



Version Control with Git

Version Control

Why track/manage different versions of code?

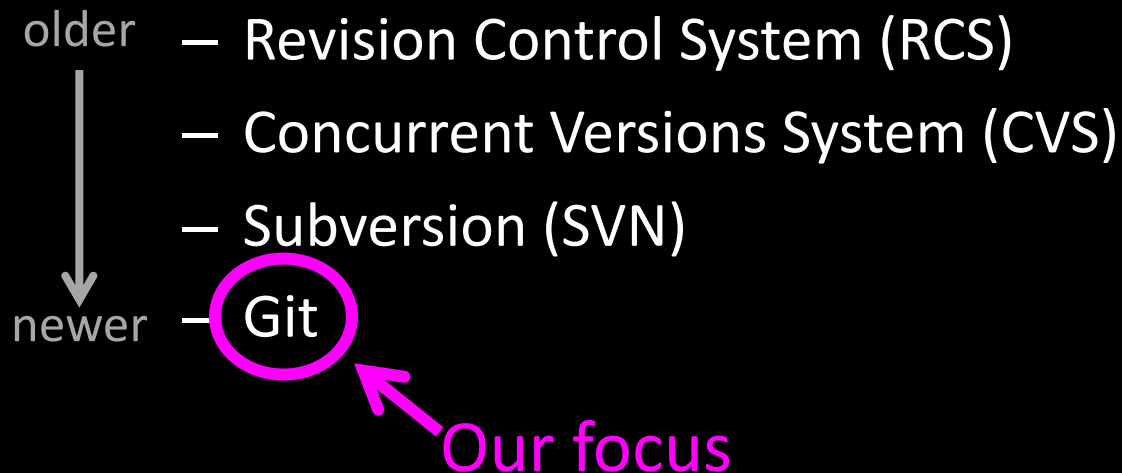
Version Control

Why track/manage different versions of code?

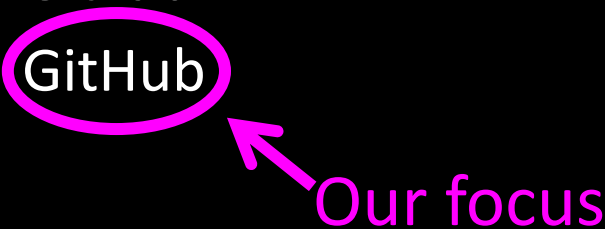
- **Backup**: Undo or refer to old stuff
- **Branch**: Maintain old release while working on new
- **Collaborate**: Work in parallel with teammates

Version Control Systems (VCSs)

- Help you track/manage/distribute revisions
- Standard in modern development
- Examples:



Version Control Hosting Services

- Enable sharing version control repos
 - Internet/Web based
 - Examples:
 - SourceForge
 - Bitbucket
 - GitLab
 - **GitHub**
- Our focus

GitHub-User Perspective



You



GitHub

GitHub-User Perspective



You

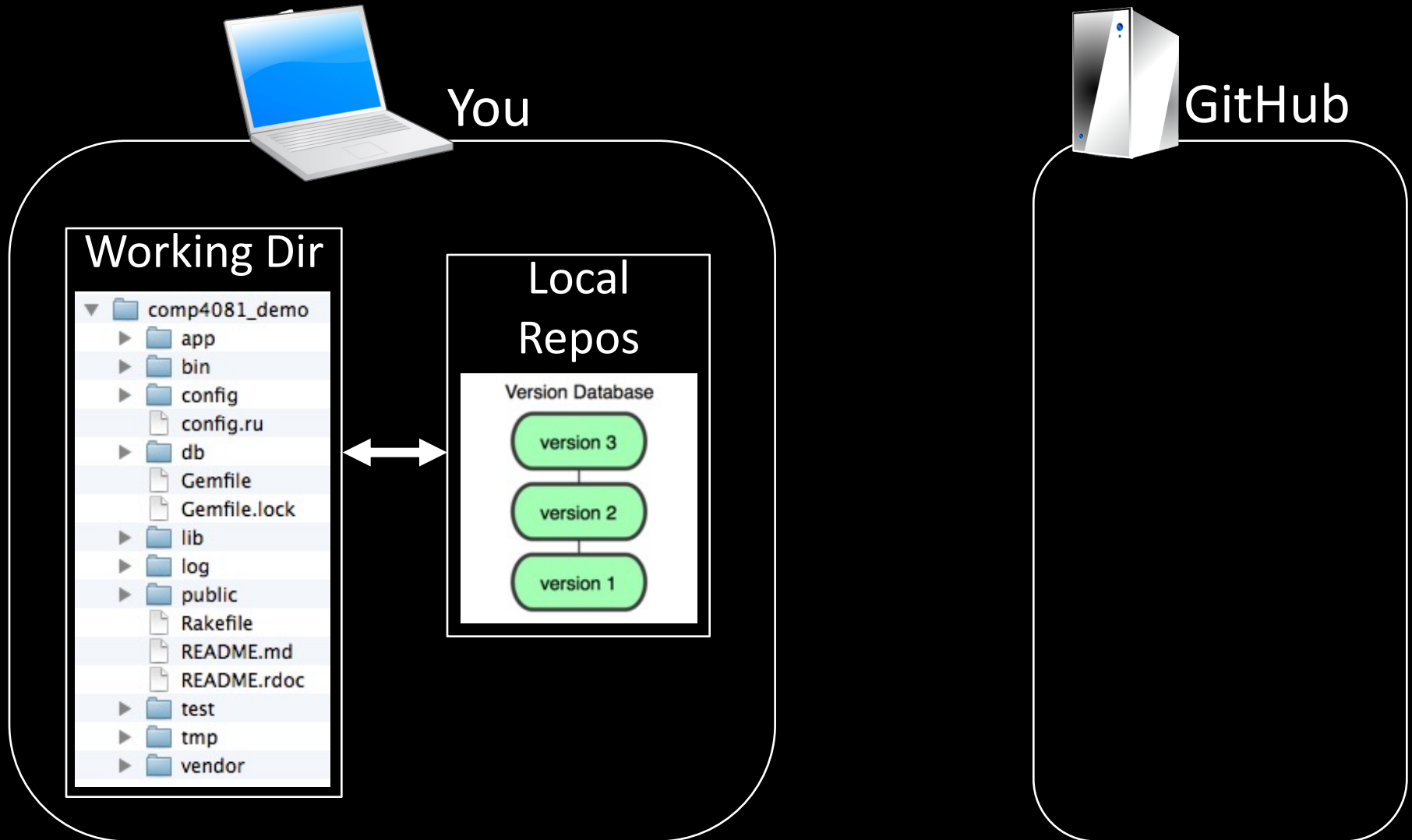


GitHub

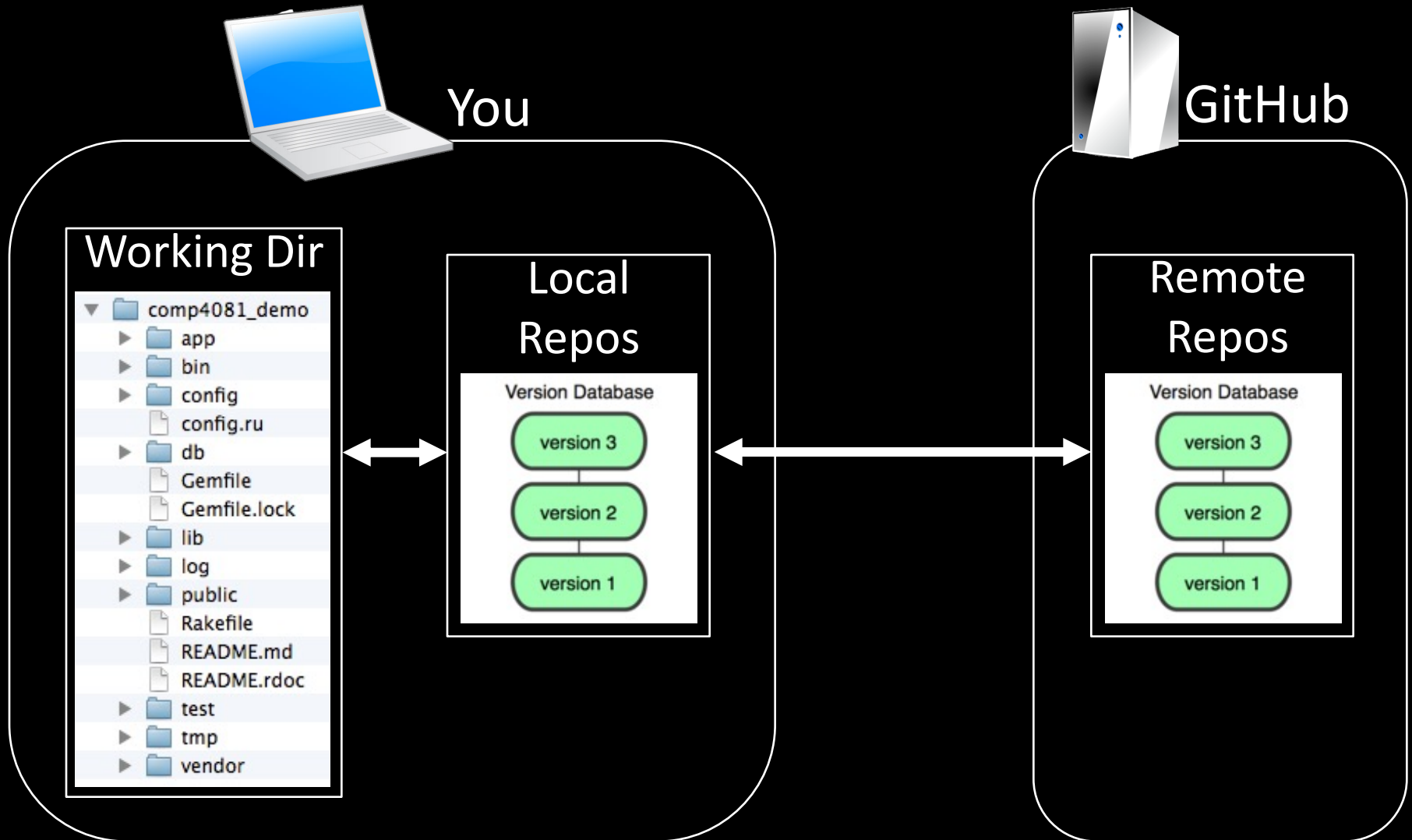
Working Dir

- ▼ comp4081_demo
 - ▶ app
 - ▶ bin
 - ▶ config
 - config.ru
 - ▶ db
 - Gemfile
 - Gemfile.lock
 - ▶ lib
 - ▶ log
 - ▶ public
 - Rakefile
 - README.md
 - README.rdoc
 - ▶ test
 - ▶ tmp
 - ▶ vendor

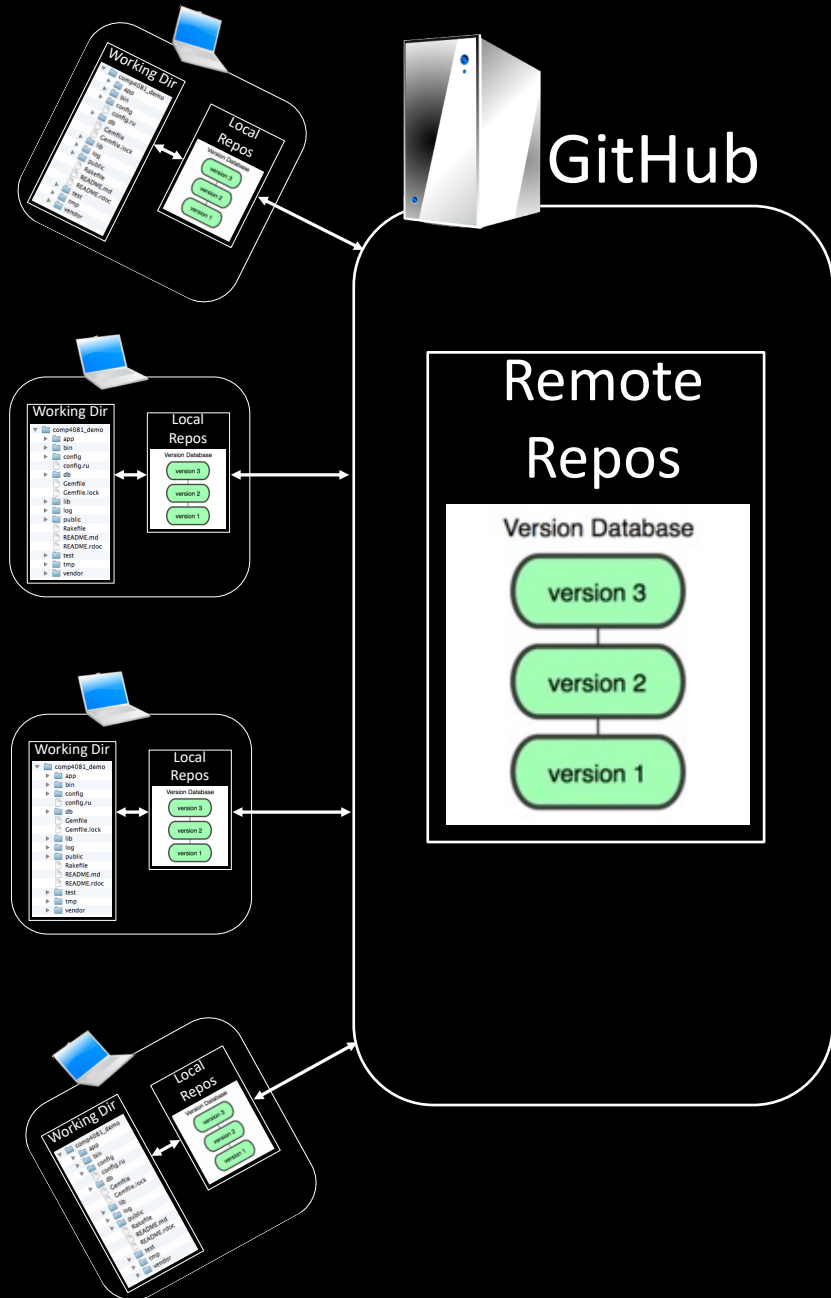
GitHub-User Perspective



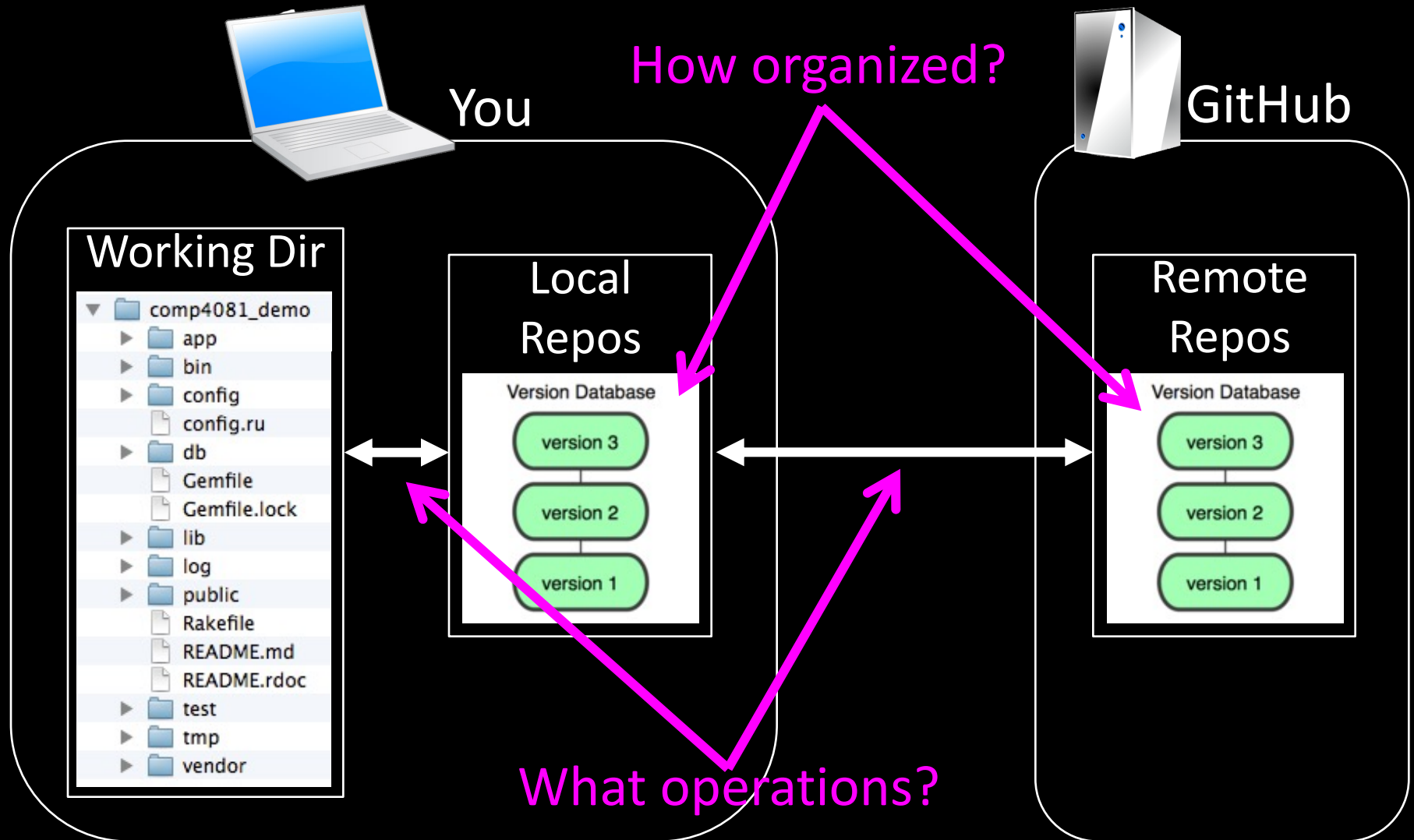
GitHub-User Perspective



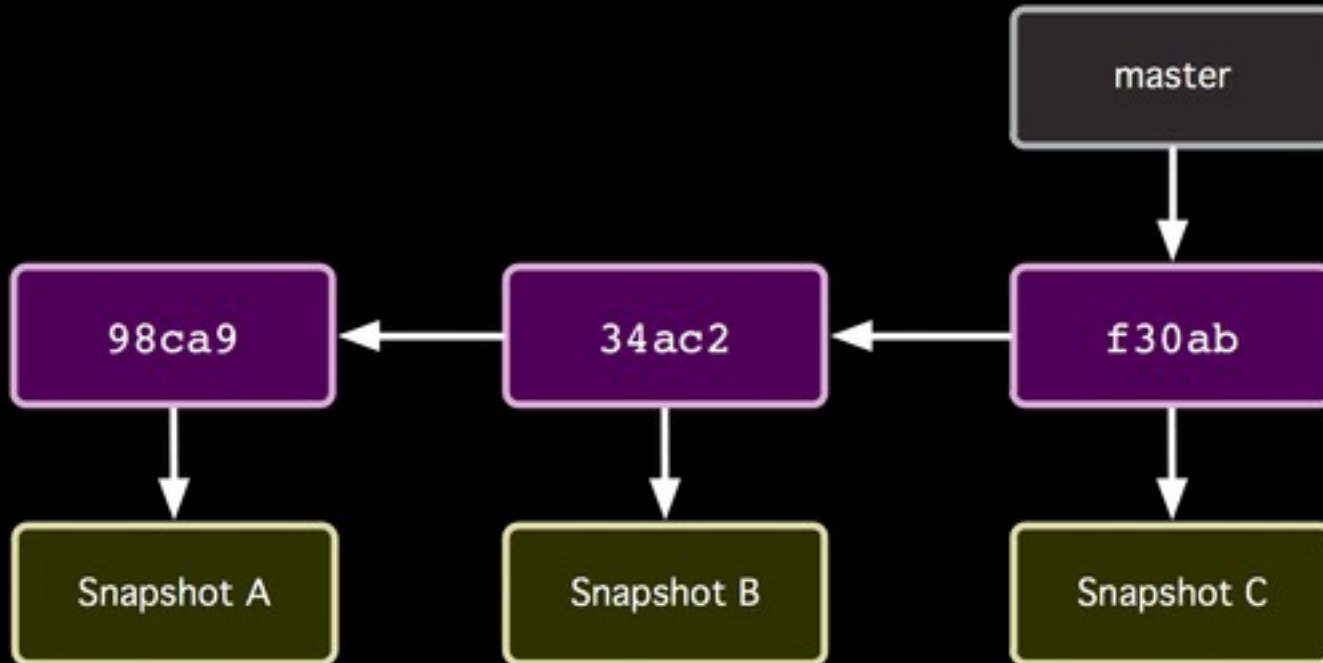
Using GitHub to Collaborate



Questions to answer

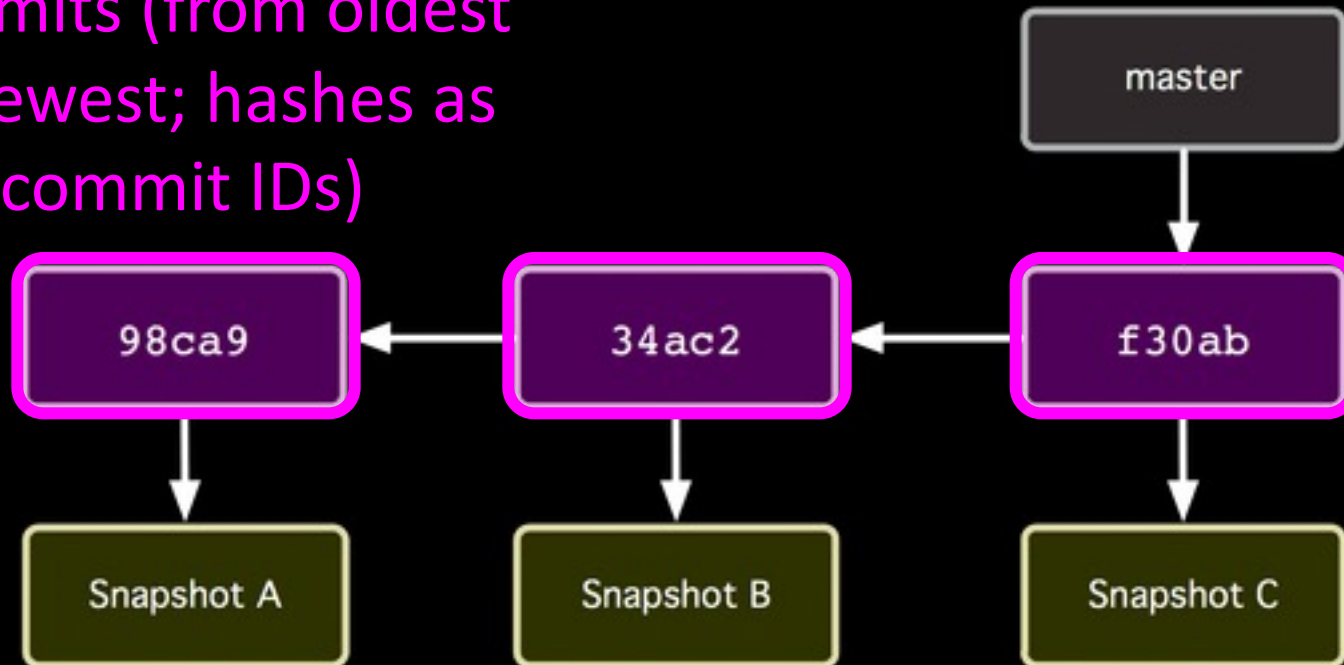


Repo Organization

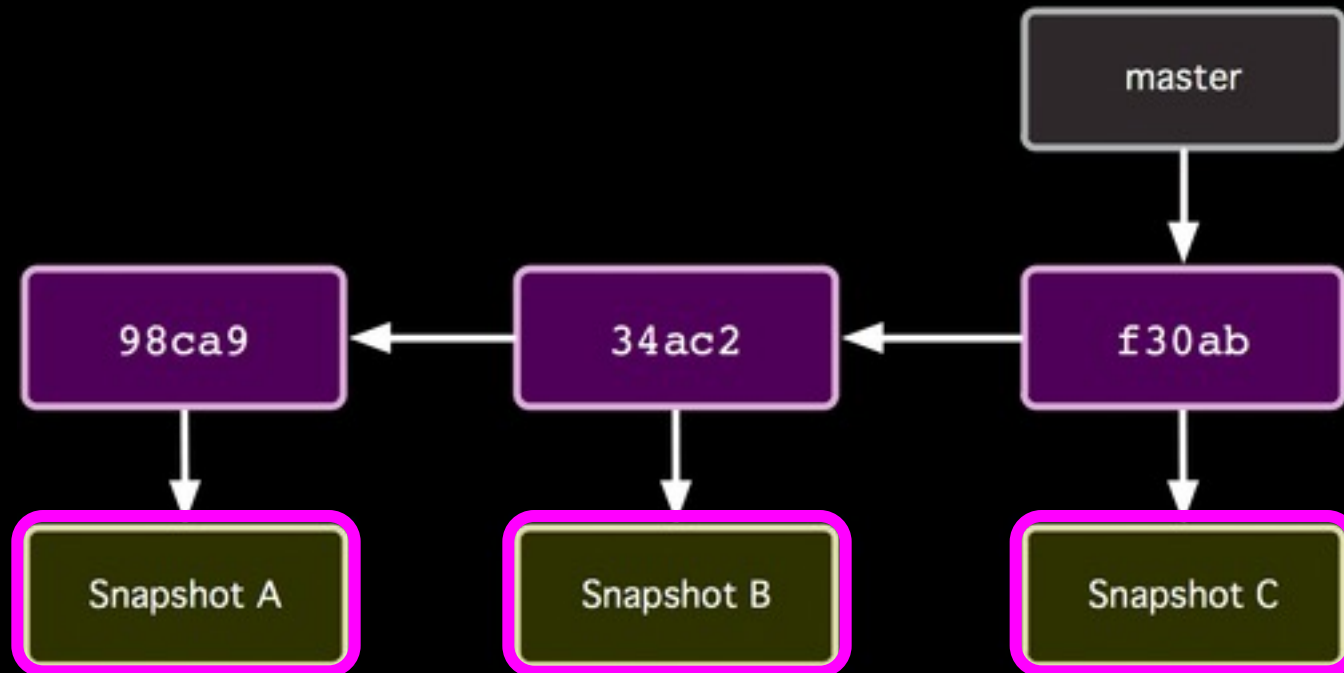


Repo Organization

Commits (from oldest to newest; hashes as commit IDs)



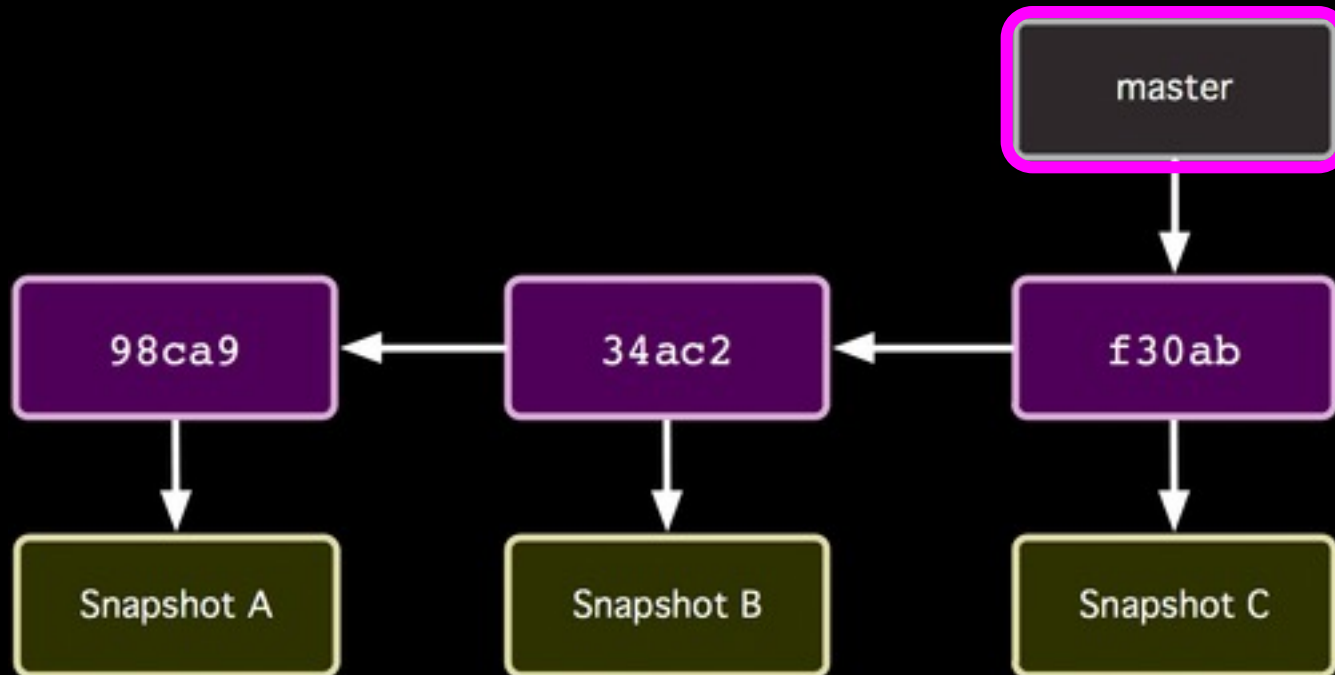
Repo Organization



Snapshot of all files
at each commit

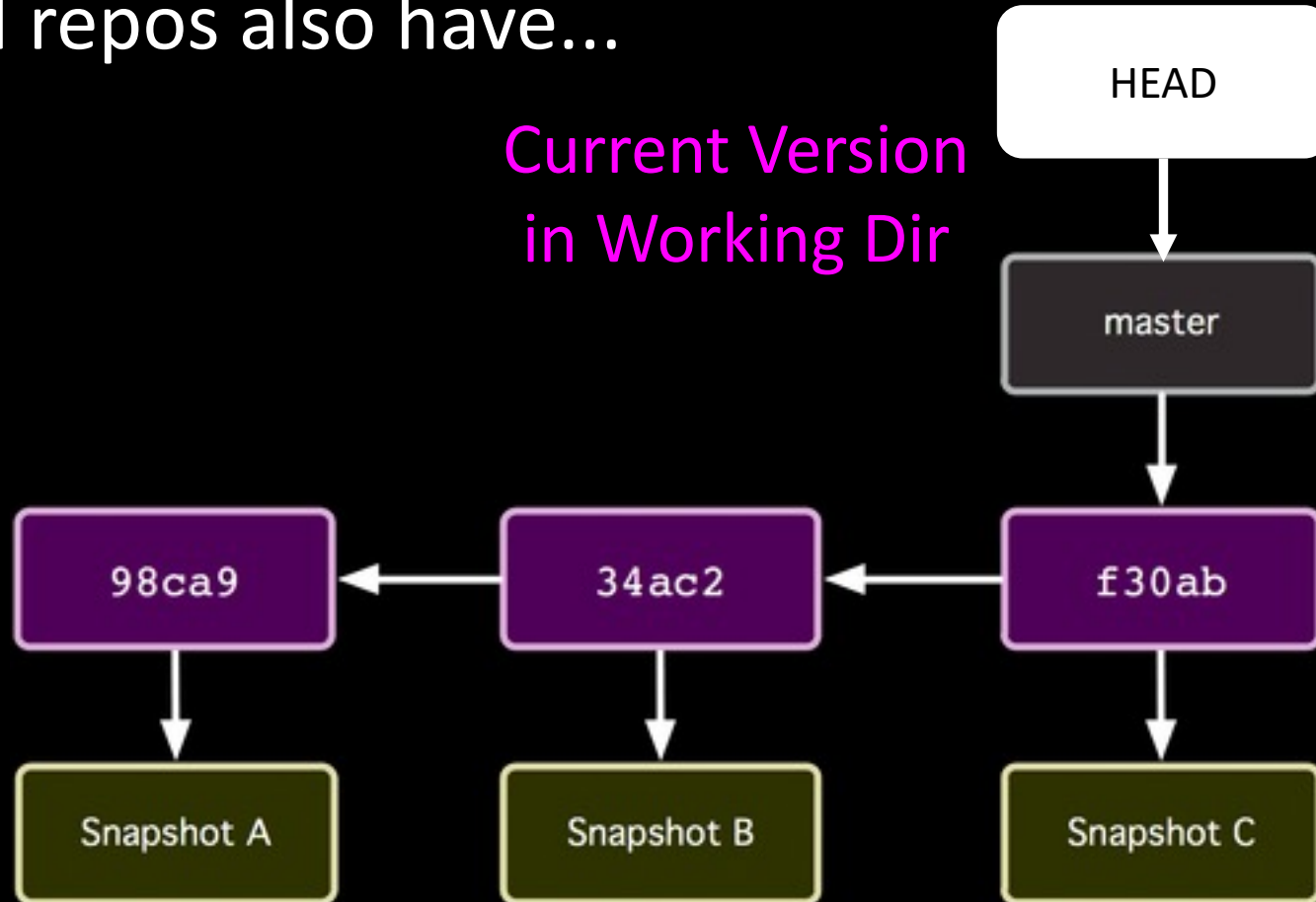
Repo Organization

Branch (last commit)

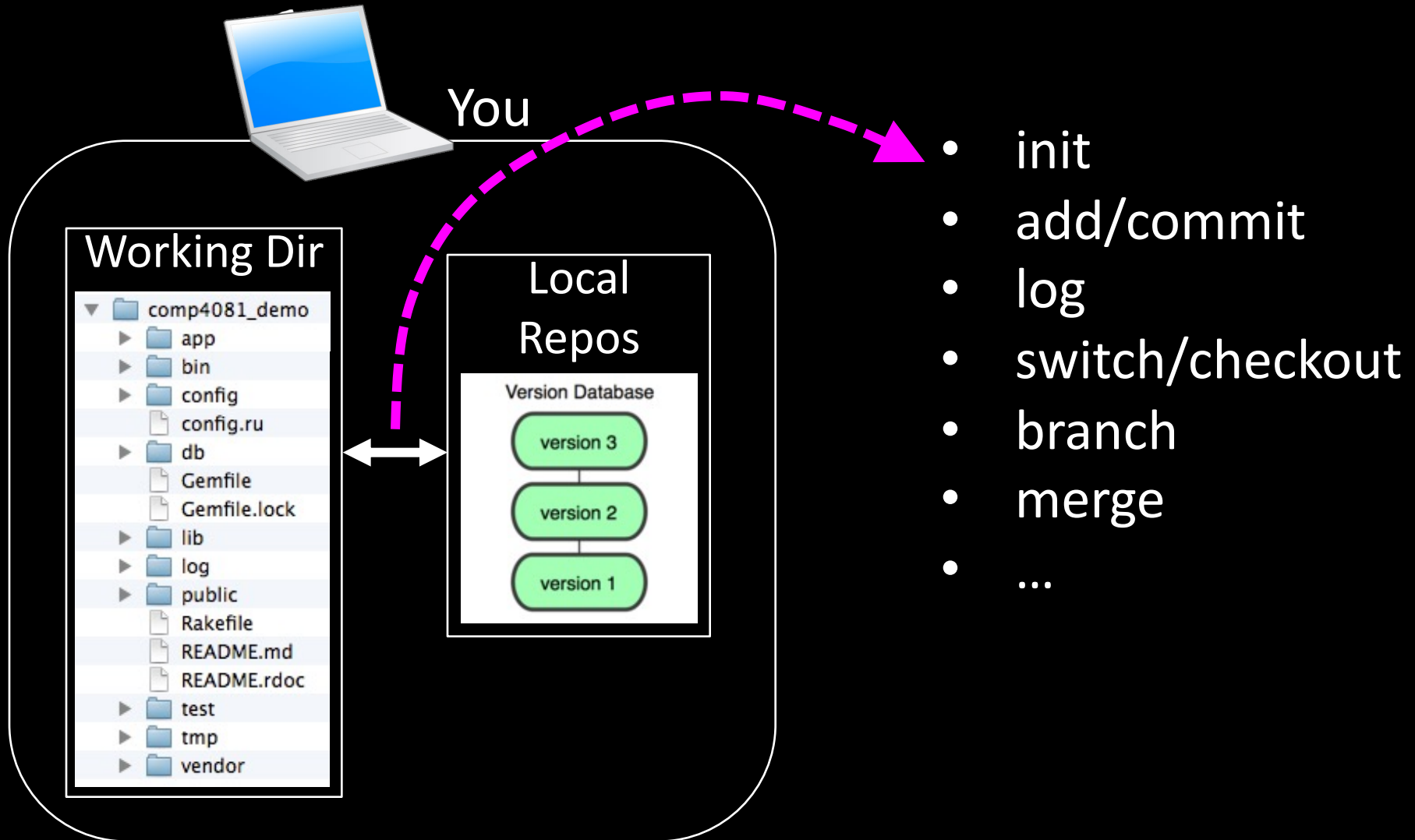


Local repos also have...

Current Version
in Working Dir

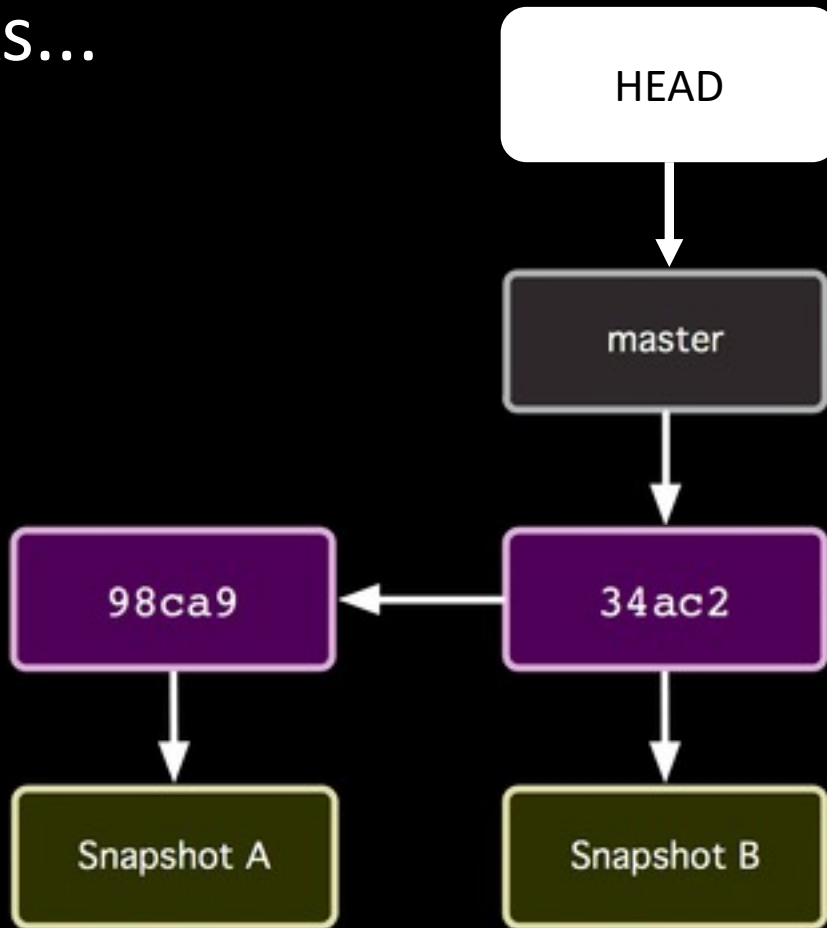


Local Repo Operations



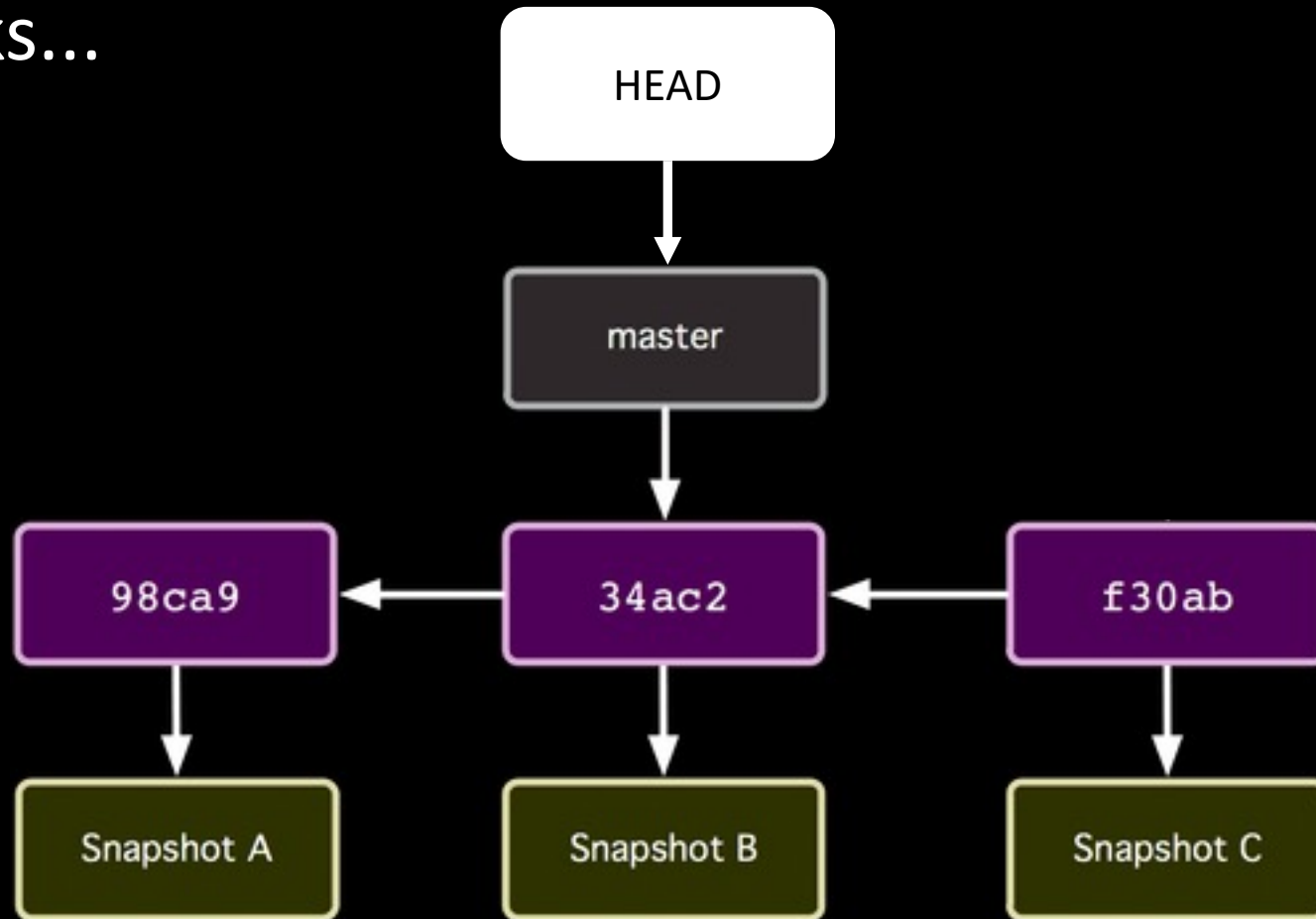
How commit works...

Before

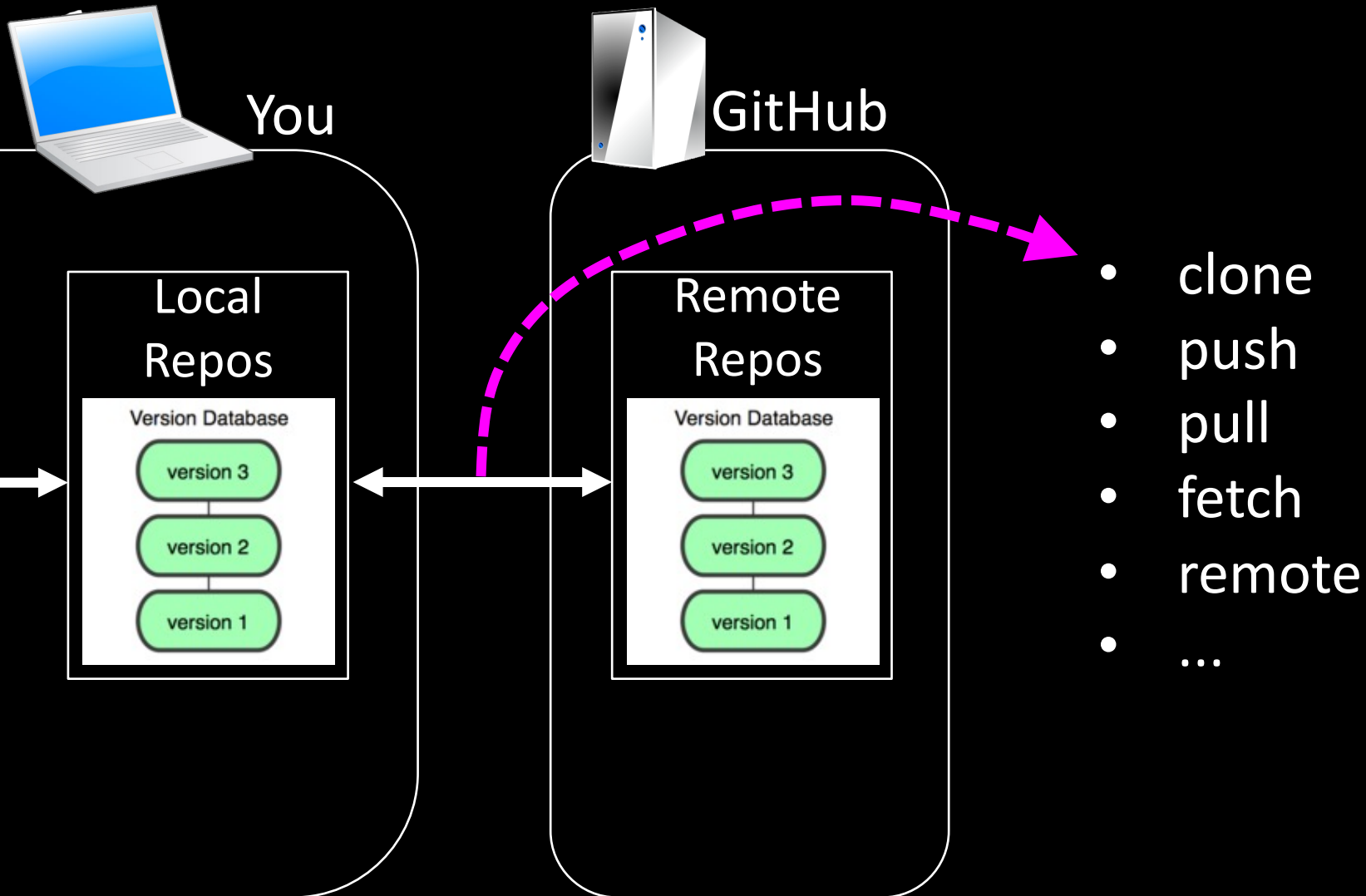


How commit works...

After



Remote Repo Operations



Learn the Core Local/Remote Operations

- Demo Videos:
 - <https://scott-fleming.github.io/web-dev-rails-git-tutorial/demo-04-git-local.html>
 - <https://scott-fleming.github.io/web-dev-rails-git-tutorial/demo-05-git-branches.html>
 - <https://scott-fleming.github.io/web-dev-rails-git-tutorial/demo-06-git-remote.html>

Summary

- Version Control Systems
- Git and GitHub
- Repo Structure
- Local/Remote Repo Operations
- Commit Semantics

