

# Version Control (with Git)

## Software Design for Data Science

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# When to ask questions

- Trick question! Always ask questions.
- Especially for projects
- However, for questions related to homeworks:
  - Class discussion forum only (don't make a post on Stack Overflow)
  - Don't provide direct code from your homework in your questions
  - Don't provide direct code from your homework in your answers

FINAL.doc!

FINAL\_rev.2.doc

FINAL\_rev.6.COMMENTS.doc

FINAL\_rev.8.comments5. CORRECTIONS.doc

FINAL\_rev.18.comments7. corrections9.MORE.30.doc

FINAL\_rev.22.comments49. corrections.10. #@\$%WHYDID ICOMETOGRADSCHOOL?????.doc

Track changes

H 2%

WWW.PHDCOMICS.COM

# “Version control systems”

- Tools to keep track of changes over a collection of documents, called **repositories** (or “**repos**”)
- Distinguish between “**plaintext**” and “**binary files**”
  - Plaintext – Text and numbers, no formatting. “.txt” files, “.csv” files
  - Binary – Word docs, Excel sheets, JPEG images
- Designed for **asynchronous collaboration** on plain text
  - *Spectacular* at tracking and reconciling differences between subtly different versions of plaintext
  - *Competent* at taking “snapshots” of binary files across time, but bad at understanding how they’ve changed

# Git

- One particular **standard** for how to do that change tracking
- There are a lot of different websites and applications (“**clients**”) that can work with git repos!



# Naomi's favorite git clients



Git (Free, but no graphical interface)

<https://git-scm.com/>



Sublime Merge (\$\$\$, but you can run the trial indefinitely??)

<https://www.sublimemerge.com/>



GitFiend (Free....for now...also kind of junky)

<https://gitfiend.com/>



Git Kraken (Free version, no private repos)

<https://www.gitkraken.com/>



Glint (Free version, max 2 tabs open at once, no light theme)

<https://glint.info/en/>

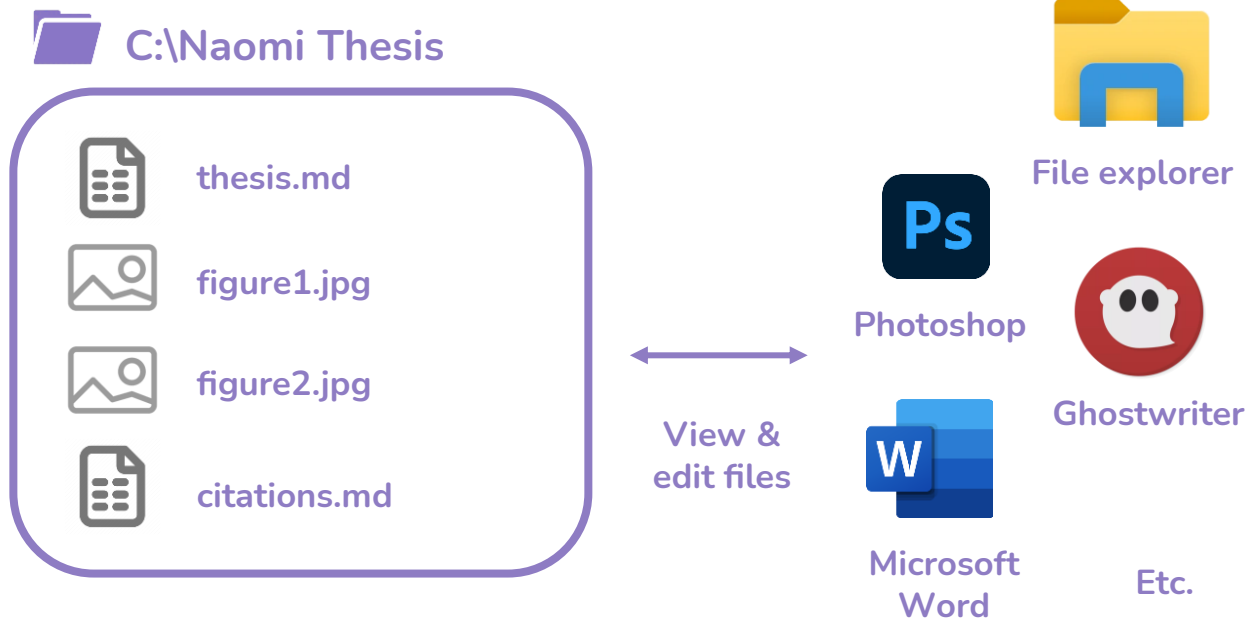
## **Engineering Mindset**

I'll make a list of a couple of competing tools.

I'll invest **serious effort**, but **limited time** into trying out each of them.

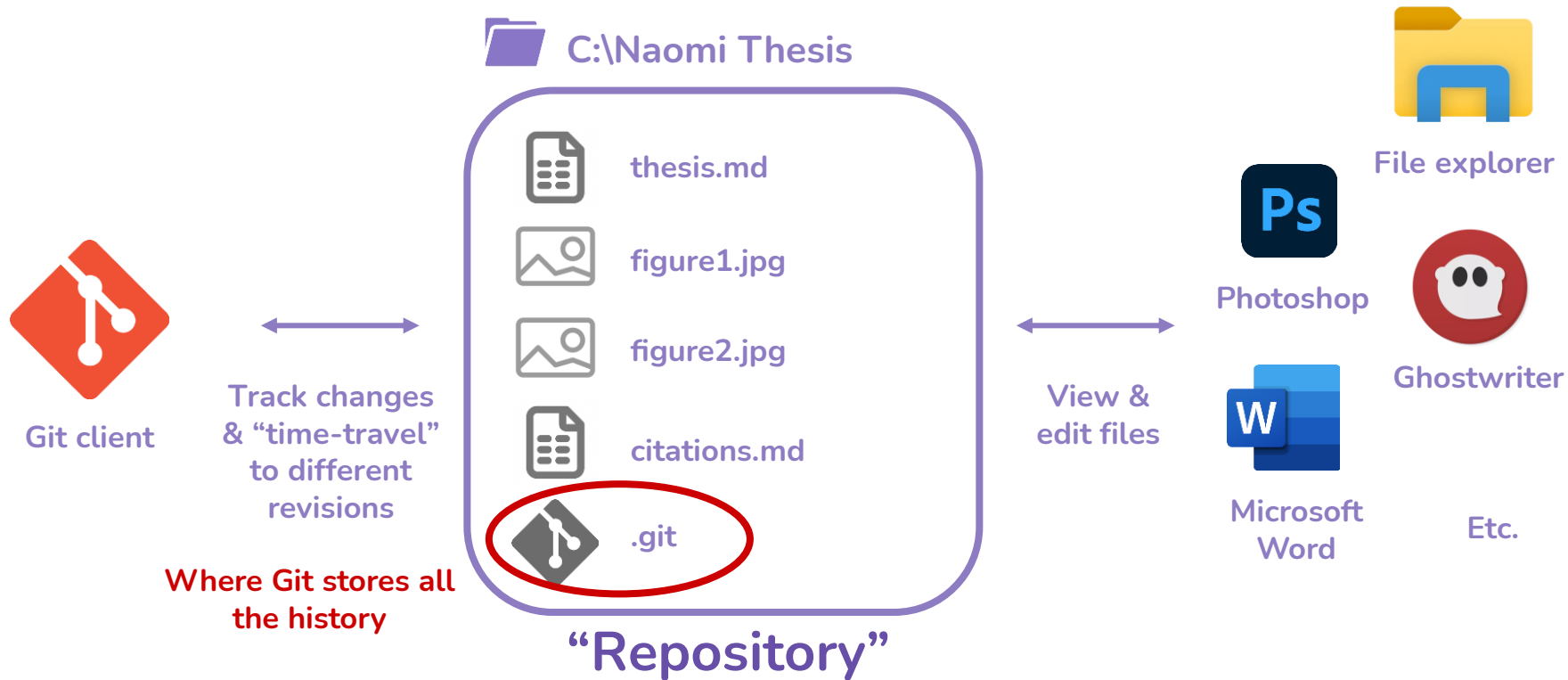
I'll stick with the ones that **make the most sense to me** and not sweat the ones that don't.

# Big picture

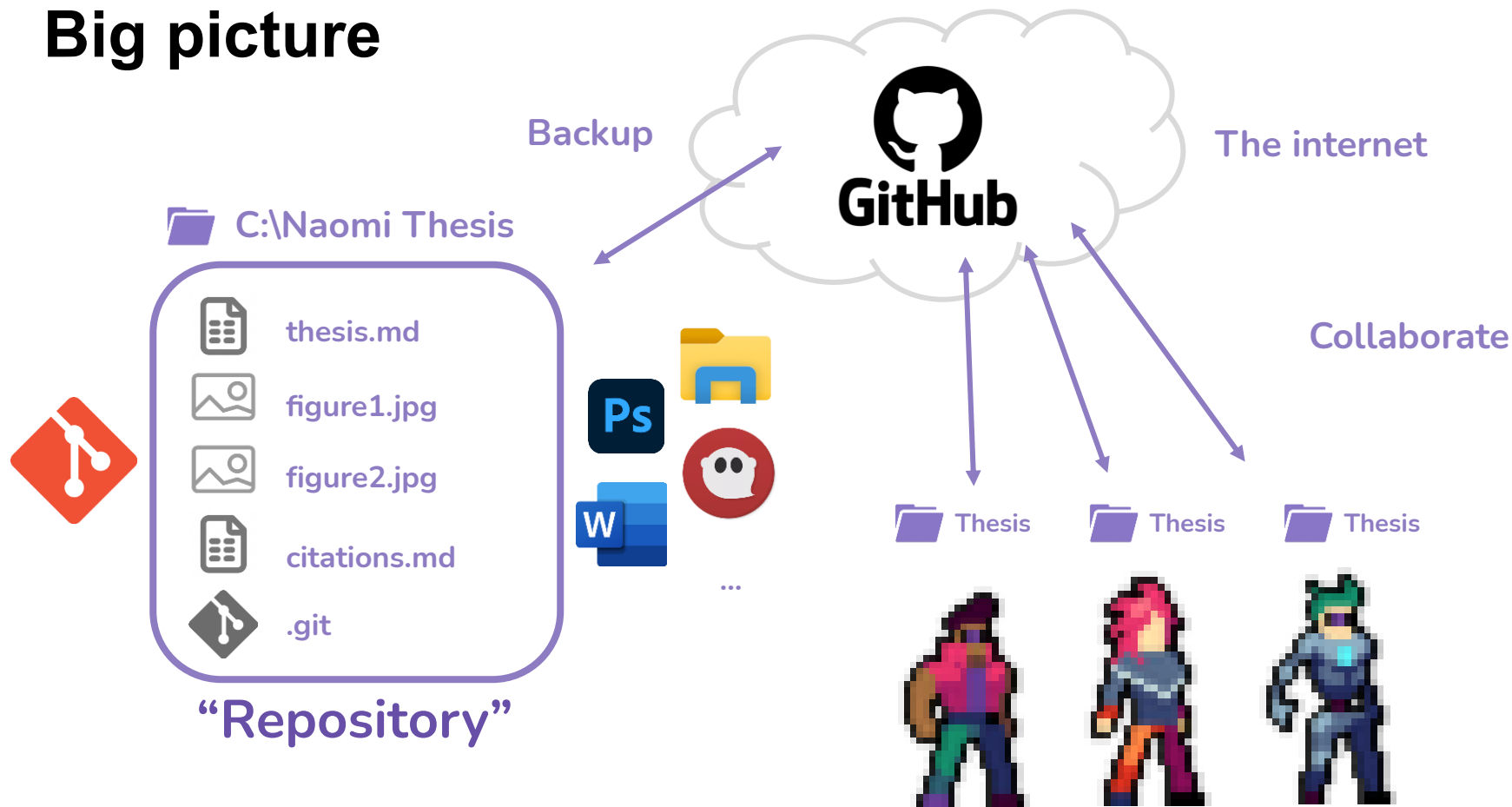




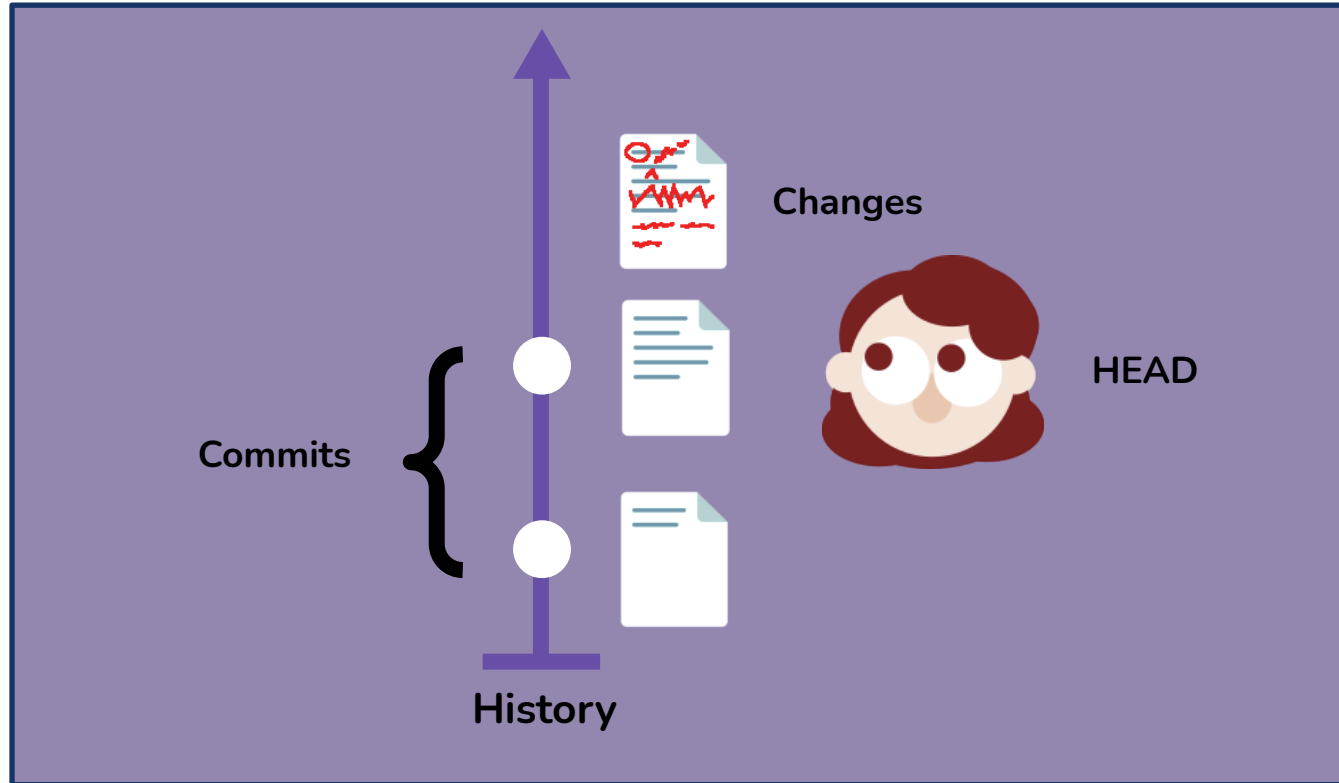
# Big picture



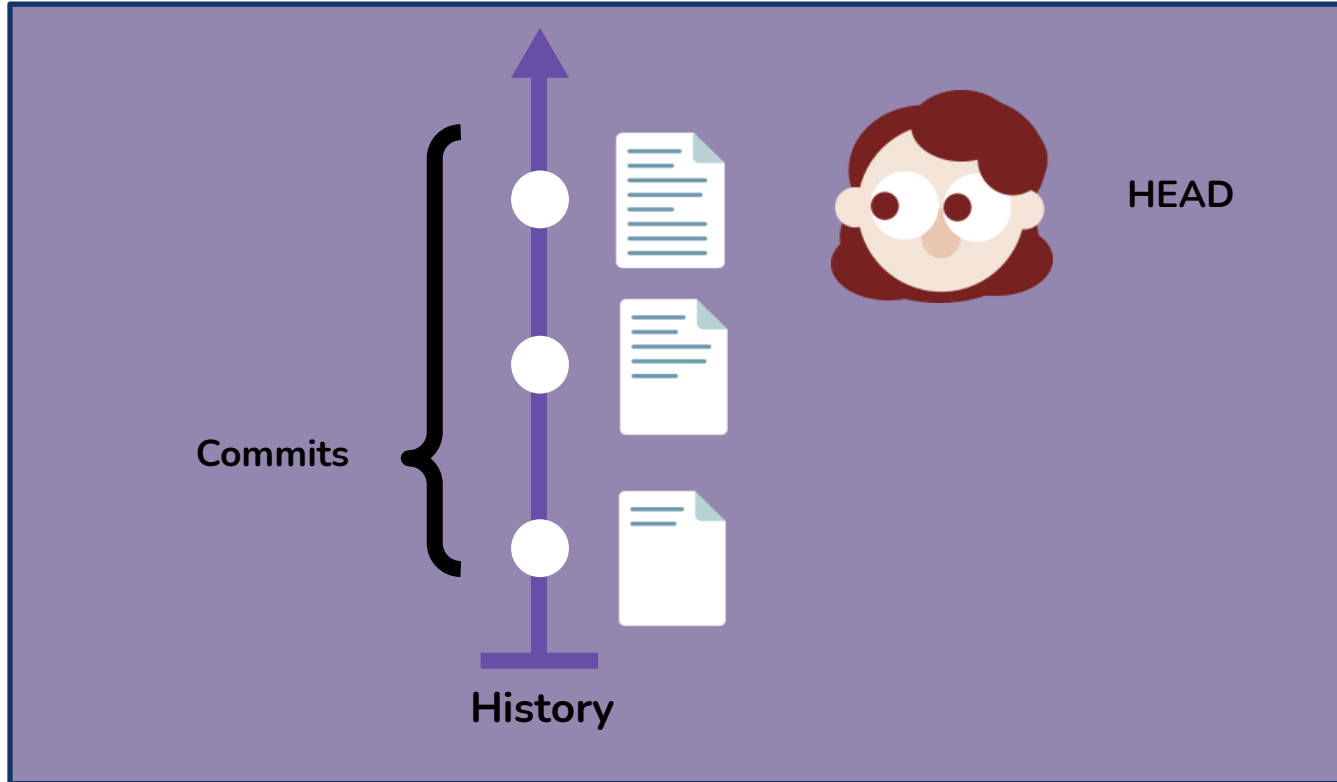
# Big picture



# Mental model



# Mental model



## Important point



- A set of standards and reference tools for managing document revisions
- Free and open source
- Developed by a non-profit group of volunteers



- A website that hosts git repositories
- Provides extra “value add” collaboration tools
- Free and paid tiers of service
- Developed by a for-profit company

# Btw

TECH / MICROSOFT / BREAKING

## Microsoft confirms it's acquiring GitHub for \$7.5 billion



By TOM WARREN / @tomwarren

Jun 4, 2018, 6:02 AM PDT | [0 Comments](#) / [0 New](#)



Microsoft is acquiring GitHub. After reports emerged that the software giant was in talks to acquire GitHub, Microsoft is making it official today. This is Microsoft CEO Satya Nadella's second big acquisition.

<https://www.theverge.com/2018/6/4/17422788/microsoft-github-acquisition-official-deal>

# Food for thought

Git is an open source tool developed by volunteers.

**Why is *Git* free?**

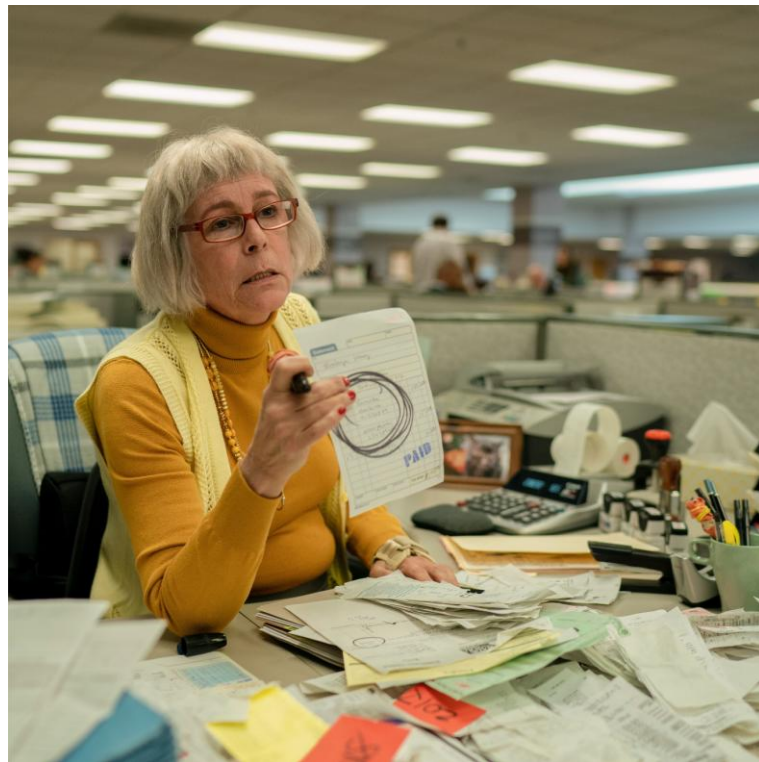
GitHub (and GitLab and Sourceforge) are for-profit companies that host our Git repositories for free.

**Why is *GitHub* free?**



## Some meta-talk

- Tech tools are like tax forms
- Doing things the “normal way” is almost always good enough
- Every once in a while it's not, and you ask an accountant for help





**Let's get our hands dirty**

## Some resources

- Guide to getting started using Git and GitHub with GUI tools:
  - <https://uwescience.github.io/graphical-intro-to-git/>
- Guide to getting started using Git through the command line:
  - <https://swcarpentry.github.io/git-novice/>
- Git game:
  - <https://ohmygit.org/>
- A cheat sheet from our old friend Wizard Zines:
  - <https://wizardzines.com/zines/oh-shit-git/>