# _Module : 02_

# _Git & GitHub Exercise_

**_Name : Anubhav Ranjan_**      **_Registration No : 774_**

**_College : IIIT kalyani_**      **_Roll No : ECE/21114_**

## Case Study: Git and GitHub Workflow Exercise

## GitHub Repo Link:

https://github.com/feelinganubhav/GitHub-Assignment-Project.git

**Background:**

You are part of a development team working on a small project called "Sample Project". The project is designed to serve as a foundation for your team's Git and GitHub workflow training. The team has decided to host the project on GitHub to facilitate collaboration, version control, and centralized code management. Your task is to initialize the project in Git, push it to a remote GitHub repository, and practice working with branches to simulate feature development and maintenance.

**Scenario:**

**1. Project Initialization:**

-> Open the Terminal or Command Prompt (cmd).

## -> Navigate to the Directory where you want to Create your Project

```
Command Prompt                    ✕    +   ⌄

Microsoft Windows [Version 10.0.22631.4460]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Anubhav Ranjan>cd OneDrive

C:\Users\Anubhav Ranjan\OneDrive>cd Desktop/NexTurn

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn>
```

## -> Create Your Project Directory and Open It in the Command Prompt..

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn>mkdir GitHub-Assignment-Project

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn>cd GitHub-Assignment-Project

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>
```

## -> Now Initialize a Git Repository inside your Project Folder..

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git init
Initialized empty Git repository in C:/Users/Anubhav Ranjan/OneDrive/Desktop/NexTurn/GitHub-Assignment-Project/.git/
```

## -> Create a File to add the Details of the Project..

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>echo "# Sample Project for Git & GitHub Workf
low" > project_Details.txt

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git add project_Details.txt
```

## -> Now Add/Create all the files for your project and Check the Project Status..

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git add app.py

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   app.py
        new file:   project_Details.txt
```
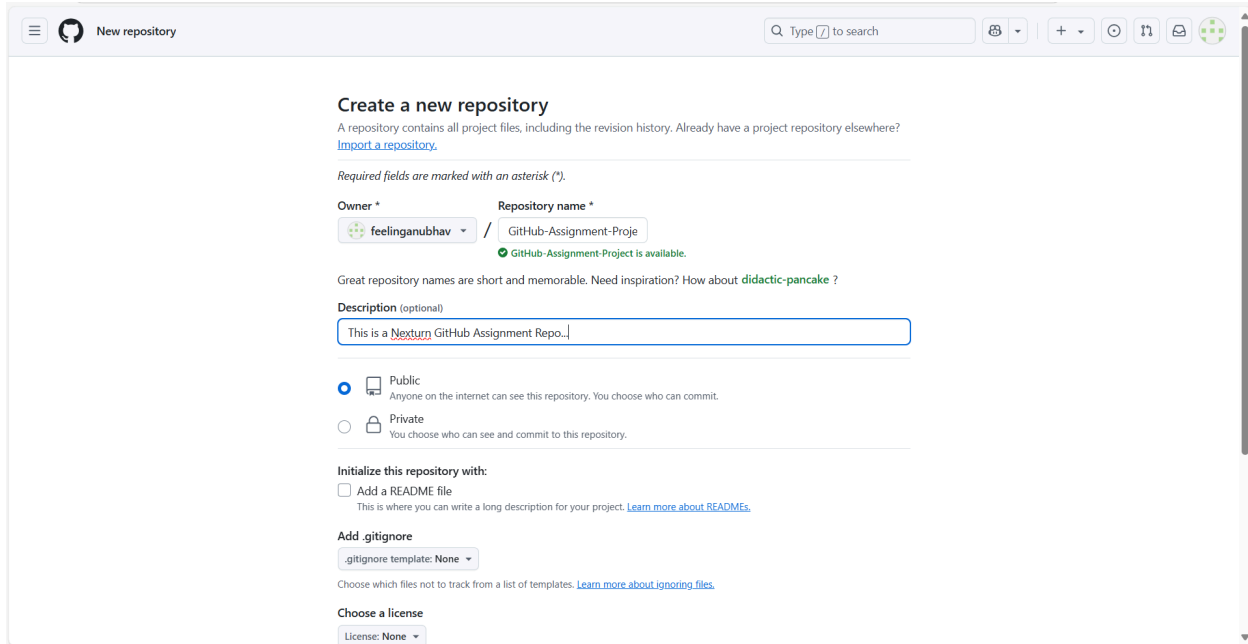
## -> Commit Your Project to the Git Repository..

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git commit -m "Inital Commit with Project Det
ails"
[master (root-commit) 700b18e] Inital Commit with Project Details
 2 files changed, 3 insertions(+)
 create mode 100644 app.py
 create mode 100644 project_Details.txt
```

**-> Now Create a New GitHub Repository (Remote) for your Project..**

**-> Do not add a README file or .gitignore (we're pushing an existing repo).**



**-> Now Link your Local Git Repository to the Github Repo..**

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git branch -M main

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git remote add origin https://github.com/feel
inganubhav/GitHub-Assignment-Project.git

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git push -u origin main
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 411 bytes | 411.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/feelinganubhav/GitHub-Assignment-Project.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.
```

## 2. Feature Addition:

**o A new feature requires you to add a README.md file that contains an introduction to the project. The file should include:**

- **The project name.**
- **A brief description of the project.**

## 3. Branch Management:

o **To add the README.md file, you must create a new branch called feature/update-readme.**

o **After completing the changes, you need to push the branch to the remote repository for review by your team.**

**-> Now to Add a README File in a Feature Branch, We First Create a New Branch: feature/update-readme**

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git checkout -b feature/update-readme
Switched to a new branch 'feature/update-readme'

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git branch
* feature/update-readme
  main
```

**-> Create the README.md File and Add content to the README.md:**

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>echo "# Project GitHub Assignment" > README.md
d

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>echo "This is a foundational project for Git
and GitHub workflow training." >> README.md
```

**-> Now We will Add and Commit the README.md File to the Feature Branch:**

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git add README.md

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git status
On branch feature/update-readme
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   README.md


C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git commit -m "Added README.md with project d
etails"
[feature/update-readme d63e8b4] Added README.md with project details
 1 file changed, 2 insertions(+)
 create mode 100644 README.md
```

**-> Push the Feature Branch to GitHub for Review:**

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git push -u origin feature/update-readme
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 448 bytes | 448.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'feature/update-readme' on GitHub by visiting:
remote:      https://github.com/feelinganubhav/GitHub-Assignment-Project/pull/new/feature/update-readme
remote:
To https://github.com/feelinganubhav/GitHub-Assignment-Project.git
 * [new branch]      feature/update-readme -> feature/update-readme
branch 'feature/update-readme' set up to track 'origin/feature/update-readme'.
```

**-> Submit for Review On GitHub by creating a Pull Request (PR) from**
`feature/update-readme` **into** `main`.

## Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also compare across forks. Learn more about diff comparisons here.

| ⇅ | base: main ▾ | ← | compare: feature/update-readme ▾ | ✓ **Able to merge.** These branches can be automatically merged. |

**Add a title**

Added README.md with project details

**Add a description**

| Write | Preview | H B *I* ≣ <> 🔗 | ≣ ≣ ☰ | 📎 @ 🗗 ↩ 🗗 |

Here is the README.md file Which Contains all the Details of the Project...

💡 Ⓖ

🅼 Markdown is supported          🖼 Paste, drop, or click to add files

**Create pull request** ▾

**Reviewers**
No reviews

**Assignees**
No one—assign yourse

**Labels**
None yet

**Projects**
None yet

**Milestone**
No milestone

**Development**
Use Closing keywords i
automatically close issu

**Helpful resources**

## 4. Merge Changes:

o Once the feature branch is reviewed, you must merge it into the main branch and ensure that the changes are reflected in the remote repository.

**-> There are two ways to merge changes: 1.)via GitHub Interface 2.)via Command Prompt**

    **1.) Merge via GitHub Interface**

- **Once the PR is approved, merge it using the GitHub interface**
- **Pull the Changes Locally i.e. Update your local `main` branch:**
- **git checkout main**
- **git pull origin main**

## Added README.md with project details #1

**Open** **feelinganubhav** wants to merge 1 commit into `main` from `feature/update-readme` ⧉

💬 Conversation 0    ↗ Commits 1    ☐ Checks 0    ⊞ Files changed 1

**feelinganubhav** commented 12 minutes ago    Owner   •••

Here is the README.md file Which Contains all the Details of the Project...

☺

↗   Added README.md with project details    d63e8b4

⑂

   ⑂   **Require approval from specific reviewers before merging**    **Add rule**   ✕
      Rulesets ensure specific people approve pull requests before they're merged.

   🤖   **Continuous integration has not been set up**
      GitHub Actions and several other apps can be used to automatically catch bugs and enforce style.

   ✓   **This branch has no conflicts with the base branch**
      Merging can be performed automatically.

   **Merge pull request** ▾    You can also open this in GitHub Desktop or view command line instructions.

**Reviewers**
No reviews
Still in progress? Convert to dr

**Assignees**
No one—assign yourself

**Labels**
None yet

**Projects**
None yet

**Milestone**
No milestone

**Development**
Successfully merging this pull issues.

---

**2.) via Command Prompt**

- **We will Fetch the PR Changes from GitHub: Since there is No change in Local and Remote "feature/update-readme". It will sync perfectly with Local Feature Branch.**

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git fetch origin feature/update-readme
From https://github.com/feelinganubhav/GitHub-Assignment-Project
 * branch              feature/update-readme -> FETCH_HEAD

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git branch
* feature/update-readme
  main
```

- **Now Merge the Feature Branch Locally: Switch to your `main` branch and Merge the changes from the feature branch...**

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git merge origin/feature/update-readme
Updating 700b18e..d63e8b4
Fast-forward
 README.md | 2 ++
 1 file changed, 2 insertions(+)
 create mode 100644 README.md
```

- **Push the Merged Changes of the updated `main` branch to the GitHub repo:**

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git push origin main
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/feelinganubhav/GitHub-Assignment-Project.git
   700b18e..d63e8b4  main -> main
```

**-> You can See that Feature branch is Merged Sucessfully...and Pull Request is closed...**

## Added README.md with project details #1

🔀 **Merged**  feelinganubhav merged 1 commit into `main` from `feature/update-readme`  📋 1 minute ago

💬 Conversation  0     -○- Commits  1     📋 Checks  0     ⊡ Files changed  1

feelinganubhav commented 38 minutes ago                                  Owner  ...

Here is the README.md file Which Contains all the Details of the Project...

😊

-○-  Added README.md with project details                                  d63e8b4

🔀 feelinganubhav merged commit **d63e8b4** into `main` 1 minute ago

🔀  **Pull request successfully merged and closed**                    [ Delete branch ]
    You're all set—the `feature/update-rea...` branch can be safely deleted.

✨ Try the new merge experience

## 5. Branch Cleanup:

 o After the merge, the feature/update-readme branch is no longer needed. Your team has instructed you to delete it both locally and remotely.

**-> Now the merge is complete, We will delete the feature branch locally and remotely:**

```
C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git branch -d feature/update-readme
Deleted branch feature/update-readme (was d63e8b4).

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git branch
* main

C:\Users\Anubhav Ranjan\OneDrive\Desktop\NexTurn\GitHub-Assignment-Project>git push origin --delete feature/update-rea
dme
To https://github.com/feelinganubhav/GitHub-Assignment-Project.git
 - [deleted]         feature/update-readme
```

🔀 feelinganubhav merged commit **d63e8b4** into `main` 9 minutes ago

🔀 feelinganubhav deleted the `feature/update-readme` branch 1 minute ago      [ Restore branch ]

✨ Try the new merge experience