

Versioning

Why?

- Want to experiment with new methods
- Want a gold standard to shared/referenced by others
 - Including yourself

How

- Copy files/directories
- Fancy file names
 - “HelloWorld-v1.java”
- Archive directories
 - “HelloWorld.8-Feb-2016.zip”

Issues

- Difference between versions?
 - What should be kept?
 - What should be thrown out?
- Merging version?
- Sharing versions?
 - Ultimately gets back to merging versions
- *Version control systems manage this process for you*

Version control basics

- Workflow
 - Establish a project
 - Make changes
 - Commit changes
 - Merge changes
- Machine agnostic
 - Commit from Machine 1
 - Pickup development on Machine 2

Two schools of versioning

Centralized

- A single reference machine that stores data and manages differences

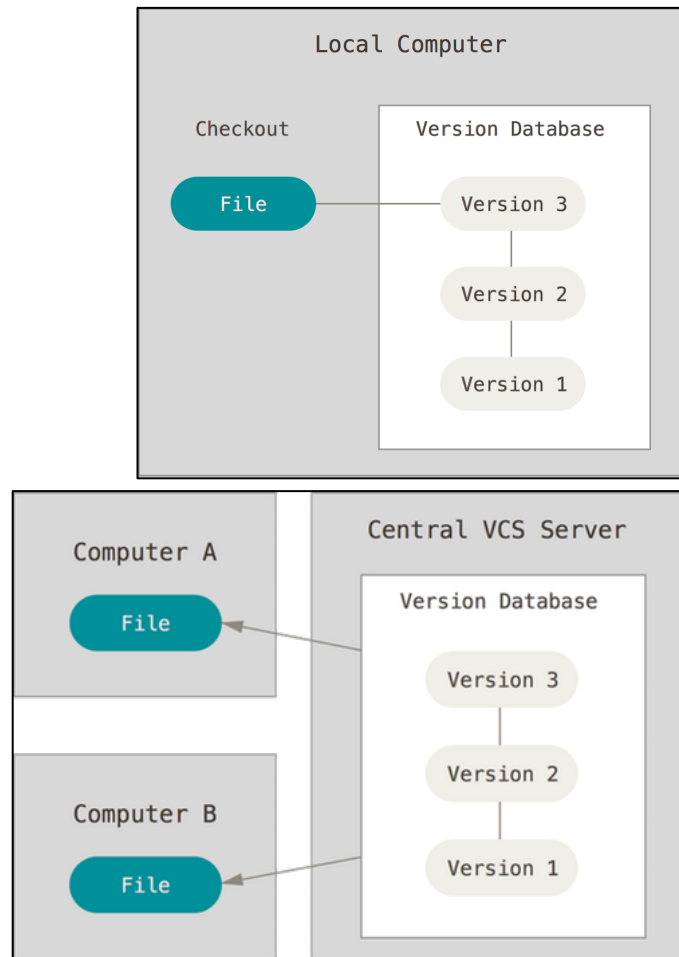
Distributed

- Machines manage their own versions
- Software allows for agreement
- Can be used in centralized fashion

Two schools of versioning

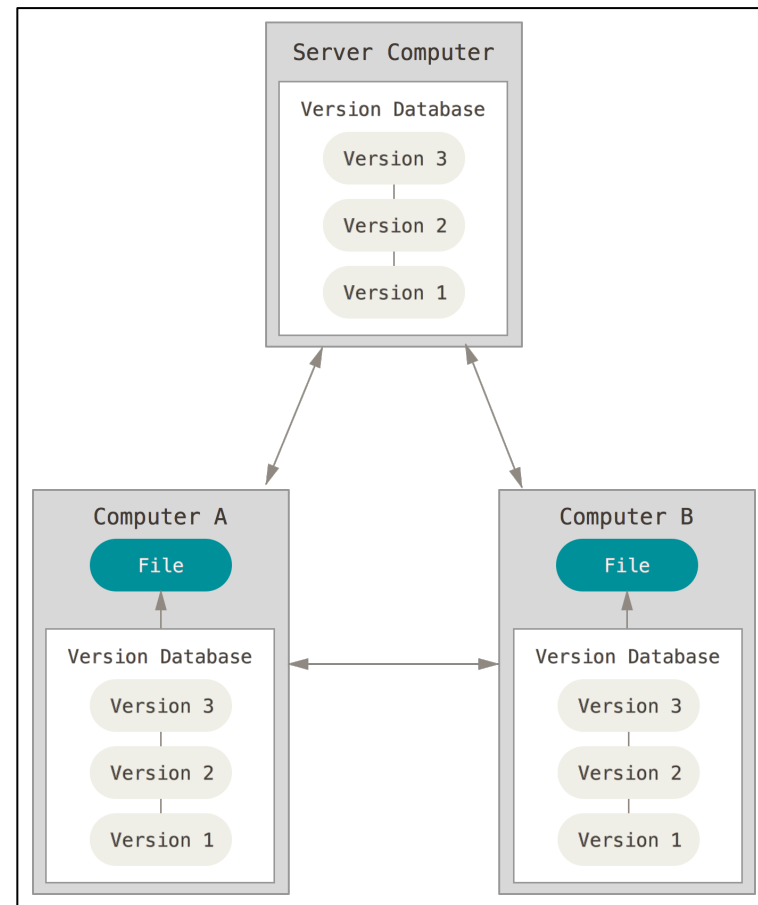
Centralized:

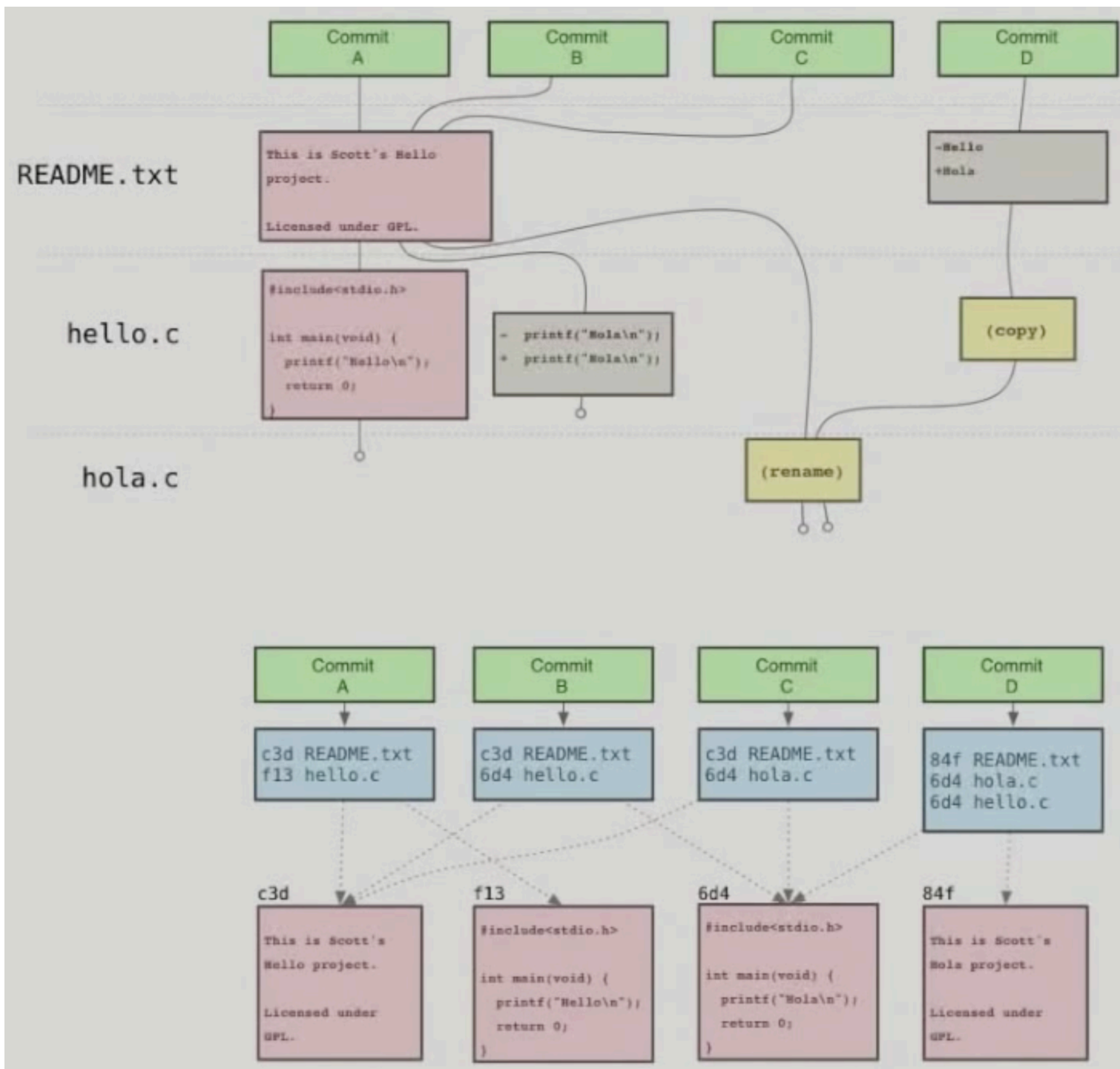
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Setup commands

Obtaining git	https://git-scm.com/downloads
	git config --global user.name "John Doe"
	git config --global user.email johndoe@example.com
	git config --global core.editor emacs
	git config --list

Workflow

Basic

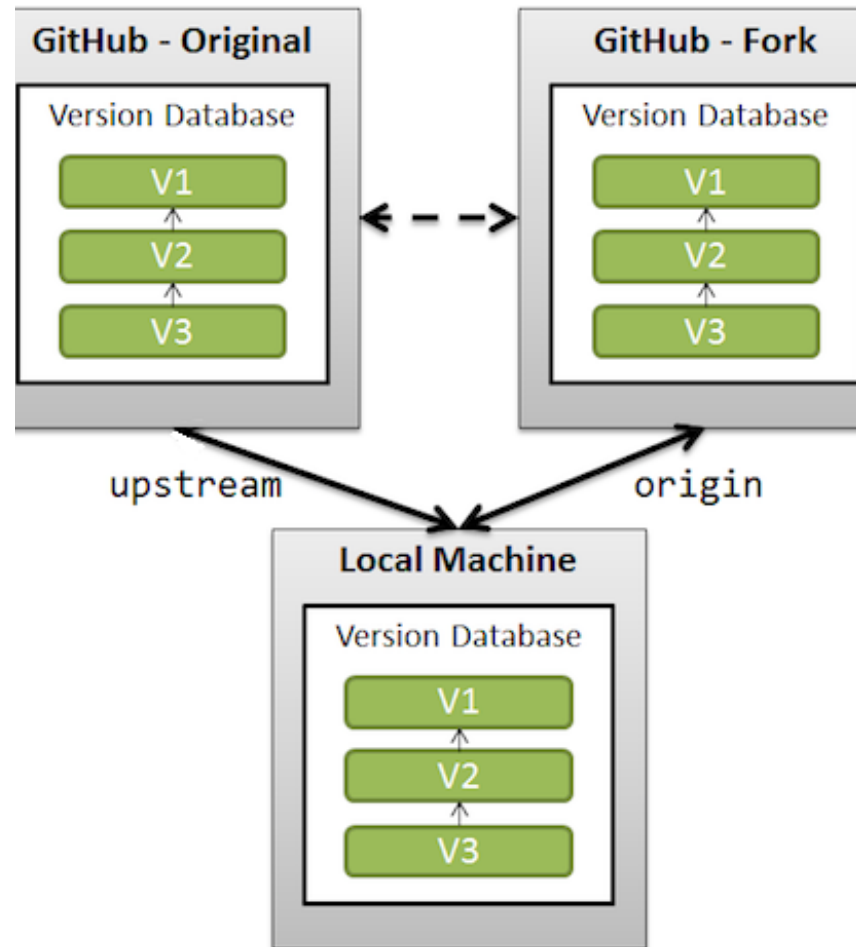
- Clone
- Edit/commit/push

Branch/merge

- Branch
- Push
- Merge

Collaborative Git

- Same versioning concepts, now with friends
- Process
 - Fetch
 - Clone/branch
 - Push
 - Notify authority (pull request)
 - Merge your changes
- Helps when everyone agrees on authority



Best practices

- Commit early and often
 - More breadcrumbs means better direction
 - Minimizes conflict potential
- Commit smallest reasonable blocks
 - Generally per file
 - Sometimes per change
- If it doesn't build/run, don't commit (to the main branch)
- Make commit messages descriptive
 - Describes the diff, doesn't repeat it