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Git and GitHub Fundamentals

Course #: GH-100 **Duration:** 2 days

Prerequisites

Students should have a solid understanding of the software development process. No experience in any particular programming language is needed.

Details

Git is the most used version control system for programmers in the world. GitHub is both the most commonly used implementation of Git and the most prominent host of source code in the world. This course will familiarize the learner with both technologies, helping them to maximize their development and collaboration efforts.

Software Needed

Git and any text editor.

Outline

- **Getting started with Git & GitHub**
  - Why VCS?
  - Git vs. GitHub
  - Installing Git
  - Signing up to GitHub
  - Git GUI Programs
- **Basic Git Commands**
  - Configuration
  - The Three Trees
  - Adding commits
  - Commit Messages
  - Viewing Commit History
  - Viewing Prior Versions of Files
  - Stashing Changes
  - Stopping Tracking a File
  - Creating a branch
  - Revert
  - Reset
- **Working with Remotes**
  - Adding a remote
  - Cloning
  - Forking
  - Pushing to the remote

    - Fetching from the remote
    - Merging and Rebasing
    - Pulling from the remote
    - Resolving Merge Conflicts
- **Standard Workflows**
    - Centralized Workflow
    - GitHub/Feature Branching Flow
    - Git Flow
    - Forking Flow
    - The Perils of Long-Running Branches
- **Advanced Git Commands**
    - Amending commits
    - Interactive rebasing
    - Squash
    - Fixup
    - Cherry-picking
    - Bisect
    - Aliases
    - Hooks
- **Working with GitHub**
    - Two-factor authentication
    - Branch Protections
    - Watching repositories
    - Actions
    - Notifications
- **Working in teams**
    - Issues
    - Pull Requests
    - Project Boards
    - Wiki
    - Tags
- **Options for teams**
    - Organization accounts
    - Teams
    - Paid plans