.

Git is foundation of many services like **GitHub** and **GitLab**, but we can use Git without using any other Git services. Git can be used **privately** and **publicly**.

It has some remarkable feature. Those are Scalable, Distributed, Security, Speed, Data Assurance, Staging Area & so on.

Git commands:

git config: To configure username & user email. Which will use at the time of commit.

```
safal@DESKTOP-OFFQDEO MINGW64 ~/OneDrive/Documents/Git
$ git config --global user.name "Safal Biswas"

safal@DESKTOP-OFFQDEO MINGW64 ~/OneDrive/Documents/Git
$ git config --global user.name "safalbiswas005@gmail.com"
```

git clone: To copy a repository from remote (Github).

```
safal@DESKTOP-OFFQDEO MINGW64 ~/OneDrive/Documents/Git
$ git clone https://github.com/dmdhrumilmistry/ArduinoPrograms.git
Cloning into 'ArduinoPrograms'...
remote: Enumerating objects: 54, done.
remote: Counting objects: 100% (54/54), done.
remote: Compressing objects: 100% (44/44), done.
remote: Total 54 (delta 4), reused 41 (delta 2), pack-reused 0
Receiving objects: 100% (54/54), 325.47 KiB | 326.00 KiB/s, done.
Resolving deltas: 100% (4/4), done.
```

git init: To create a new blank repository.

```
safal@DESKTOP-OFFQDEO MINGW64 ~/OneDrive/Documents/Git/gitone
$ git init
Initialized empty Git repository in C:/Users/safal/OneDrive/Documents/Git/gitone/.git/
```

git add: To add file contents to the Index (Staging area). This command updates the current content of the working tree to the staging area. It also prepares the staged content for the next commit. Every time we add or update any file in our project, it is required to forward updates to the staging area.

```
safal@DESKTOP-OFFQDEO MINGW64 ~/OneDrive/Documents/Git/gitone (master)
$ nano hello.txt

safal@DESKTOP-OFFQDEO MINGW64 ~/OneDrive/Documents/Git/gitone (master)
$ git add .
warning: LF will be replaced by CRLF in hello.txt.
The file will have its original line endings in your working directory
```

git status: To display the state of the repository and staging area. It allows us to see the tracked, untracked files and changes. This command will not show any commit records or information.

```
safal@DESKTOP-OFFQDEO MINGW64 ~/OneDrive/Documents/Git/gitone (master)
$ git status
On branch master

No commits yet

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

git commit: To record the changes in the repository. It is the next command after the **git add**. Every commit contains the index data and the commit message. Every commit forms a parent-child relationship. When we add a file in Git, it will take place in the staging area. A commit command is used to fetch updates from the staging area to the repository.

```
safal@DESKTOP-OFFQDEO MINGW64 ~/OneDrive/Documents/Git/gitone (master)
$ git commit -m "First Commit"
[master (root-commit) ef16214] First Commit
 1 file changed, 1 insertion(+)
 create mode 100644 hello.txt
```

git branch: To create another branch or display all branch.

```
safal@DESKTOP-OFFQDEO MINGW64 ~/OneDrive/Documents/Git/gitone (master)
$ git branch developer

safal@DESKTOP-OFFQDEO MINGW64 ~/OneDrive/Documents/Git/gitone (master)
$ git branch
  developer
* master
```

git checkout: To switch between branches with all contents of previous branch.

```
safal@DESKTOP-OFFQDEO MINGW64 ~/OneDrive/Documents/Git/gitone (master)
$ git checkout developer
Switched to branch 'developer'

safal@DESKTOP-OFFQDEO MINGW64 ~/OneDrive/Documents/Git/gitone (developer)
$ ls
hello.txt
```

Conclusion:

Here all command run without any error. But at the time of execute ‘git push’ & ‘git pull’ command I faced some errors.