

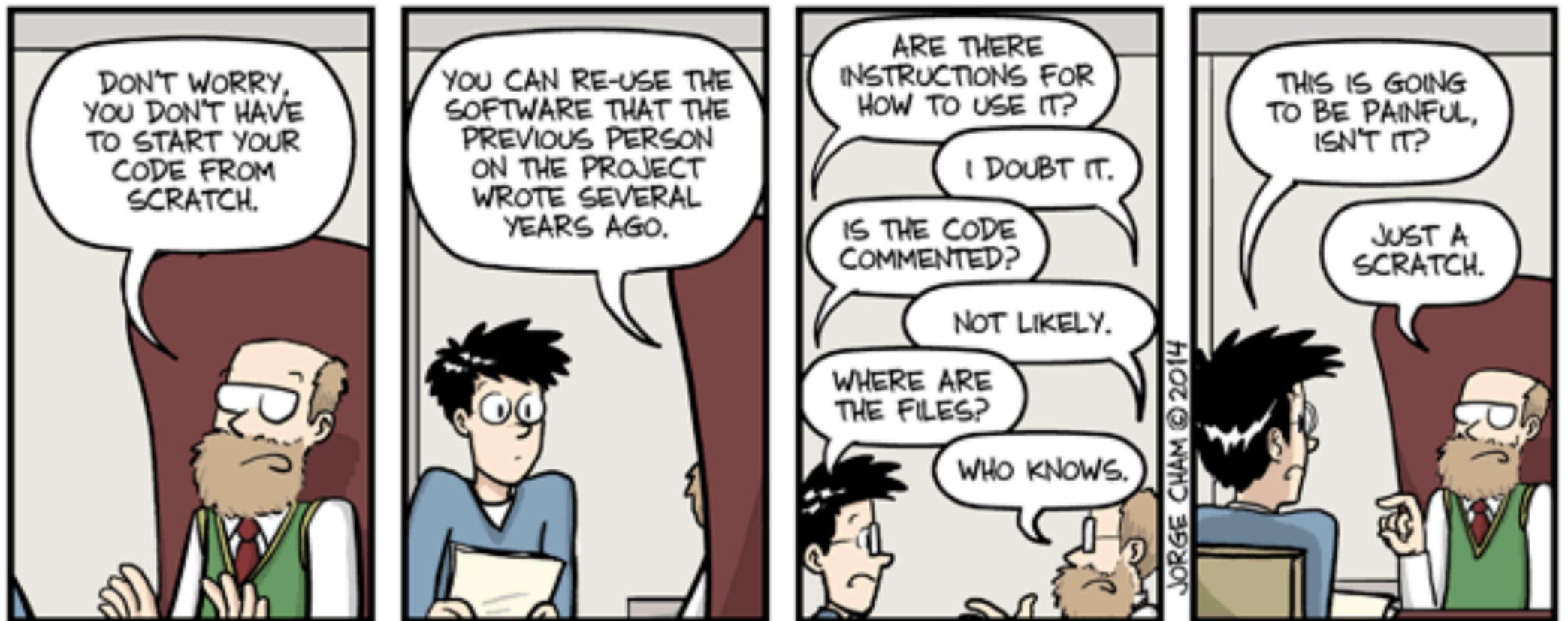
Reproducible Bioinformatics Analysis module

BIOS-IN5410/9410 - Day 2

Lex Nederbragt

November 11, 2025

Reproducible Bioinformatics Analysis module



WWW.PHDCOMICS.COM

title: "Scratch" - originally published 3/12/2014

Program for today

- Introductions
- What is version control
- Examples of Version Control you may have seen already
- Hands-on: using `git` for version control (on educcloud)

Introductions

- Your teacher
- Your prior experiences

Your teacher

Lex Nederbragt

- Associate Teaching professor, Dept. of Biosciences
- Topics: Programming, Bioinformatics, Pedagogy
- Teaching
 - BIOS1101 – Introduction to computational models for Biosciences
 - Other bioinformatics courses



Your prior experiences

- Mentimeter

Examples of document histories

- <https://en.wikipedia.org/wiki/Norway>, click [View history](#)
- Google Docs

Manual Version Control

```
.
|-- project_name
| |-- current
| | |-- data
| | |-- scripts
| | |-- results
| |-- 2021-03-01
| | |-- ...content of 'current' on Mar 1, 2021
| |-- 2021-02-19
| | |-- ...content of 'current' on Feb 19, 2021
```


What is version control?

- Annotated log of changes
 - what was changed in a file, when, and by whom
- Backup system
 - synchronize changes to a central server
- Collaboration tool
 - multiple contributors can manage changes to the same set of files
- For any file type
 - but **text files** work best

What is version control?

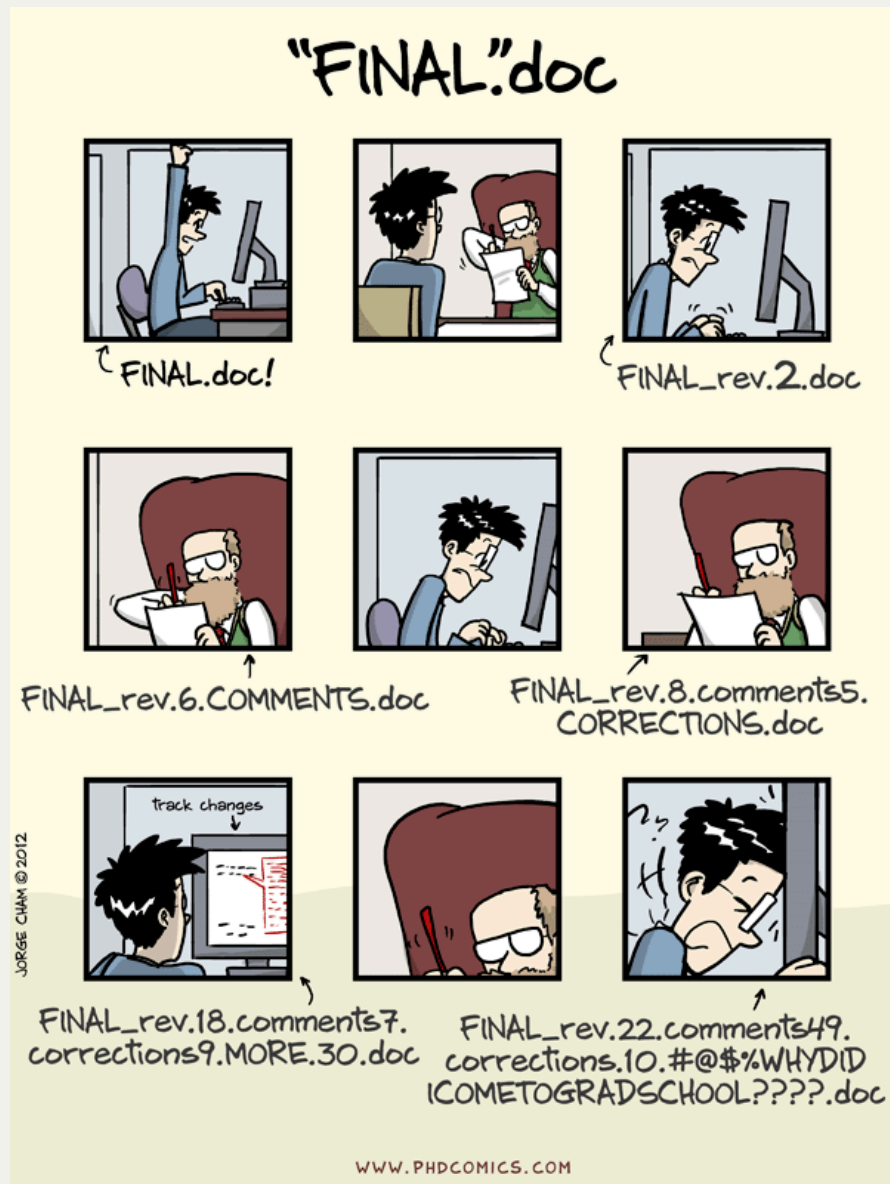
Version control - a definition

A tool for managing changes to a set of files.

- Each set of changes creates a new revision of the files.
- Allows users to recover old revisions reliably.
- Helps manage conflicting changes made by different users

From <https://swcarpentry.github.io/git-novice/reference.html>

Version control: use case 1



Version control: use case 2

From my own work

```
$ cd scripts  
$ ls -F  
blat_parse4.pl  old_versions/  snps_flanks_2_fastq.pl
```

Version control: use case 2

From my own work

```
$ cd scripts
$ ls -F
blat_parse4.pl  old_versions/  snps_flanks_2_fastq.pl

$ ls old_versions/
blat_parse2.pl  blat_parse_attemp1.pl  blat_parse.pl.bak
blat_parse.pl   blat_parse3_backup.pl  blat_parse3.pl
```

Version control: use cases

How would version control have helped?

- Older versions 'hidden' but still accessible
- Annotated history of all changes available

Bonus:

- Allows for safely trying out changes

Mentimeter

- Why would we want to keep track of changes to files?

Hands on: **git** and Github

Follow the instructions on GitHub.

For the coming days

- Writing something in a text file: commit it to version control

Exit quiz

- Mentimeter