Git Commands with Examples and Explanations

Git is a version control system that helps you track changes in your code and collaborate with others. Below are some of the most important Git commands, explained with examples.

1. Initialize a Repository

Command: git init
Example:
git init
Explanation:
Creates a new local Git repository in your current directory. Git starts tracking changes here.

2. Clone a Repository

Command: git clone
Example:
git clone git@github.com:user/repo.git
Explanation:
Downloads an existing GitHub repository to your local system.

3. Check Status

Command: git status
Example:
git status
Explanation:
Shows the current status of your working directory — what's staged, unstaged, or untracked.

4. Add Files to Staging

Command: git add
Example:
git add .
Explanation:
Adds files to the staging area, preparing them to be committed.

5. Commit Changes

Command: git commit -m "message"
Example:

git commit -m "Added README file"
Explanation:
Saves your changes permanently in the local repository with a message.

6. Check Commit History

Command: git log
Example:
git log --oneline
Explanation:
Displays a list of all commits in your repository, with their unique commit hashes.

7. Add a Remote Repository

Command: git remote add
Example:
git remote add origin git@github.com:user/repo.git
Explanation:
Links your local repository to a remote one (e.g., on GitHub).

8. Pull from Remote

Command: git pull
Example:
git pull origin main
Explanation:
Fetches and merges changes from the remote branch into your local branch.

9. Push to Remote

Command: git push
Example:
git push origin main
Explanation:
Uploads your local commits to the remote repository on GitHub.

10. Set Upstream Branch

Command: git push --set-upstream origin main
Explanation:
Sets a default remote branch for your local branch, so future pushes/pulls don’t need

arguments.

11. Revert a Commit

Command: git revert
Example:
git revert bf3beb044774b7cb11b00fe8dfe61edfe22a54f7
Explanation:
Creates a new commit that undoes the changes from the specified commit.

12. Reset to Remote State

Command: git reset --hard origin/main
Explanation:
Resets your local branch to match the remote exactly, discarding all local commits.

13. View Remotes

Command: git remote -v
Explanation:
Shows the list of remote repositories and their URLs.

14. Create a New Branch

Command: git checkout -b
Example:
git checkout -b feature-branch
Explanation:
Creates and switches to a new branch for isolated development.

15. Merge a Branch

Command: git merge
Example:
git merge feature-branch
Explanation:
Combines the changes from another branch into your current branch.

These are the essential commands you'll use frequently while working with Git. Remember: Always pull before pushing, commit often, and write clear commit messages!