GIT

GitHub Basics with Commands and Descriptions :

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1. Setup
1. Install Git:
   Download from https://git-scm.com/.
2. Configure Git:
   Set your username and email globally:
   # Set your name
   git config --global user.name "Your Name"
   # Set your email
   git config --global user.email "your.email@example.com"

2. Create/Clone a Repository
1. Initialize a local repository:
   git init # Create a new repo in the current directory
2. Clone a repository:
   # Download an existing repo
   git clone https://github.com/username/repo-name.git

3. Add and Commit Changes
1. Check status:
   git status # See changes and untracked files
2. Stage changes:
   # Stage all files
   git add .
   # Stage a specific file
   git add file.txt
3. Commit changes:
   # Save a snapshot of your changes
   git commit -m "Your commit message"

4. Push and Pull Changes
1. Connect local repo to GitHub:
   # Link to GitHub
   git remote add origin https://github.com/username/repo-name.git

2. Push changes to GitHub:

 # Push your commits to the main branch
git push -u origin main

3. Pull changes from GitHub:

 # Sync the latest changes
git pull origin main

5. Branching

1. Create a new branch:

 # Create a branch
git branch branch-name

2. Switch to a branch:

 # Move to a branch
git checkout branch-name

3. Create and switch to a new branch:

 # Shortcut for creating and switching
git checkout -b branch-name

4. Merge a branch into main:

 # Switch to main branch
git checkout main

 # Merge changes from another branch
git merge branch-name

6. View History

1. View commit history:

 # Show commit history
git log

2. Show a summary of changes:

 # Compact view of commit history
git log --oneline

7. Undo Changes

1. Unstage changes:

    # Unstage a file
    git reset file.txt

2. Discard uncommitted changes:

    # Reset file to last commit state
    git checkout -- file.txt

8. Collaborating

1. Fork a repo (on GitHub):

    Create your copy of someone's repo.

2. Create a pull request:

    Propose your changes for review (via GitHub website).

9. Use `.gitignore`

1. Ignore files or folders:

    Create a `.gitignore` file in your repo and add patterns
to exclude:

    node_modules/
    .env
    *.log

10. Check Repository State

1. Check remote repositories:

    # See linked repositories
    git remote -v

2. View differences:

    # Compare working changes
    git diff