

# ■ GitHub Guide: Zero to Pro

## ■ Module 1: Introduction to Git & GitHub

Goal: Understand what Git and GitHub are and why they matter.

- What is Git? (Version control system)
- What is GitHub? (Cloud-based Git repository hosting)
- Git vs GitHub
- Why developers use GitHub

- Real-world analogy: Git is like a time machine for code

Demo Idea: Show a simple folder with code versions, then introduce Git's tracking.

## ■ Module 2: Setting Up Git & GitHub

Goal: Get your system ready for GitHub development.

- Installing Git (Windows, macOS, Linux)
- Creating a GitHub account
- Setting up Git username and email
- Generating SSH keys and connecting to GitHub
- GitHub Desktop vs Git CLI

Demo Idea: Walk through Git installation and GitHub sign-up.

## ■ Module 3: Git Basics

Goal: Learn essential Git commands and workflows.

- git init, git status, git add, git commit
- Understanding the staging area
- Viewing commit history (git log)
- Undoing changes (git checkout, git reset)
- .gitignore file

Demo Idea: Create a local repo and track changes to a simple HTML file.

## ■ Module 4: Working with GitHub Repositories

Goal: Learn how to use GitHub for remote collaboration.

- Creating a new GitHub repo
- Cloning a repo (git clone)
- Pushing changes (git push)
- Pulling updates (git pull)
- Forking and starring repositories

Demo Idea: Push a local project to GitHub and view it online.

## ■ Module 5: Branching & Merging

Goal: Master collaborative workflows.

- What is a branch?
- Creating and switching branches (git branch, git checkout)
- Merging branches (git merge)
- Resolving merge conflicts

- GitHub Flow vs Git Flow

Demo Idea: Simulate a feature branch and merge it into main.

## ■ Module 6: Collaboration & Pull Requests

Goal: Learn how teams work together on GitHub.

- What is a pull request (PR)?
- Creating a PR on GitHub
- Reviewing and commenting on PRs
- Merging PRs
- Using Issues to track bugs and features

Demo Idea: Create a PR and assign a reviewer.

## ■ Module 7: Advanced GitHub Features

Goal: Explore powerful tools for productivity.

- GitHub Actions (CI/CD basics)
- GitHub Pages (host static websites)
- Project boards (Kanban-style task tracking)
- Wiki and documentation
- GitHub Copilot (AI coding assistant)

Demo Idea: Deploy a simple portfolio site with GitHub Pages.

## ■ Module 8: Best Practices & Real-World Tips

Goal: Write clean, collaborative, and secure code.

- Writing good commit messages
- Semantic versioning
- Branch naming conventions
- Protecting main branches
- Using README.md effectively
- Licensing your code (MIT, GPL, etc.)

Demo Idea: Show a well-structured repo with README, license, and branches.

## ■ Module 9: GitHub for Teams & Open Source

Goal: Scale your GitHub usage for team and community projects.

- GitHub Organizations
- Managing team permissions
- Contributing to open source
- Creating good Issues and PRs for contributors
- GitHub Discussions

Demo Idea: Explore a popular open-source repo and contribute a fix.

## ■ Final Module: GitHub Pro Tips & Resources

Goal: Level up with shortcuts and learning tools.

- Git aliases
- GUI tools (GitKraken, SourceTree)
- GitHub CLI

- Learning resources (GitHub Learning Lab, Docs)
  - Staying updated with GitHub changelogs
- Demo Idea: Share your GitHub profile and contributions graph.