GIT and GITHUB

🧱 Step 1: Download and Install Git

Go to 👉 https://git-scm.com/downloads

Choose Windows (or Mac/Linux depending on your OS).

Run the installer → click Next for most defaults.

Keep Git Bash option selected.

Choose your preferred editor (e.g., Notepad++ or VS Code).

Finish installation.

💻 Step 2: Verify Git Installation

Open Git Bash and run:

git --version

✅ You should see something like:

git version 2.46.0.windows.1

👤 Step 3: Configure Git User Info (one-time setup)

Tell Git who you are — these details appear in commits.

git config --global user.name "Your Name" [GITHUB UserName]

git config --global user.email your_email@example.com [GITHUB EMailID]

Verify configuration:

git config –list

📁 Step 4: Create or Open a Local Project Folder

Example: Open Bash and Redirect to Local Project Folder

cd “D:\GIT and GITHUB\GIT Project-2”

Before: HP@DESKTOP-DCUKDOL MINGW64 ~

$ cd "D:\GIT and GITHUB\GIT Project-2"

After: HP@DESKTOP-DCUKDOL MINGW64 /d/GIT and GITHUB/GIT Project-2

🪄 Step 5: Initialize a Git Repository

First Check it created folder is normal folder or Repo

$ ls -a

It shows only like below it is only normal folder now covert to repo

./ ../

$ git init

✅ You'll see:

Initialized empty Git repository in D:/GIT and GITHUB/GIT Project-2/.git/

$ ls -a

./ ../ **.git**/ [Now it is repo]

🌐 Step 8: Create a Repository on GitHub

Go to https://github.com

Log in to your account.

Click New Repository (+ sign → New repository).

Enter a repo name (e.g., SampleGIT).

Choose Public or Private.

Don't initialize with a README (since you already have one locally).

Click Create repository.

You'll get a URL like:

https://github.com/QAKRISHNAN/SampleGIT.git

🔗 **Step 9: Connect Local Repo to GitHub**

Back in Git Bash:

git remote add origin https://github.com/QAKRISHNAN/SampleGIT.git [GitHub Repo URL]

Verify it:

git remote -v

✅ Should show:

origin https://github.com/QAKRISHNAN/SampleGIT.git (fetch)

origin https://github.com/QAKRISHNAN/SampleGIT.git (push)

🚀 **Step 10: Push Local Repo to GitHub (Detailed Flow)**

🔹 1️⃣ **Local Files (Working Directory)**

This is where your actual project files live on your computer.

📍 Example:

D:/GIT and GITHUB/GIT Project-1/

When you edit or create new files, Git sees them as untracked or modified.

✅ Check their status:

git status

🧩 Output Example:

Untracked files:

(use "git add <file>..." to include in what will be committed)

index.html

style.css

🔹 2️⃣ **Staging Area (Index)**

The staging area holds files you're preparing to commit.

✅ Add all files to staging:

git add .

Check again:

git status

🧩 Output Example:

Changes to be committed:

(use "git rm --cached <file>..." to unstage)

new file: index.html

new file: style.css

🔹 3️⃣ **Commit Changes (Local Repository)**

Once your files are staged, you commit them — this saves a version snapshot in your local Git database.

✅ Commit command:

git commit -m "Initial commit"

🧩 Output Example:

[master (root-commit) abc1234] Initial commit

2 files changed, 50 insertions(+)

create mode 100644 index.html

create mode 100644 style.css

✅ Check commit history:

$ git log

commit c5ef0fc12ff62c80b876e6e7bc70907a378f8f73 (**HEAD** -> **master**)

Author: QAKRISHNAN <tronixtechkrishna@gmail.com>

Date: Wed Oct 29 12:29:18 2025 +0530

  Initial commit

🔹 4️⃣ **Push to GitHub (Remote Repository)**

Now that your changes are safely committed locally, push them to your GitHub repo.

Add GitHub Remote (only once):

git remote add origin https://github.com/QAKRISHNAN/SampleGIT.git

[error: remote origin already exists.] If you are done already.

Push Command:

If your branch is master:

git push -u origin master

If your branch is main:

git push -u origin main

🧩 Output Example:

Enumerating objects: 5, done.

Counting objects: 100% (5/5), done.

Writing objects: 100% (5/5), done.

To https://github.com/QAKRISHNAN/SampleGIT.git

 * [new branch]   master -> master

🏁 **Step 11: Verify on GitHub**

Go to your GitHub repo URL:

👉 https://github.com/QAKRISHNAN/SampleGIT

✅ You should now see all your project files uploaded successfully!

⚙️ Optional Useful Commands

Command **Purpose**

git status: Shows file changes and commit state

git log: Shows commit history

git branch: Lists all branches

git checkout -b branch_name: Creates and switches to a new branch

git pull origin master: Pulls latest changes from GitHub

git push origin master: Pushes changes to GitHub

How to pull (or clone) GitHub repository to your local system.

🧩 Step-by-Step: Pull / Clone a GitHub Repository to Local

🔹 **1. Copy the GitHub Repository URL**

Go to the GitHub repo page (for example):

👉 https://github.com/SomeUser/SomeProject.git

Click Code → HTTPS → Copy URL

The URL will look like:

https://github.com/username/repository.git

🔹 **2. Open Git Bash in the Folder You Want to Clone Into**

[Create new folder or Use existing folder]

Example: cd "/d/GIT and GITHUB/"

🔹 **3. Clone the Repository**

Run:

git clone https://github.com/username/repository.git

🧩 Example:

git clone https://github.com/QAKRISHNAN/SampleGIT.git

✅ Output:

Cloning into 'SampleGIT'...

remote: Enumerating objects: 25, done.

remote: Counting objects: 100% (25/25), done.

Receiving objects: 100% (25/25), done.

Resolving deltas: 100% (5/5), done.

🔹 4. Check Remote (GitHub) Connection

git remote -v

✅ Output:

origin https://github.com/QAKRISHNAN/SampleGIT.git (fetch)

origin https://github.com/QAKRISHNAN/SampleGIT.git (push)

🔹 5. Pull Latest Updates Later

Once cloned, you can always pull new changes from the GitHub repo using:

$ git pull origin master

or

$ git pull origin main

(depends on the branch name — check using git branch -a)

✅ Output:

Already up to date.

or

Updating 2a4c12f..b6d3f12

Fast-forward

 index.html | 2 +-

 1 file changed, 1 insertion(+), 1 deletion(-)

🧩 Complete Git Command Sequence — Local ↔ GitHub

Step No.	Git Command	Description / Purpose
1	git	Checks if Git is installed and available.
2	cd "D:\GIT and GITHUB\GIT Project-2"	Navigates to your project directory.
3	git status	Displays current repo status (untracked or modified files).
4	git init	Initializes a new local Git repository in the current folder.
5	ls -a	Lists all files (including hidden .git folder).
6	git remote add origin https://github.com/QAKRISHNAN/JavaRepo.git	Links local repo with remote GitHub repository.
7	git remote -v	Verifies the remote GitHub link for fetch & push.

8	git add .	Adds (stages) all files from local folder to staging area.
9	git commit -m "Initial commit"	Commits staged files with a message to local repository.
10	git log	Shows commit history (commit ID, author, date, message).
11	git push -u origin main	Pushes committed changes from local main branch to GitHub.
12	git push -u origin master	(Alternative) Pushes changes to master branch if your repo uses it.
13	git clone "https://github.com/nerdseeker365/TEXT_BOOKS-AND-MATERIALS.git"	Clones an existing GitHub repo into your local system.
14	git remote -v	Checks the remote URLs for the cloned repository.
15	git pull origin master	Pulls latest changes from remote master branch into local repo.

✅ **Summary of Workflow**

Category	**Command Examples**	**Purpose**
Initialization	git init, git status	Set up a new local Git repository.
Remote Setup	git remote add origin <URL>	Connect local repo to GitHub.
Staging & Committing	git add ., git commit -m "message"	Prepare and record local changes.
Push to GitHub	git push -u origin master	Upload changes to GitHub repository.
Clone Repo	git clone <URL>	Copy GitHub repo to local machine.
Pull Updates	git pull origin master	Sync latest changes from GitHub.

Git & GitHub Commands Cheat Sheet
Prepared by Krishna N (QA Engineer)

Step No.	Git Command	Description / Purpose
1■■	git	Checks if Git is installed and available.
2■■	cd "D:\GIT and GITHUB\GIT Project-2"	Navigates to your project directory.
3■■	git status	Displays current repo status (untracked or modified files).
4■■	git init	Initializes a new local Git repository in the current folder.
5■■	ls -a	Lists all files (including hidden .git folder).
6■■	git remote add origin <repo URL>	Links local repo with remote GitHub repository.
7■■	git remote -v	Verifies the remote GitHub link for fetch & push.
8■■	git add .	Adds all files from local folder to staging area.
9■■	git commit -m "Initial commit"	Commits staged files with a message to local repository.
■	git log	Shows commit history (commit ID, author, date, message).
1■■1■■	git push -u origin main	Pushes committed changes from local main branch to GitHub.
1■■2■■	git push -u origin master	Pushes committed changes from local master branch to GitHub.
1■■3■■	git clone <repo URL>	Clones an existing GitHub repo into your local system.
1■■4■■	git remote -v	Checks the remote URLs for the cloned repository.
1■■5■■	git pull origin master	Pulls latest changes from remote master branch into local repo.

Git Workflow Diagram & Explanations
Prepared by Krishna N (QA Engineer)

This guide explains the flow of how files move through different Git stages — from Local Files to Staging Area, then to Local Repository, and finally to the Remote GitHub Repository. It also includes Clone and Pull operations for synchronization.

Stage	Purpose	Git Commands
1■■ Local Files	Your working project files on your system.	git status
2■■ Staging Area	Files selected for the next commit.	git add .
3■■ Local Repository	Your committed code stored locally.	git commit -m "message"
4■■ Remote Repository	Your project hosted on GitHub (shared repo).	git push -u origin master / main
■■ Clone	Copy an existing GitHub repo to your local system	git clone <repo_url>
■■ Pull	Fetch and merge changes from GitHub to local repo	git pull origin master / main