GitHub

A platform to save, share, and collaborate on code.

Basic GitHub Terms

- **Repository (Repo)**: A storage space for your project, including code, files, and version history—local or remote (on GitHub).
- **Clone**: A local copy of a remote repository you download to work on.
- **Fork**: Your personal copy of someone else's GitHub repo, editable without affecting the original.
- **Branch**: A separate version of your codebase for working on features or fixes.
- **Main/Master**: The default, stable branch of your repo.
- **Commit**: A saved snapshot of your code changes with a descriptive message.
- **Pull Request (PR)**: A request to merge your branch's changes into another branch, often reviewed by others.
- **Merge**: Combining changes from one branch into another.
- **Push**: Uploading your local commits to GitHub.
- **Pull**: Downloading and integrating changes from GitHub to your local repo.
- **Remote**: The online version of your repo (e.g., on GitHub) linked to your local copy.
- **Issue**: A GitHub tool for tracking bugs or tasks.
- **Staging Area**: Where changes are prepared before committing.

Git Commands Table

Syntax	Usage	Description/Explanation
`git init`	`git init`	Initializes a new Git repository in your current directory, creating a `.git` folder to track changes.
`git config --global user.name "Your Name"`	`git config --global user.name "Jane Doe"`	Sets your username globally for all commits, identifying you as the author.
`git config --global user.email "your.email@example.com"`	`git config --global user.email "jane@example.com"`	Sets your email globally for commits, linking your work to an identity (e.g., for GitHub).

Syntax	Usage	Description/Explanation
`git clone <repository-url>`	`git clone https://github.com/user/repo.git`	**Downloads a remote repository to your local machine**, creating a working copy to edit or add AI code.
`git remote add origin <repository-url>`	`git remote add origin https://github.com/user/repo.git`	Links your local repo to a remote one on GitHub, setting “origin” as the default remote name.
`git status`	`git status`	Shows the current state of your repo—staged, modified, or untracked files—helping you track changes.
`git add <file>`	`git add script.py`	Stages a specific file for the next commit, preparing it to be saved.
`git add .`	`git add .`	Stages all modified and new files in the current directory, a quick way to prep everything.
`git commit -m "message"`	`git commit -m "Add AI login function"`	**Saves staged changes to your local repo with a message**, creating a snapshot of your work (AI or manual).
`git push origin <branch-name>`	`git push origin main`	**Uploads your local commits to the remote repo**, sharing your changes with GitHub or collaborators.
`git pull origin <branch-name>`	`git pull origin main`	**Fetches and merges remote changes into your local repo**, syncing you with updates from others.
`git branch`	`git branch`	Lists all branches in your repo; the current branch is marked with an asterisk (*).

Syntax	Usage	Description/Explanation
`git branch <branch-name>`	`git branch feature-ai`	Creates a new branch for isolated work (e.g., testing AI-generated features).
`git checkout <branch-name>`	`git checkout feature-ai`	Switches to the specified branch, letting you work on that version of the code.
`git checkout -b <branch-name>`	`git checkout -b feature-ai`	Creates a new branch and switches to it in one step, streamlining branch setup.
`git merge <branch-name>`	`git merge feature-ai`	Merges the specified branch into your current branch (e.g., integrating AI changes into `main`).
`git log`	`git log`	Displays commit history with details (author, date, message); use `--oneline` for a compact view.
`git reset <file>`	`git reset script.py`	Removes a file from the staging area but keeps local changes, undoing an accidental `add`.
`git revert <commit-id>`	`git revert abc123`	Creates a new commit that undoes a specific previous commit, safely reversing changes.
`git restore <file>`	`git restore script.py`	Discards uncommitted changes to a file, reverting it to the last committed state.