GIT

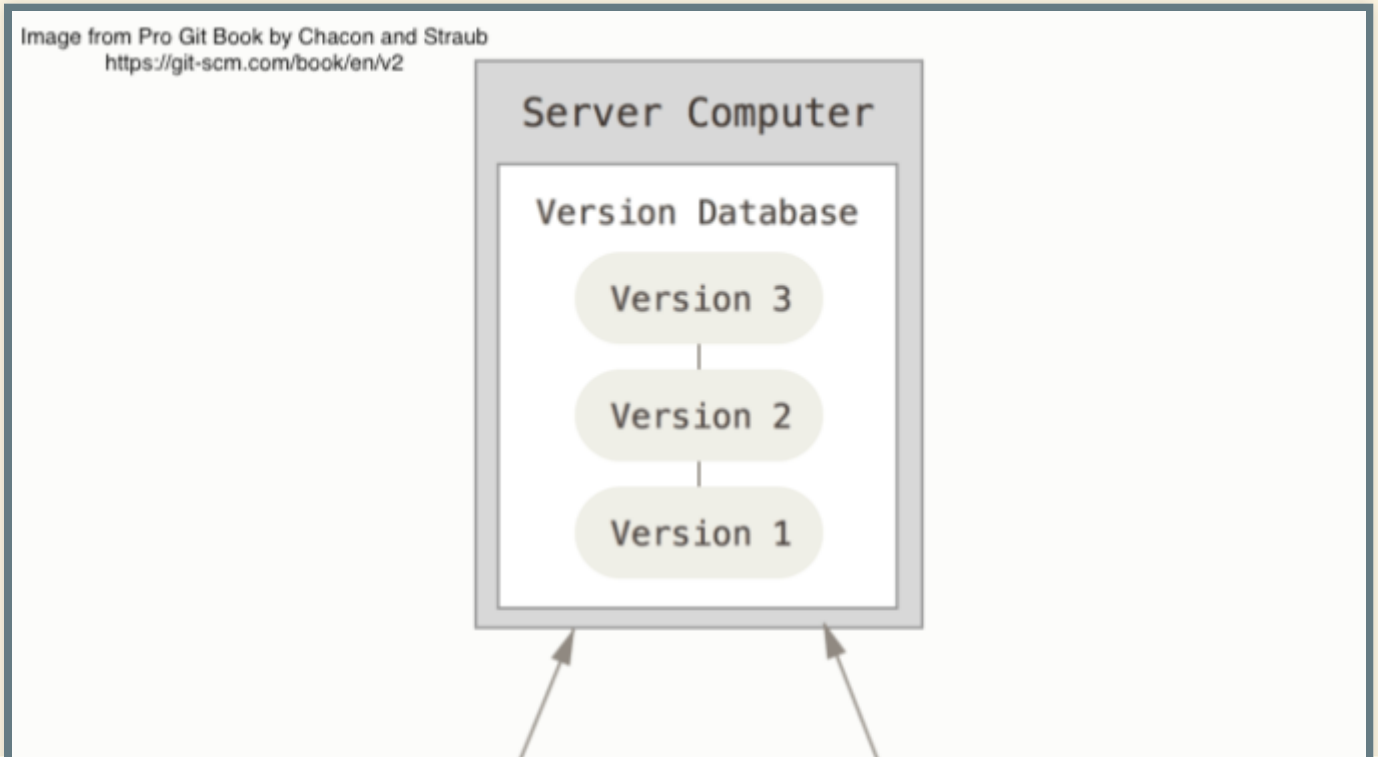
- Distributed Version Control System (DVCS)
- Free and open source

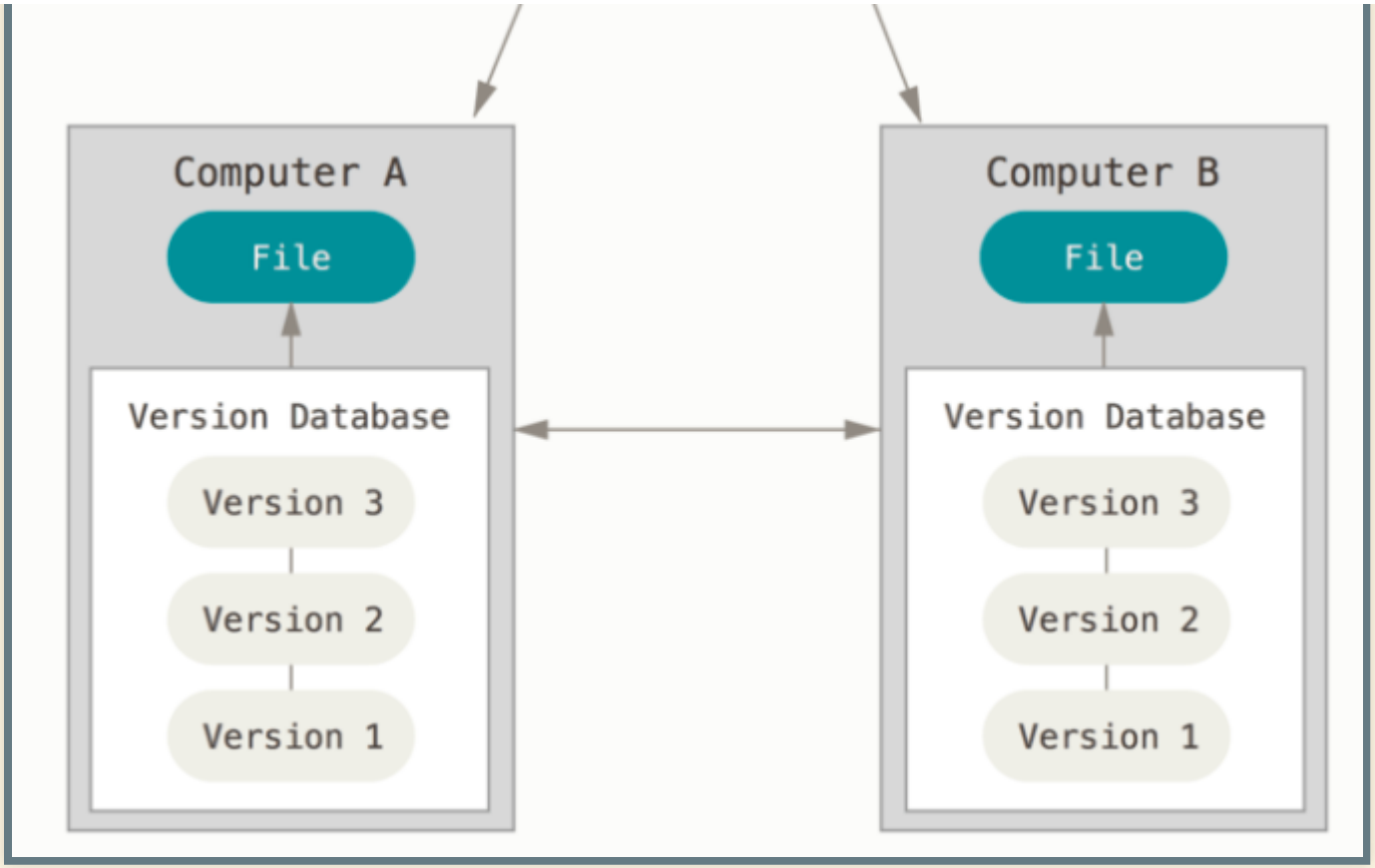
VERSION CONTROL SYSTEM

- Records changes to a file/set of files over time
- Allows viewing and recalling of history
- Who cares:
  - Rollback changes
  - Investigate bugs, bug fixes
  - Recover deleted files

DISTRIBUTED VERSION CONTROL

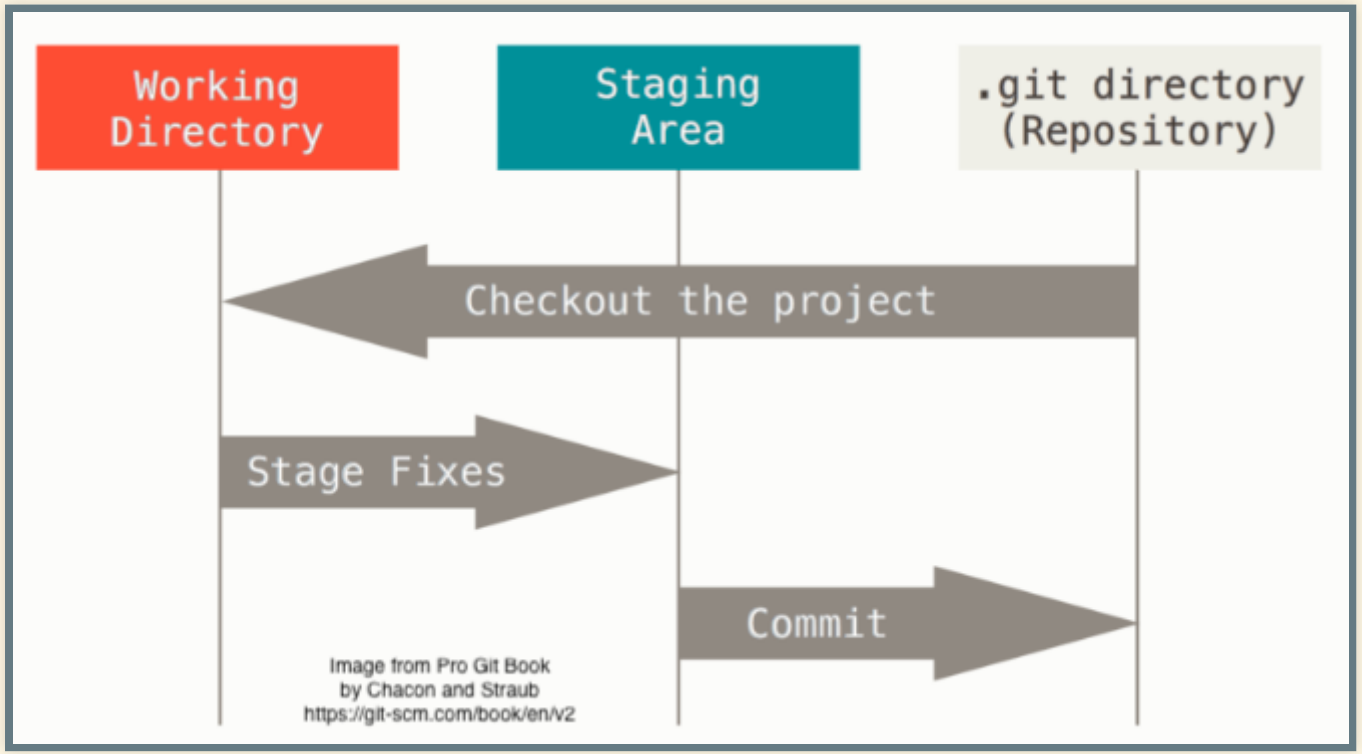
- each client fully mirrors repository, including full history
- each clone is full backup
- allows for working, recording changes offline




Computer A
File
Version Database
Version 3
Version 2
Version 1
Computer B
File
Version Database
Version 3
Version 2
Version 1

FILE STATES - LOCAL

- Modified: changed, but not committed
- Staged: modified files marked to be committed
- Committed: version of file stored in local repo



FIRST TIME USING GIT

- Install
- Configure (specify name, email, default editor)
- Most likely want to do global (for all of your repos on this computer)
- Can also specify for whole system (--system) or for a single repo (--local)
- How to configure:

```
git config --global user.name "Erin Carrier"
git config --global user.email carrieer@gvsu.edu
```

- View configuration:

```
git config --list
```

COMMON REFERENCES

- `HEAD` - reference to tip of current branch
- index - staging area
- SHA-1 hashes - for referencing commit hashes

BASIC OPERATIONS LOCALLY

- `git init`: initalize new repo
- `git add`: stage changes
- `git rm`: remove
- `git mv`: rename or move
- `git commit`: commit staged changes

BASIC OPERATIONS LOCALLY (CONT.)

- `git status`
- `git diff`: view changes
- `git log`: view list of commits

MINILAB 3

In the minilab folder.