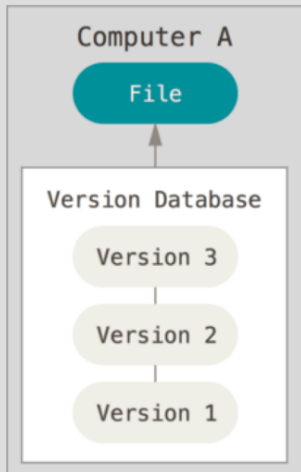# USING GITHUB FOR TEAM PROJECTS
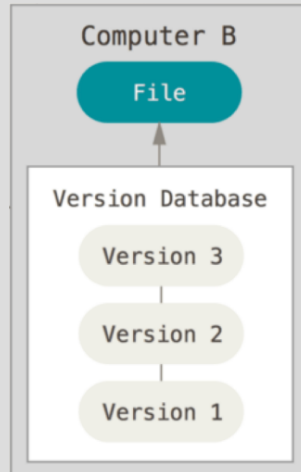
PSU Bootcamp on Reproducible Research

OVERVIEW

- Why do we need GitHub ?
- GitHub Website Overview
- Understanding Open Source Contribution
- Using GitHub Desktop
  - Creating a repo, tracking files and committing to GitHub
  - Resolving conflicts
- GitHub pages (bonus)
  - Personal Website vs Project Website

WHY DO WE NEED GITHUB ?

Alice's Computer

Computer A

File

Version Database

Version 3

Version 2

Version 1

Bob's Computer

Computer B

File

Version Database

Version 3

Version 2

Version 1

Alice and Bob are working on a team project for their Bioinformatics class

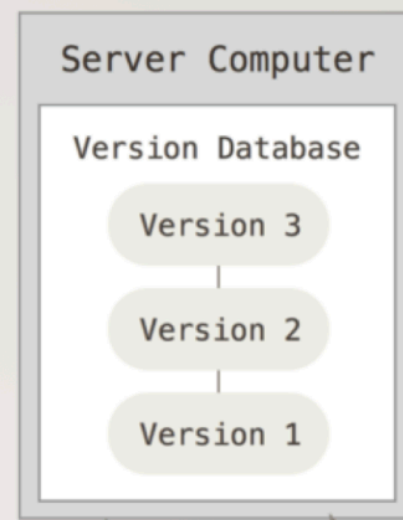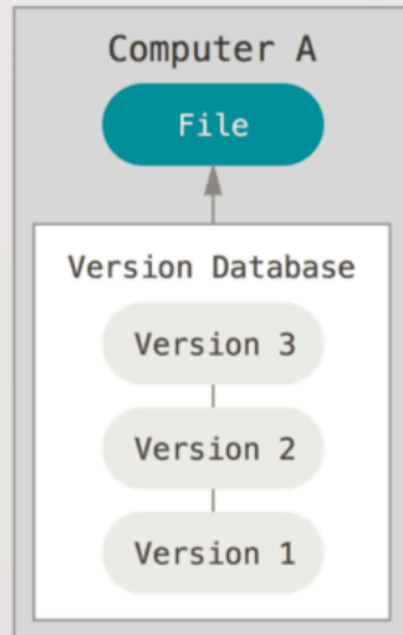They decided to use Git to track changes on their computers.

Some challenges in team projects :

- Trouble keeping their local copies in sync with each other.

- Tracking who is working on which part of the project

- Review each other's code and discuss improvements.

- How can anyone use the tool, availability, usage?

- Handle Bug fixes & Add new features

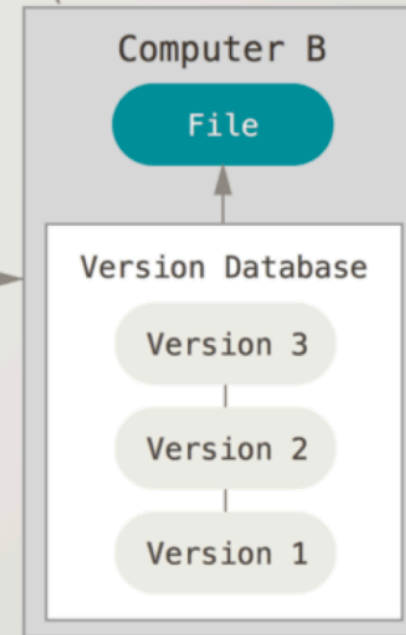- Track contributions from scientific community
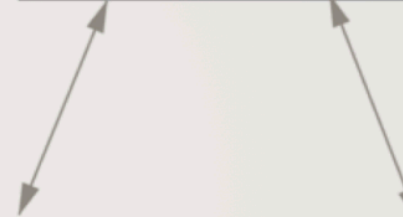
Distributed Version Control System

Server Computer
Version Database
- Version 3
- Version 2
- Version 1

GitHub
(origin)

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

Alice's
Computer

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

Bob's
Computer

GITHUB WEBSITE OVERVIEW

https://github.com/

OPEN SOURCE CONTRIBUTION

- Creating Issues
  - https://guides.github.com/features/issues/

- Forking a project
  - Creating a copy of the repo that allows you to contribute

- Understanding the GitHub flow
  - https://guides.github.com/introduction/flow/

DEMO : USING THE GITHUB FLOW

https://github.com/PrashantKuntala/psubootcamp2019

GITHUB-DESKTOP

https://desktop.github.com/

Installation and Demo

GIT CONFLICTS

- http://swcarpentry.github.io/git-novice/09-conflict/index.html
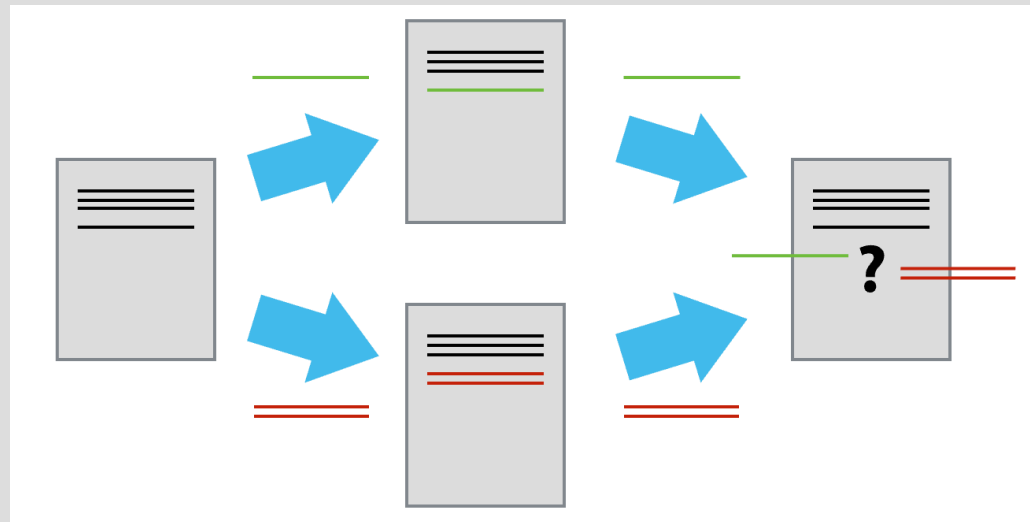
Deciding which changes to keep, when contributors make similar changes.

RESOURCES TO LEARN GIT

- https://try.github.io/

- https://git-scm.com/book/en/v2

- https://guides.github.com/

- http://swcarpentry.github.io/git-novice/

- Website using GitHub pages

  - https://pages.github.com/

  - https://jekyllrb.com/