# Introducing GIT Training

Duration: **1 Day**

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## Overview

**Git** is a free and open-source version control system widely used for source code management. It can support projects ranging from small development tasks to very large and complex software initiatives. Git tracks changes to source code and enables multiple developers to work on the same project in a distributed and non-linear way.

Its distributed architecture allows version control to continue without requiring constant access to a central server. This makes Git useful not only for software development, but also for document and content management scenarios where change tracking is important.

This workshop-based course introduces Git through the command line, graphical user interfaces, and remote repository services such as GitHub. Participants explore how Git works and learn practical strategies for repositories, commits, branches, merges, and remote collaboration.

The course combines discussion, instructor demonstrations, and hands-on exercises. Practical activities follow the main topics so learners can reinforce each concept immediately. Additional reference material is also provided to support continued learning after the course.

## Prerequisites

Participants should be comfortable with:

- Basic software development concepts,
- File system concepts,
- Command Line usage.

No specific programming language experience is required.

Participants will also need an email address they are willing to use while working with Git and GitHub during the course.

A **Microsoft account** should also be created before attending.

## Who Should Attend

This course is particularly suitable for:

- Developers who are new to Git,
- Technical professionals learning Version Control,
- Learners beginning their journey into DevOps practices,
- Users who want to work with GitHub and remote repositories,
- Software teams looking to create more structured and traceable development workflows.

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## What You Will Learn

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

- Explain how Git works,
- Install and use Git from the command line,
- Create and manage repositories,
- Work with staged and unstaged changes,
- Understand the Git commit lifecycle,
- Review changes using diff tools,
- Create, switch, and merge branches,
- Work with commit history,
- Use Stash to store incomplete work temporarily,
- Connect local repositories to remotes,
- Work with GitHub repositories,
- Push and pull changes,
- Manage branches that have fallen out of sync.

## Outline

### Git Basics

- Installing Git
- Working with BASH
- Using a Git GUI
- Understanding Git application architecture
- Understanding the relationship between the Working Directory, Staging Area, and Repository
- Introduction to distributed version control

### Git Repositories

- Creating new repositories
- Understanding repository structure
- Staged Resources
- Unstaged Resources
- The Git Commit Lifecycle
- Creating commits
- Deciding when to commit
- Building a clear and useful commit history

### Git Updates and Tracking

- Extending the Git lifecycle to manage change
- Understanding and working with Hunks
- Using Git Diff
- Reviewing changes before committing
- Using Dry Run techniques
- Committing with greater confidence
- Working with GitK to review commit history and branches

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## Branching

- Working with the Master branch and HEAD
- Exploring Commit History
- Checking out branches
- Creating new branches
- Maintaining branches
- Merging branches
- Exploring Branch Management Strategies
- Supporting parallel development
- Using Stash for incomplete work

## Cloning and Remotes

- Cloning repositories
- Understanding remote repositories
- Working with GitHub
- Connecting local and remote repositories
- Pulling repository changes
- Pushing repository changes
- Managing branches that are out of sync
- Tracking remote branch changes
- Overview of Git in task-run and automation solutions