# Learning Git – Step-by-Step Guide

## 1️⃣ Understand What Git Is

Git is a distributed version control system for tracking changes in code or files.  
Why it matters:  
- Saves history of your work  
- Enables collaboration (GitHub, GitLab, Bitbucket)  
- Supports branching, merging, and rollback  
  
Key concept: Git tracks snapshots of files over time (commits).

## 2️⃣ Set Up Git

1. Install Git: https://git-scm.com/  
2. Configure user info:  
 git config --global user.name "Your Name"  
 git config --global user.email "you@example.com"  
3. Check configuration:  
 git config --list

## 3️⃣ Learn Core Git Concepts

Git has three areas:  
1. Working Directory – your actual files  
2. Staging Area (Index) – changes marked for commit  
3. Repository (Local Repo) – committed history  
  
Workflow: Working Dir → Staging Area → Local Repo → Remote Repo (GitHub)

## 4️⃣ Master Basic Commands

Create repo: git init  
Clone remote repo: git clone <url>  
Check status: git status  
Add files to stage: git add file.txt or git add .  
Commit changes: git commit -m "Message"  
View commit history: git log --oneline  
Push to remote: git push origin main  
Pull latest changes: git pull origin main

## 5️⃣ Learn Branching & Merging

Create branch:  
 git branch feature-xyz  
 git checkout feature-xyz  
Merge branch:  
 git checkout main  
 git merge feature-xyz  
Delete branch:  
 git branch -d feature-xyz  
  
Best practice: Always create feature branches instead of working directly on main.

## 6️⃣ Practice Common Workflows

- Feature branching (Git Flow / GitHub Flow)  
- Forking workflow (for open source)  
- Pull Request workflow (code review before merge)

## 7️⃣ Learn How to Fix Mistakes

Undo staged change: git reset file.txt  
Undo commit but keep changes: git reset --soft HEAD~1  
Undo commit & discard changes: git reset --hard HEAD~1  
Restore deleted file: git checkout -- file.txt

## 8️⃣ Practice Daily

Ideas:  
- Initialize a test repo and make commits every day  
- Push to GitHub  
- Create branches, merge them  
- Resolve a merge conflict

## 9️⃣ Resources

Beginner-Friendly:  
- Git Official Book: https://git-scm.com/book/en/v2  
- GitHub Skills: https://skills.github.com/  
  
Interactive Practice:  
- Learn Git Branching: https://learngitbranching.js.org/  
- Oh My Git!: https://ohmygit.org/