

Introduction to Git and GitHub

Course Summary

Description

Whether new to version control or just needing a thorough explanation of Git and GitHub, this class will help you grasp the concepts of distributed version control and effectively begin using the GitHub suite of tools. Explore both Git concepts and typical GitHub workflows through practical demonstrations and exercises. Building upon your foundational knowledge of Git and GitHub, we'll help you leverage command line Git interaction skills. This class will showcase traditional collaboration workflows, branching and merging, undoing mistakes, and connecting with multiple remotes in a distributed working environment. We will also demonstrate how to integrate code review with repository management.

Objectives

By the end of this course, students will be able to:

- Familiarization with Git and DVCS concepts
- Introduction to the GitHub platform
- Repository creation on the web and desktop
- Document versioning with local and remote repositories
- Distributed version control synchronization
- Collaboration patterns and workflows
- Project management and repository integration
- Configuration & customization
- Command line familiarization and daily commands
- Commits and establishing versions on the command line
- File change review and comparison
- Local and remote distributed repository synchronization
- Branching strategies for local and collaborative work
- Merge strategies and conflict resolution
- History review and assessment
- Multiple remotes and fork maintenance
- Using code review tools with Git

Topics

- Introduction to Git
- Introduction to GitHub
- Distributed Git
- Git Configuration
- Branching
- Merge Strategies
- Multiple Remotes and Forks
- Code Review Tools

Audience

This course is designed for developers.

Prerequisites

There are no prerequisites for this course.

Duration

One day

Introduction to Git and GitHub

Course Outline

- I. Introduction to Git**
 - A. Local Version Control System
 - B. Centralized Version Control Systems
 - C. Git
 - D. Distributed vs. Centralized
 - E. Activity: Version Control Systems
 - F. Versions
 - G. File States
 - H. Git Operations
 - I. Discussion
 - J. Installation
 - K. Git Command Line
 - L. Git GUIs
 - M. Git Configuration
 - N. Create a Repository
 - O. File State
 - P. Updating the Repository
 - Q. GUI Showing File Statuses
 - R. Lab 1 – Create a Repository
 - S. Summary
- II. Introduction to GitHub**
 - A. GitHub
 - B. GitHub is Git
 - C. Let's Go There...
 - D. GitHub Desktop
 - E. GitHub Desktop - Demo
 - F. GitHub Demo
 - G. Create Repository
 - H. Repository Explorer
 - I. Edit the File
 - J. Create Repository GitHub Desktop
 - K. Lab 2 – GitHub
 - L. Summary
- III. Distributed Git**
 - A. Synching with Remote
 - B. Workflow
 - C. Rebase
 - D. Rebase vs. Merge
 - E. Lab 3 – Branching in GitHub
 - F. Summary
- IV. Git Configuration**
 - A. Chat Activity
 - B. Git Configuration
 - C. Config Example
 - D. Values
 - E. Common Settings
 - F. Poll
 - G. Filtering
 - H. Example Policy Hook
- I. Summary**
- V. Branching**
 - A. Why Branch?
 - B. Git Branch
 - C. Git Branch – with a Twist
 - D. Commands
 - E. Poll
 - F. Git Branch Graph
 - G. Topic Branch
 - H. Basic Workflow – Local
 - I. Lab 4 – Rebase
 - J. Summary
- VI. Merge Strategies**
 - A. Merge and Pull
 - B. Merge Strategies
 - C. Merging
 - D. Conflicts Found
 - E. Resolve Conflicts
 - F. Merge Options
 - G. Lab 5 - Workflow
 - H. Summary
- VII. Multiple Remotes and Forks**
 - A. Challenge
 - B. History Review
 - C. Multiple Remotes
 - D. Fork
 - E. Summary
- VIII. Code Review Tools**
 - A. Activity: Code Review Tools
 - B. Code Review
 - C. Project Management
 - D. Projects
 - E. Poll
 - F. Create Branch – Delete Branch
 - G. Open Changes
 - H. Change Screen
 - I. Review the Change
 - J. Edit Changed File
 - K. Reply To
 - L. History
 - M. Conflicting Change
 - N. My Reviews
 - O. Plugins
 - P. Documentation
 - Q. Custom Dashboards
 - R. Lab 6 - Code Review using Gerrit
 - S. Summary