

# 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

# Revisions

Sign challenge    File Edit View Insert Format Tools Extensions ...

← February 28, 11:53 AM    Restore this version

Version history

100% ↻

I am so grateful that I get to write for a living now.

That's more or less my constant mind-set but I rarely find myself in the mindset where I take a lot of time or effort. This leads to an environment called "internet," where at 10 o'clock and oh well I'll seize the day tomorrow.

You've been there. We've all been there. The reason just can't get started on. Maybe it's a coding project you've been putting off. Whatever the thing is, you just can't get started. I can relate.

This is why over time I've found ways to motivate a few of my co-workers: use to start doing the thing. In other words, how to motivate motivated.

**## Use Your Calendar to Force You to Get Things Done**

Every workday morning, after breakfast, calendar, and then figure out how I'm going to spend what needs accomplishing. I then allocate time to each task.

This does two things. First: it forces me to add things to my calendar means not a day, reminding me of the intention I set for accountability can keep me motivated. The time available each day. From author Michael Hyatt (<https://www.amazon.com/Only-Work-True/dp/145558000X>)

WIKIPEDIA  
The Free Encyclopedia

## Disco Elysium: Revision history

Article Talk

[View logs for this page \(view filter log\)](#)

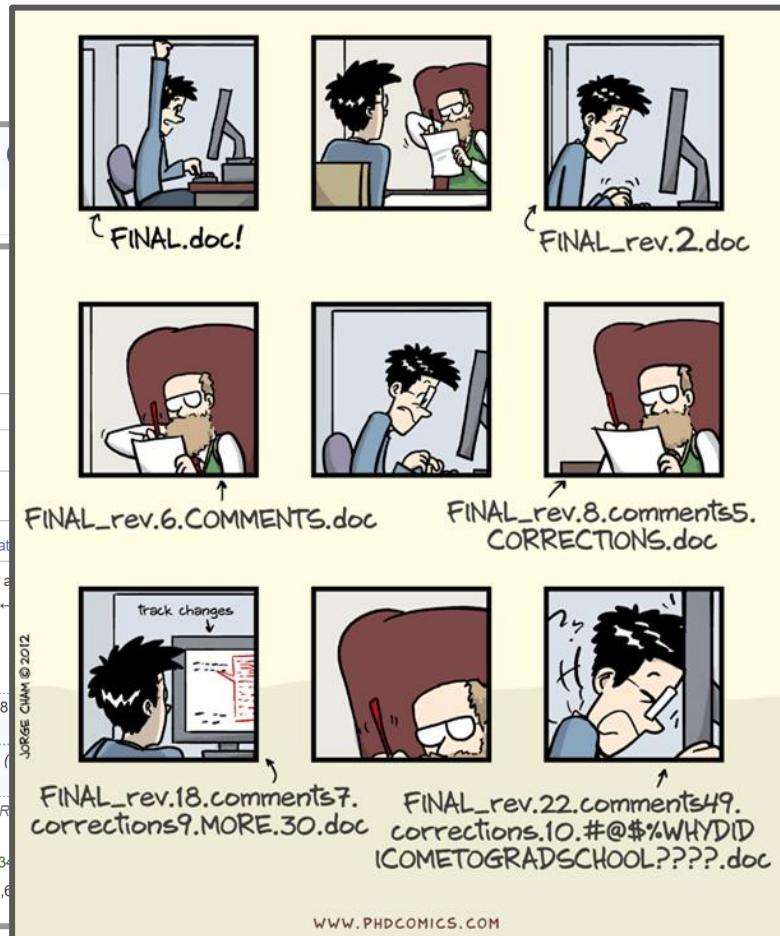
Filter revisions

External tools: Find addition/removal (Alternate) • Find edits by user (Alternate) • Page statistics

For any version listed below, click on its date to view it. For more help, see Help:Page history and current version, (prev) = difference from preceding version, m = minor edit, → = section edit, ← = previous edit, (newest | oldest) View (newer 50 | older 50) (20 | 50 | 100 | 250 | 500)

Compare selected revisions

- (cur | prev) ○ 04:29, 25 April 2023 Justanothersgwikieditor (talk | contribs) . . (71,678 bytes) 63.230.165.163 (talk) to last revision by 97.115.132.22 (undo) (Tags: Twinkle, Undo)
- (cur | prev) ○ 03:13, 11 April 2023 63.230.165.163 (talk) . . (71,244 bytes) (-434) . . (Tags: Reverted, Mobile edit, Mobile web edit, references removed)
- (cur | prev) ○ 03:50, 10 April 2023 97.115.132.22 (talk) . . (71,678 bytes) (+3) . . (Tags: Mobile edit, Mobile web edit)
- (cur | prev) ○ 19:35, 31 March 2023 RafaelTLS (talk | contribs) . . (71,675 bytes) (+3) . . (Tags: Mobile edit, Mobile web edit)
- (cur | prev) ○ 11:37, 29 March 2023 Профессор кислых щей (talk | contribs) . . (71,675 bytes) (-edit at work like I do...) (undo)

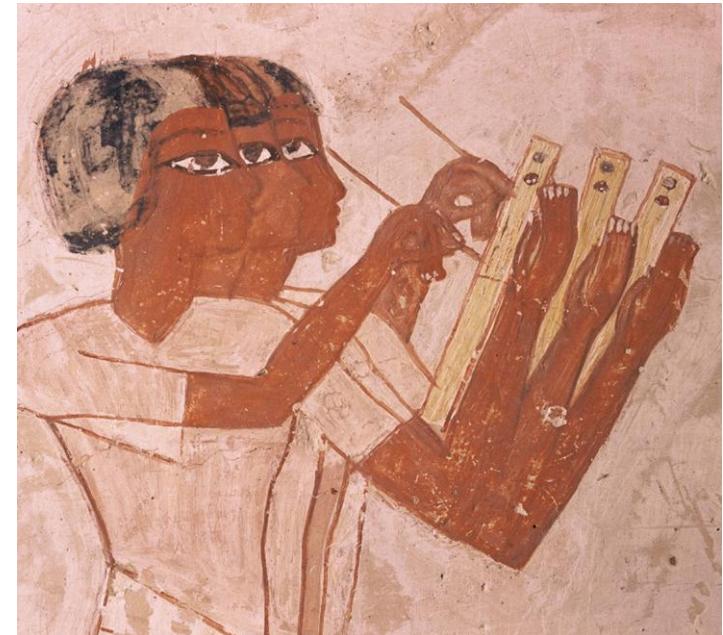


# “Version control systems”

- 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



thesis.md



figure1.jpg



figure2.jpg



citations.md



View &  
edit files



Microsoft  
Word



File explorer



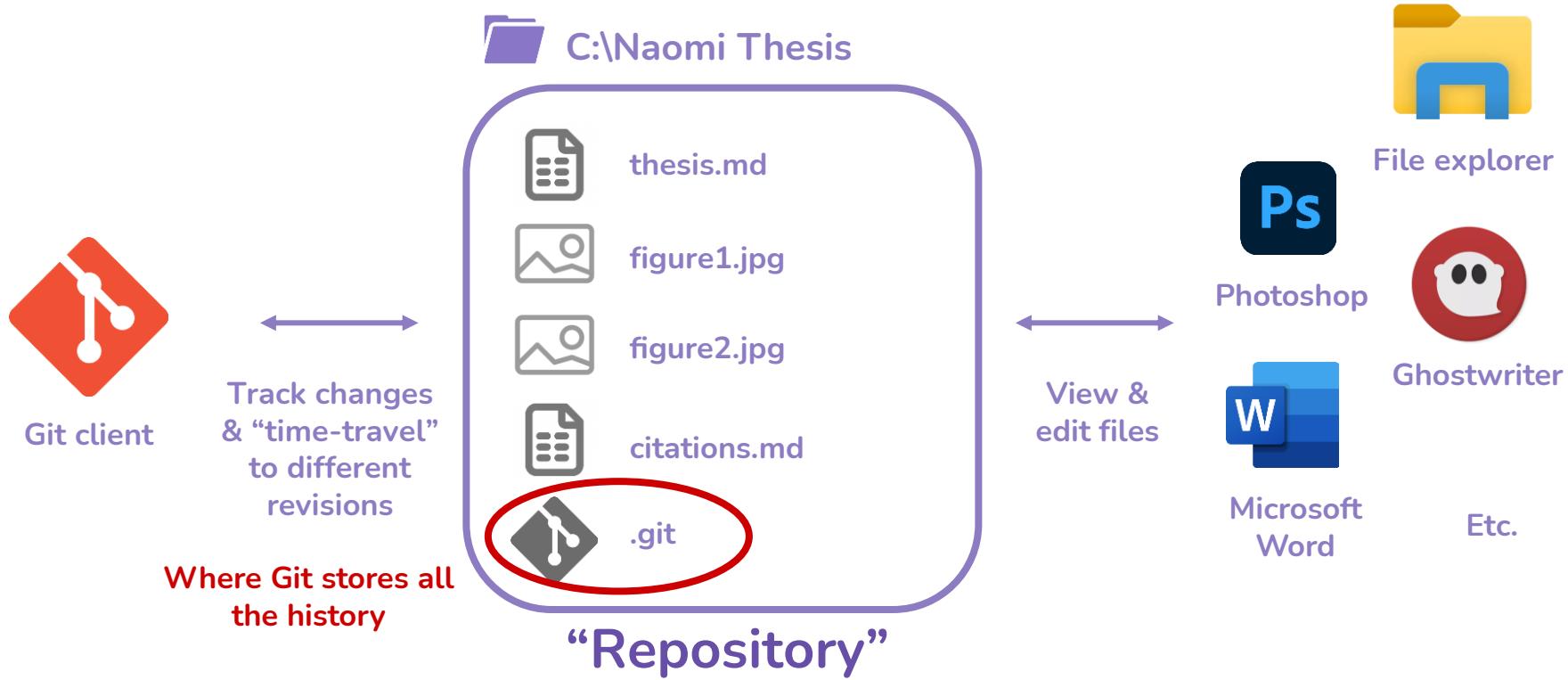
Photoshop



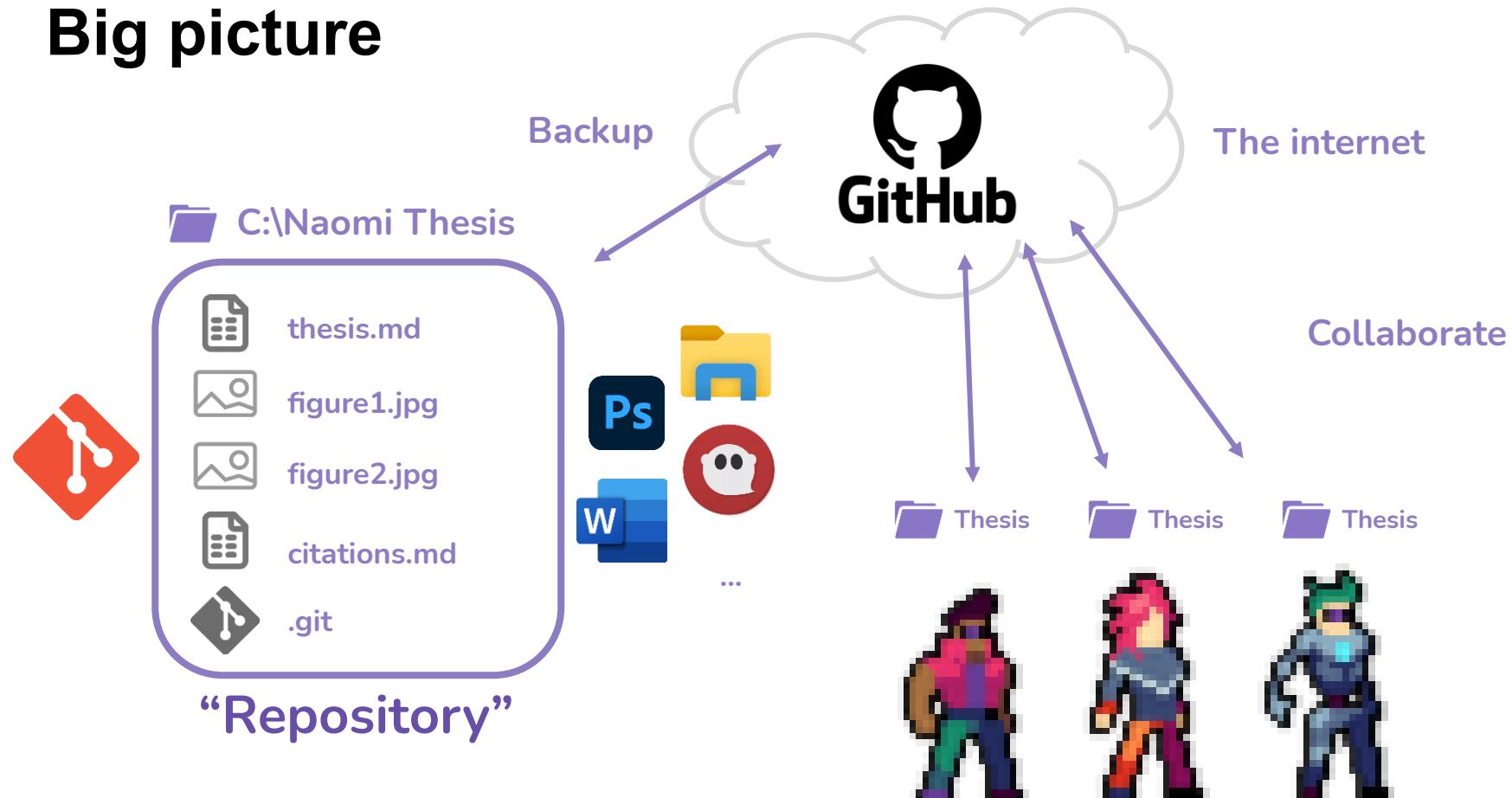
Ghostwriter

Etc.

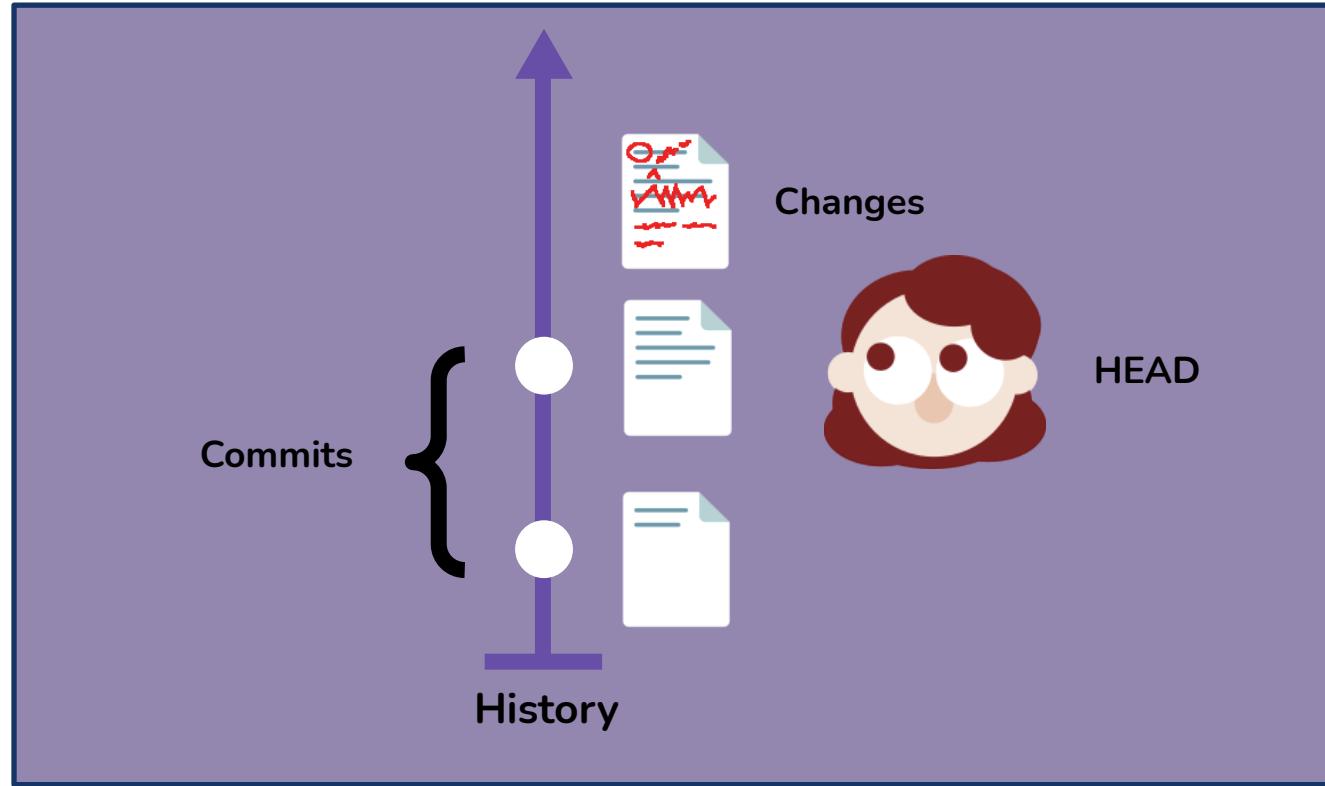
# Big picture



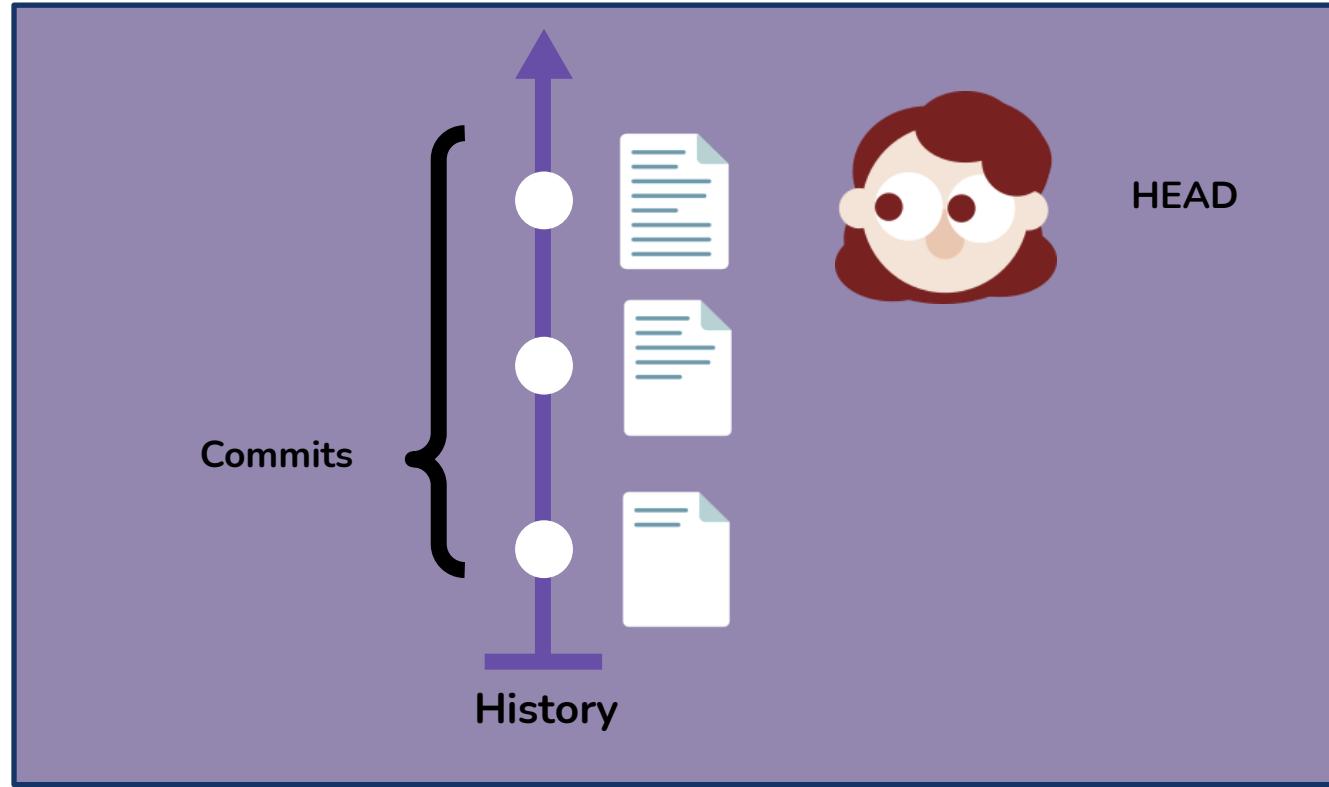
# Big picture



# Mental model



# Mental model



# Important point



is not



- 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 | □ 9 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](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/>