

Software Engineering for Economists

Version Control and Error Tracking

Agenda

- ▶ Basics
- ▶ Tutorials
 - ▶ Git
 - ▶ GitHub

Basics

► **Version Control**

Version Control is a system that records changes to a file or set of files over time so that you can recall specific versions later.

Implementations

- ▶ Local Version Control Systems
- ▶ Centralized Version Control Systems
- ▶ Distributed Version Control Systems

Figure: Local Version Control Systems

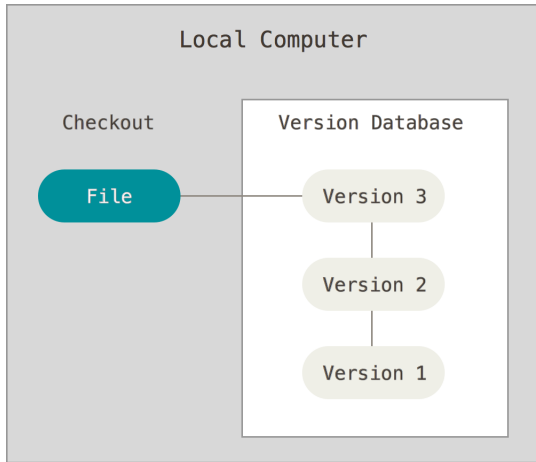


Figure: Centralized Version Control Systems

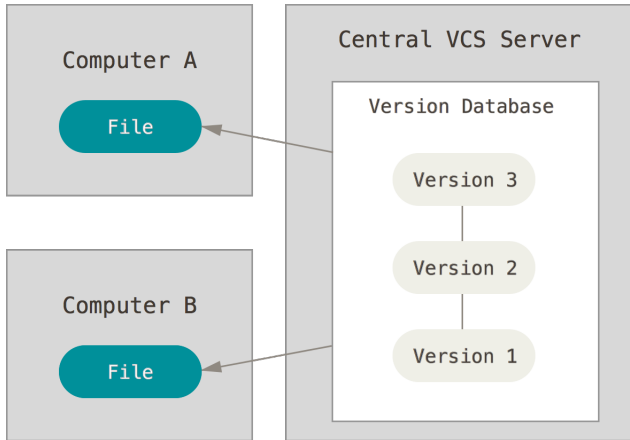
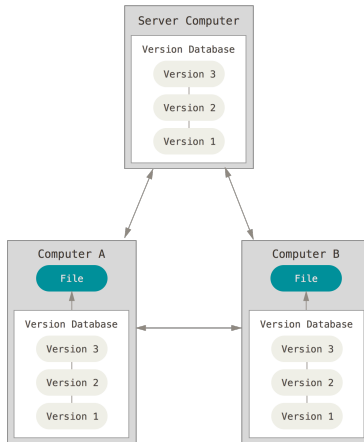


Figure: Distributed Version Control Systems



Tools

Figure: Distributed Version Control System



Why Git?

- ▶ speed
- ▶ simple design
- ▶ distributed setup for collaborative development

Figure: Collaboration Platform



Why GitHub?

- ▶ collaborate
- ▶ showcase coding skills
- ▶ build on and contribute to open science projects

Tutorials

Basic Git

What to expect?

- ▶ Setting up Git
- ▶ Simulation of Basic Workflow
 - ▶ ... modify files in working directory.
 - ▶ ... stage files and add snapshot to staging area.
 - ▶ ... commit files in staging area to Git directory.
- ▶ Initializing Remote Directory

Figure: Lifecycle

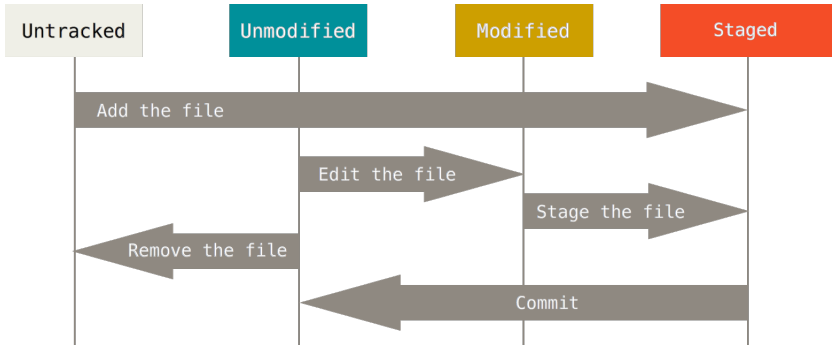



Figure: Try Git

1.1 · Got 15 minutes and want to learn Git?

Git allows groups of people to work on the same documents (often code) at the same time, and without stepping on each other's toes. It's a distributed version control system.

Our terminal prompt below is currently in a directory we decided to name "octobox". To initialize a Git repository here, type the following command:

`git init`

tryGit

TryGit—1231x310

Press enter to submit commands

> |

My Octobox Repository

Advice

Directory:
A folder used for storing multiple files.




Figure: GitHub Login



Advanced Git

What to expect?

- ▶ Repository Browser
- ▶ Key Concepts
 - ▶ Branch
 - ▶ Fork
 - ▶ Pull Request
- ▶ Code Review and Error Tracking

Appendix

References

Chacon, S. and Straub, B. (2014). *Pro Git*. Apress, New York, NY.