Basic Setup

Set your Git username.

- Cheatsheet • git config --global user.name "Your Name"
- git config --global user.email "your.email@example.com" # Set your Git email.
- git config --list

List all Git configurations.



Git-GitHub



Initializing and Cloning

• git init

Initialize a new Git repository in your project.

• git clone <repo-url>

Clone an existing repository.

Working with Changes

• git add <file>

Stage a specific file for commit.

• git add.

Stage all changes in the current directory.

• git commit -m "Commit message"

Commit changes with a message.

• git commit -am "Message"

Add and commit tracked files in one step.

• git commit --amend

Edit the last commit message or add changes to it.

Handling Merge Conflicts

git diff

Compare working directory changes.

• git diff <branch1> <branch2>

Compare two branches.

Resolve conflicts: Open the files, fix conflicts, then add and commit.

Status & Logs

• git status

Show the current status of changes in the working directory.

• git log

View commit history.

• git log --oneline

Show concise commit history.

Branching & Merging

• git branch

branch-name>

Create a new branch.

git checkout <branch-name>

Switch to a specific branch.

git checkout -b
branch-name>

Create and switch to a new branch.

• git merge

branch-name>

Merge specified branch into the current branch.

• git rebase

branch-name>

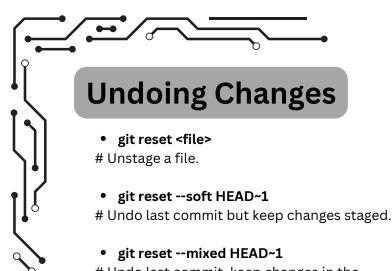
Reapply commits on top of another base.

• git rebase -i HEAD~<n>

Interactive rebase to edit commit history, rearrange commits, modify commit messages, or squash the last n commits

• git branch -d <branch-name>

Delete a local branch (use -D to force delete).



Undo last commit, keep changes in the working directory (unstaged).

git reset --hard HEAD~1

Completely remove the last commit.

• git revert < commit-id>

Create a new commit that undoes the specified commit.

Stashing Changes

git stash

Temporarily save changes.

• git stash list

View stashed changes.

• git stash pop

Reapply stashed changes and remove them from the stash list.

git stash apply

Reapply stashed changes without removing them.

• git stash clear

Remove all stashed entries.

Collaborating & Pull Requests

• git branch -a

List all branches, including remote.

• git push origin:
 stranch-name>

Delete a remote branch.

Creating a Pull Request: Go to your GitHub repository, select your branch, and click "New Pull Request."

Remote Repositories

• git remote add origin <url>

Link your local repository to a remote one.

• git remote -v

List the remote repository URLs.

• git remote set-url origin <new-url>

Update the remote URL for the repository.

• git remote rename <old-name> <new-name>

Rename a remote.

• git push -u origin <branch-name>

Push changes to the remote repository.

• git pull origin <branch-name>

Pull changes from the remote branch.

git fetch

Download updates from the remote without merging.

• git fetch <remote>

Fetch updates from a specific remote.

Advanced Operations

• git cherry-pick <commit-id>

Apply a specific commit from another branch.

git cherry-pick <start-commit-id>^..<end-commit-id>

Cherry-pick a range of commits.

git tag <tag-name>

Add a tag to a commit.

git tag -d <tag-name>

Remove a local tag.

git reflog

View history of all changes (even uncommitted).

git reflog show <branch-name>

Show reflog for a specific branch.

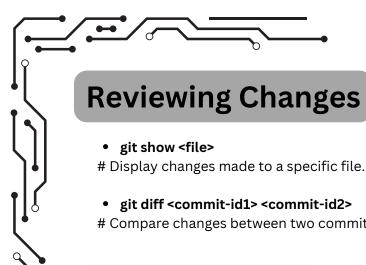
git show <commit-id>

Show detailed info for a specific commit.

git bisect start

Start bisecting to locate a bug.





- git diff <commit-id1> <commit-id2>
- # Compare changes between two commits.

Help Command

• git help <command>

Get detailed help for a specific command.

GitHub Commands (Optional with GitHub CLI)

• gh repo create

Create a new GitHub repo from the command line.

• gh repo clone <repo-url>

Clone a GitHub repository.

• gh pr create

Create a pull request from the command line.

• gh pr list

List open pull requests in the repository.

• gh issue create

Create a GitHub issue from the command line.

GitHub API (using curl)

• curl -H "Authorization: token YOUR_TOKEN" https://api.github.com/repos/USERNAME/REPO_NAME/issues # List issues in a repository.

Submodules & Worktrees

- git submodule add <repo-url> <path> # Add a submodule.
- git submodule init

Initialize submodules.

• git submodule update

Update submodules.

• git worktree add <path> <branch>

Create a new working tree for a branch.

Cleaning Up

• git clean -f

Remove untracked files.

• git clean -fd

Remove untracked files and directories.

git gc --prune=now

Clean up unnecessary files and optimize the local repository.

Repository Management and Information

• git shortlog -s -n

Summarize commits by author.

git describe --tags

Get a readable name for a commit.

git blame <file>

Show who last modified each line of a file.

• git grep "search-term"

Search for a term in the repository.

git revert <commit-id1>..<commit-id2>

Revert a range of commits.

git archive --format=zip HEAD -o latest.zip

Archive the latest commit as a ZIP file.

git fsck

Check the object database for integrity.

Best Practices and Common Workflows

- **Commit Often:** Make frequent commits with descriptive messages to maintain a clear project history.
- Branch for Features: Create a new branch for each feature or bug fix to keep changes organized and separate from the main codebase.
- **Use Meaningful Commit Messages:** Write clear and concise commit messages that explain the purpose of the changes.
- Pull Regularly: Regularly pull changes from the remote repository to stay updated with the latest changes and minimize merge conflicts.
- **Resolve Conflicts Promptly:** Address merge conflicts as soon as they arise to avoid complicating the integration process.
- **Review Pull Requests Thoroughly:** Ensure thorough review of pull requests to maintain code quality and facilitate knowledge sharing.
- Tag Releases: Use tags to mark important milestones or releases in the project for easy reference in the future.
- **Keep Your Branches Clean:** Delete branches that are no longer needed after merging them into the main branch to keep the repository organized.
- Use Git Hooks for Automation: Utilize Git hooks to automate tasks, like running tests before committing (pre-commit) or checking commit message formats. Hooks can help ensure code quality and consistency.
- Squash Commits Before Merging: Squash commits to combine related work into a single commit before merging, especially for feature branches. This keeps the project history clean and manageable.
- **Avoid Large Commits:** Try to keep commits small and focused on a single change or fix. This makes it easier to understand the history and isolate issues if something goes wrong.
- Create Descriptive Branch Names: Use branch naming conventions that describe the purpose, such as feature/login-form or fix/user-authentication-bug. This improves readability and collaboration.
- **Keep the Main Branch Deployable:** Always ensure that the main or production branch is stable and deployable. This allows the project to be released or updated at any time.