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EXPERIMENT 2

AIM: Version control system using GIT

LAB OUTCOME: Examine the different version control strategies

THEORY:

GIT:
Git is a distributed version control system for tracking changes in source code during software development. It is designed for coordinating work among programmers, but it can be used to track changes in any set of files. Its goals include speed, data integrity, and support for distributed, non-linear workflows.

GITHUB:
GitHub is a web-based Git repository hosting service, which offers all of the distributed revision control and source code management (SCM) functionality of Git as well as adding its own features.

DIFFERENCE BETWEEN GIT AND GITHUB

GIT	GITHUB
Git is a software.	GitHub is a service.
Git is a command-line tool	GitHub is a graphical user interface
Git is installed locally on the system	GitHub is hosted on the web
Git is maintained by linux.	GitHub is maintained by microsoft.
Git is focused on version control and code sharing.	GitHub is focused on centralized source code hosting.
Git is a version control system to manage source code history.	GitHub is a hosting service for Git repositories.
Git was first released in 2005.	GitHub was launched in 2008.
Git has no user management feature.	GitHub has built-in user management feature.

OUTPUT:

Initialize repository

```
┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git init
Reinitialized existing Git repository in /home/vineetkekatpure/Desktop/IT8/Lab/DevOps/devops_pracs/.git/
```

Create files in directory

```
┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ touch file1.txt

┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git status
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        file1.txt

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

Adding files to repository

And

Committing files to repository

```
┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git add .

┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git commit -m "First Commit"
[master c8963e8] First Commit
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 file1.txt

┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git status
On branch master
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:   file1.txt
```

Making changes to a file after committing to the repository:

Status after making changes

```
┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git status
On branch master
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:   file1.txt
```

Now that we have made changes, we need to commit again, however, this time we will add and commit only one file and not the entire directory

```
┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git add file1.txt

┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git commit -m "Modified file1"
[master 7b9505e] Modified file1
 1 file changed, 1 insertion(+)
```

```
┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git config --global user.name "vineetkekatpure"

┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git config --global user.email "vineet.kekatpure@gmail.com"
```

Removing file

```
┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git rm --cached file1.txt
rm 'file1.txt'

┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        deleted:    file1.txt

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        file1.txt
```

Commit the deletion

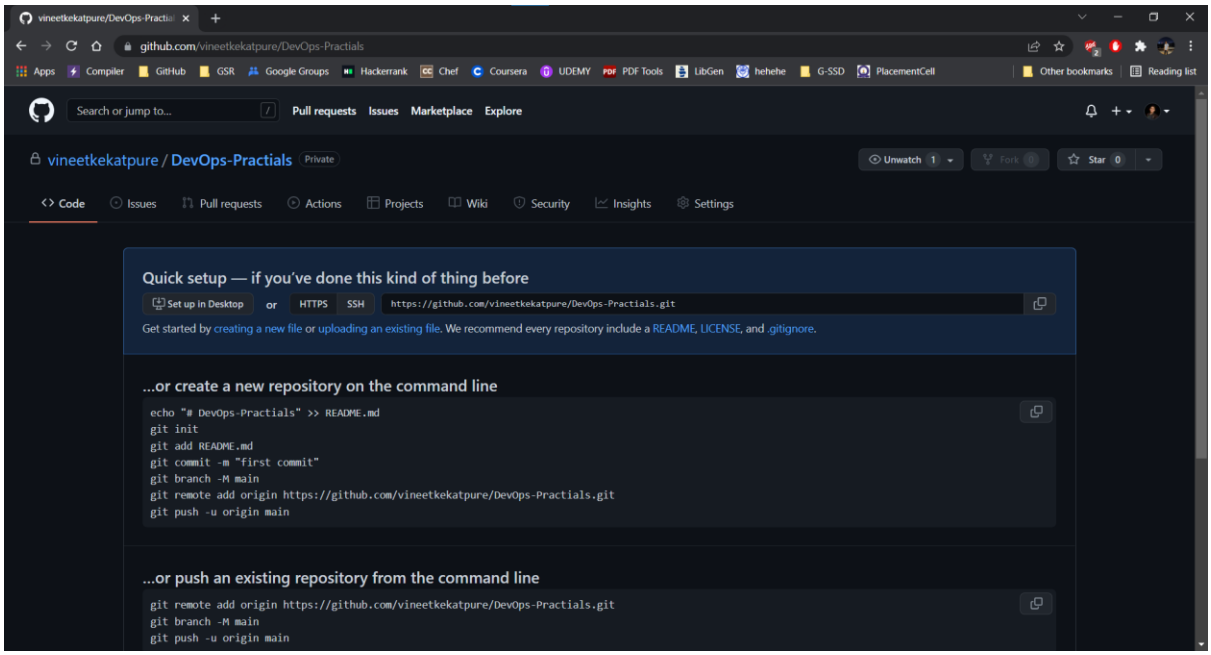
```
┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git commit -m "deleted file1"
[master 57fb407] deleted file1
 1 file changed, 1 deletion(-)
 delete mode 100644 file1.txt

┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git status
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        file1.txt

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

Working with remote repositories:

Create a new repository on Github. (Here, it is called “DevOps-Practical”)



Create remote repository

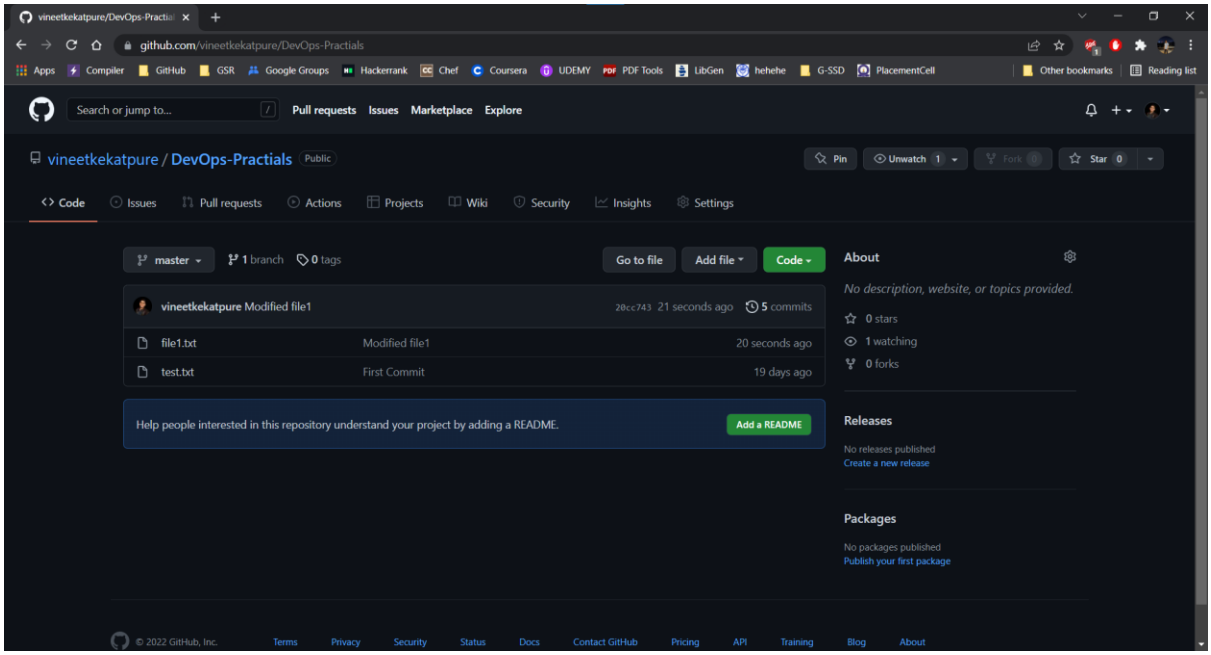
```
┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git remote

┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git remote add devops-1 https://github.com/vineetkekatpure/DevOps-Practials
```

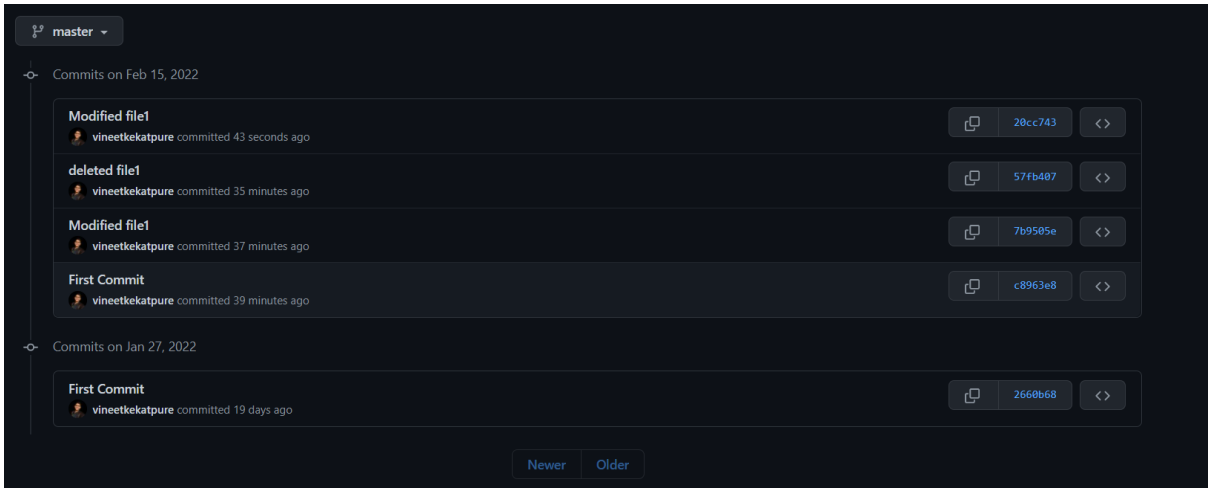
Push code from local repository to remote repository

```
┌──(vineetkekatpure㉿vineet)-[~/…/IT8/Lab/DevOps/devops_pracs]
└─$ git push -u devops-1 master
Username for 'https://github.com': vineetkekatpure
Password for 'https://vineetkekatpure@github.com':
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 4 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (9/9), 794 bytes | 794.00 KiB/s, done.
Total 9 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/vineetkekatpure/DevOps-Practials
 * [new branch]      master -> master
Branch 'master' set up to track remote branch 'master' from 'devops-1'.
```

The file from our local repository has been added to the remote Github repository



All the changes previously made have also been recorded:



CONCLUSION: We successfully implemented the version control system using GIT.