Git and GitHub Workflow

Case Study : Sample Project

Setting up the git and github workflow for the sample project by initializing the local repository with git and then pushing the codebase to the remote repository on github to facilitate collaboration, version control, and centralized code management.

Steps followed to push project on remote repository:

Initializing Git locally to the Project folder

git init

Staging and committing the initial file index.html

git add .

git commit -m "adding the sample project to the github"

Adding the remote GitHub repository url (remote repository created for the code base)

git remote add origin https://github.com/AdityaSharma2003/M2_Sample_Project.git

Pushing the initial commit to GitHub

git branch -M main

git push -u origin main

Result : The initial project gets pushed to the github successfully in the main branch.

Steps followed to create feature/update-readme branch locally:

Creating and switching to a new branch

git checkout -b feature/update-readme

Adding the README.md file

echo "# Sample Project" > README.md

echo "Demonstration for the Git and GitHub workflow training using Sample Project." >> README.md

Staging and committing the changes

git add README.md

git commit -m "added the README file to new feature branch"

Pushing the branch to the remote repository

git push -u origin feature/update-readme

Result : The feature branch containing the README.md file gets pushed to the github successfully in the feature/update-readme branch.

Steps followed to merge the feature branch to main both locally and remotely:

Switching to the main branch

git checkout main

Merging the feature branch into main

git merge feature/update-readme

Pushing the updated main branch to the remote repository

git push origin main

Steps followed deleting the feature branch both locally and remotely:

Deleting the branch locally

git branch -d feature/update-readme

Deleting the branch remotely

git push origin --delete feature/update-readme

Terminal Commands Results:

```
MINGW64:/c/AdityaPersonal/nexTurn/M2_Sample_project                    —    □    ✕

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t
$ git init
Initialized empty Git repository in C:/AdityaPersonal/nexTurn/M2_Sample_project/
.git/

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (master)
$ git status
On branch master

No commits yet

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

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

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (master)
$ git add .
```

```
ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (master)
$ git commit -m "adding the sample project to the github"
[master (root-commit) a1ed14b] adding the sample project to the github
 1 file changed, 12 insertions(+)
 create mode 100644 index.html

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (master)
$ git branch -M main

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (main)
$ git remote add origin https://github.com/AdityaSharma2003/M2_Sample_Project.gi
t
```

```
ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (main)
$ git push -u origin main
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 16 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 446 bytes | 446.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/AdityaSharma2003/M2_Sample_Project.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (main)
$ git checkout -b feature/update-readme
Switched to a new branch 'feature/update-readme'

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (feature/update-readme)
$ ls -a
./  ../  .git/  index.html
```

```
ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (feature/update-readme)
$ echo "# Sample Project" > README.md

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (feature/update-readme)
$ echo "Demonstration for the Git and GitHub workflow training using Sample Proj
ect." >> README.md

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (feature/update-readme)
$ git status
On branch feature/update-readme
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        README.md

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

```
MINGW64:/c/AdityaPersonal/nexTurn/M2_Sample_project                    —    □    ✕

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (feature/update-readme)
$ git add README.md
warning: in the working copy of 'README.md', LF will be replaced by CRLF the nex
t time Git touches it

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (feature/update-readme)
$ git add README.md

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (feature/update-readme)
$ git commit -m "added the README file to new feature branch"
[feature/update-readme 3989773] added the README file to new feature branch
 1 file changed, 2 insertions(+)
 create mode 100644 README.md
```

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MINGW64:/c/AdityaPersonal/nexTurn/M2_Sample_project                    —    □    ✕

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (feature/update-readme)
$ git push origin feature/update-readme
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 16 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 385 bytes | 385.00 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/AdityaSharma2003/M2_Sample_Project/pull/new/feat
ure/update-readme
remote:
To https://github.com/AdityaSharma2003/M2_Sample_Project.git
 * [new branch]      feature/update-readme -> feature/update-readme
```

```
MINGW64:/c/AdityaPersonal/nexTurn/M2_Sample_project                    —    □    ✕

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (feature/update-readme)
$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (main)
$ git merge feature/update-readme
Updating a1ed14b..3989773
Fast-forward
 README.md | 2 ++
 1 file changed, 2 insertions(+)
 create mode 100644 README.md

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (main)
$ git branch
  feature/update-readme
* main
```
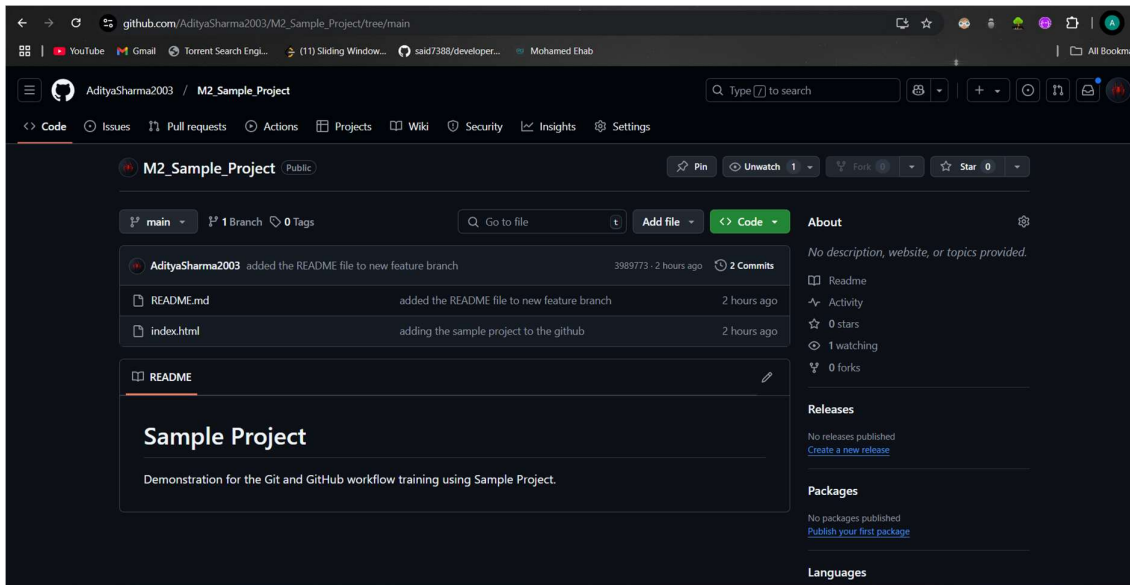
```
MINGW64:/c/AdityaPersonal/nexTurn/M2_Sample_project

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (main)
$ git push origin main
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/AdityaSharma2003/M2_Sample_Project.git
   a1ed14b..3989773  main -> main

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (main)
$ git branch -d feature/update-readme
Deleted branch feature/update-readme (was 3989773).

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (main)
$ git branch
* main

ADITYA SHARMA@LAPTOP-BNJ8V3UA MINGW64 /c/AdityaPersonal/nexTurn/M2_Sample_projec
t (main)
$ git push origin --delete feature/update-readme
To https://github.com/AdityaSharma2003/M2_Sample_Project.git
 - [deleted]          feature/update-readme
```

Key Questions Answered

1. **How will you set up the project for version control and push it to GitHub?**

   o To set up the project for version control we use git init to initialize project folder locally, creating an initial commit, linking the remote repository using git remote add origin, and pushing the main branch with git push -u origin main.

2. **What steps will you take to create, push, and manage branches effectively?**

   o Creating and switching branch : git checkout -b <feature branch>

   o Pushing feature branch to github : git push -u origin < feature branch >.

3. **How will you ensure the changes in the feature branch are merged into the main branch?**

   o Switching to main : git checkout main

   o Merging to main : git merge <feature branch>

   o Pushing the updated main branch to remote repository : git push origin main

4. **What commands will you use to clean up unused branches locally and remotely?**

   o Deleting feature branch locally : git branch -d <feature branch>

   o Deleting feature branch remotely : git push origin --delete <feature branch>