



# **GIT: Introduction to Version Control with Git Training (WA2410)**

Course ID #: 7000-695-ZZ-Z

Hours: 7

## **Course Content**

### **Course Description:**

The Git training course begins with a review of the benefits of version control in software development. We then introduce Git, with emphasis on the multiple workflow possibilities, and the paradigm shift required to use distributed version control effectively.

This Git training course has 7 hands-on Git labs that cover basic Git operations as well as workflow.

### **Course Objectives:**

The objective of this course is to teach developers what Git is and how to use Git to manage software versions effectively.

### **Prerequisites:**

Basic computer literacy (Windows, Mac or Linux)

### **Target Audience:**

Software Developers

### **Topics:**

#### **Chapter 1. Introduction to Version Control**

- What is Version Control
- What is Version Control (cont'd)
- "Undo" Capability
- Collaboration
- Collaboration (Cont'd)
- Communication and Sharing
- Auditing and Tracking
- Release Engineering, Maintenance, SDLC
- Diagnostics
- History of Version Control
- What is Version Control (cont'd)
- Distributed Version Control
- Summary

#### **Chapter 2. Introduction to Git**

- What is Git
- Git's Design Goals
- Git's Design Goals (cont'd)
- Branching and Merging
- Branching and Merging (cont'd)
- Centralized Version Control
- Distributed Version Control
- Git Basics
- Git Basics (Cont'd)
- Git Basics (cont'd)
- Getting Git
- Git on the Server
- Git Repository Managers
- Git on Somebody Else's Server
- Summary



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## **Chapter 3. Basic Git Operations**

- Using Git
- Definitions
- Definitions (cont'd)
- Repository (cont'd)
- Definitions (cont'd)
- Commit
- Commit (continued)
- How to Think About Commits
- Viewing History
- Configuring Git
- Configuration Scope
- User Identification
- User Identification (cont'd)
- GPG Signing
- Gnu Privacy Guard
- GPG Basics
- GPG and Git
- .gitignore
- Other Useful Configurations
- Summary

## **Chapter 4. Branching, Merging and Remotes**

- Branching
- Branches in Git
- Branches in Git (cont'd)
- Merge
- Merge (cont'd)
- Fast Forward Merge
- --no-ff
- More Than One Repository
- Working with Remotes
- Fetch and Pull
- Push
- Pull Requests
- Tagging a Commit
- Lightweight Tags
- Annotated Tags
- Sharing Tags
- Checking Out a Tag
- Summary

## **Chapter 5. Git Work Flows**

- Work Flows
- Local Work Flow
- Feature Branches
- Centralized Workflow
- Integration Manager Work Flow
- Integration Manager Work Flow (cont'd)
- Other Work Flows Are Possible
- Summary

## **Chapter 6. Introduction to GitFlow**

- What is GitFlow
- Benefits
- How GitFlow works?
- How GitFlow works? (Contd.)
- What is GitFlow? (Contd.)
- How GitFlow works? (Contd.)
- GitFlow Extension
- Initializing GitFlow
- Features
- Release
- Hotfixes
- Summary

## **Chapter 7. Rewriting History**

- Rewriting History
- Squashing Commits
- Squashing Commits (cont'd)
- Rebase vs Merge
- Amending Commits
- Reset
- Summary

## **Chapter 8. Examining History**

- Looking at History
- Log
- Blame
- Bisect
- Summary



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## **Chapter 9. Submodules and Subtrees**

- Submodules
- Dependency Management
- Dependency Management (cont'd)
- Git Submodules
- Adding a Submodule
- .gitmodules
- Cloning a Repository with Submodules
- Updating Submodules (Initial)
- Updating Submodules (Ongoing)
- Subtrees
- Subtrees – How They Work
- Subtrees
- Conclusion

## **Chapter 10. Configuring Git**

- Advanced Configuration
- Advanced Configuration Variables
- Environment Variables
- Aliases
- Git Hooks
- Summary

## **Lab Exercises**

- Lab 1. Starting Out With Git
- Lab 2. Branching, Merging and Working with Remotes
- Lab 3. Experimenting with Workflows
- Lab 4. Using the GitFlow Workflow
- Lab 5. Rebasing and Rewriting History
- Lab 6. Git Submodules
- Lab 7. (Optional) GitFlow Workflow With the GitFlow Extensions

**Register for this class by visiting us at:**

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