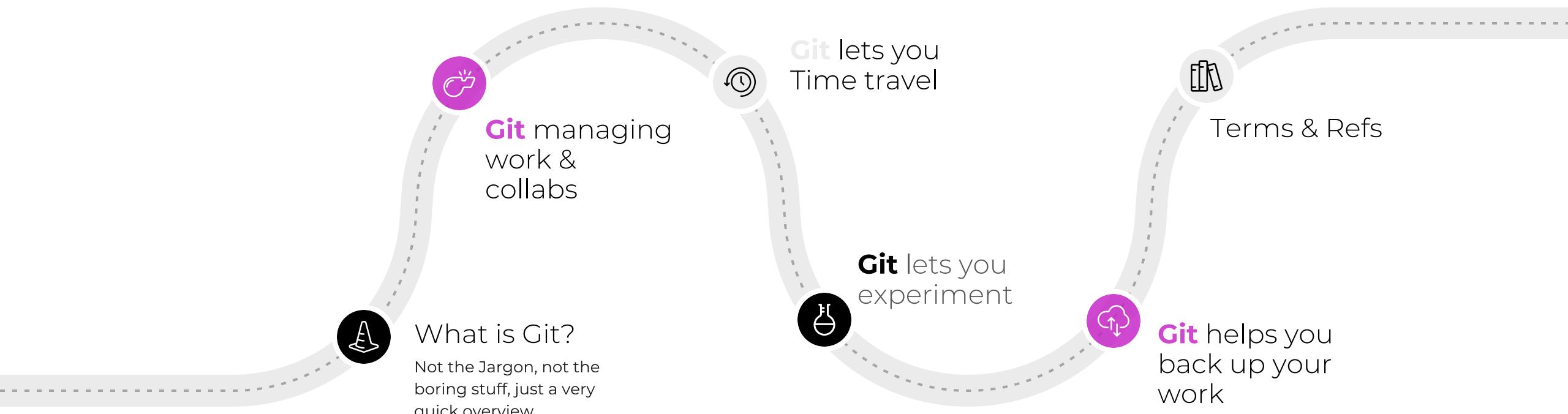


Git

+ Github

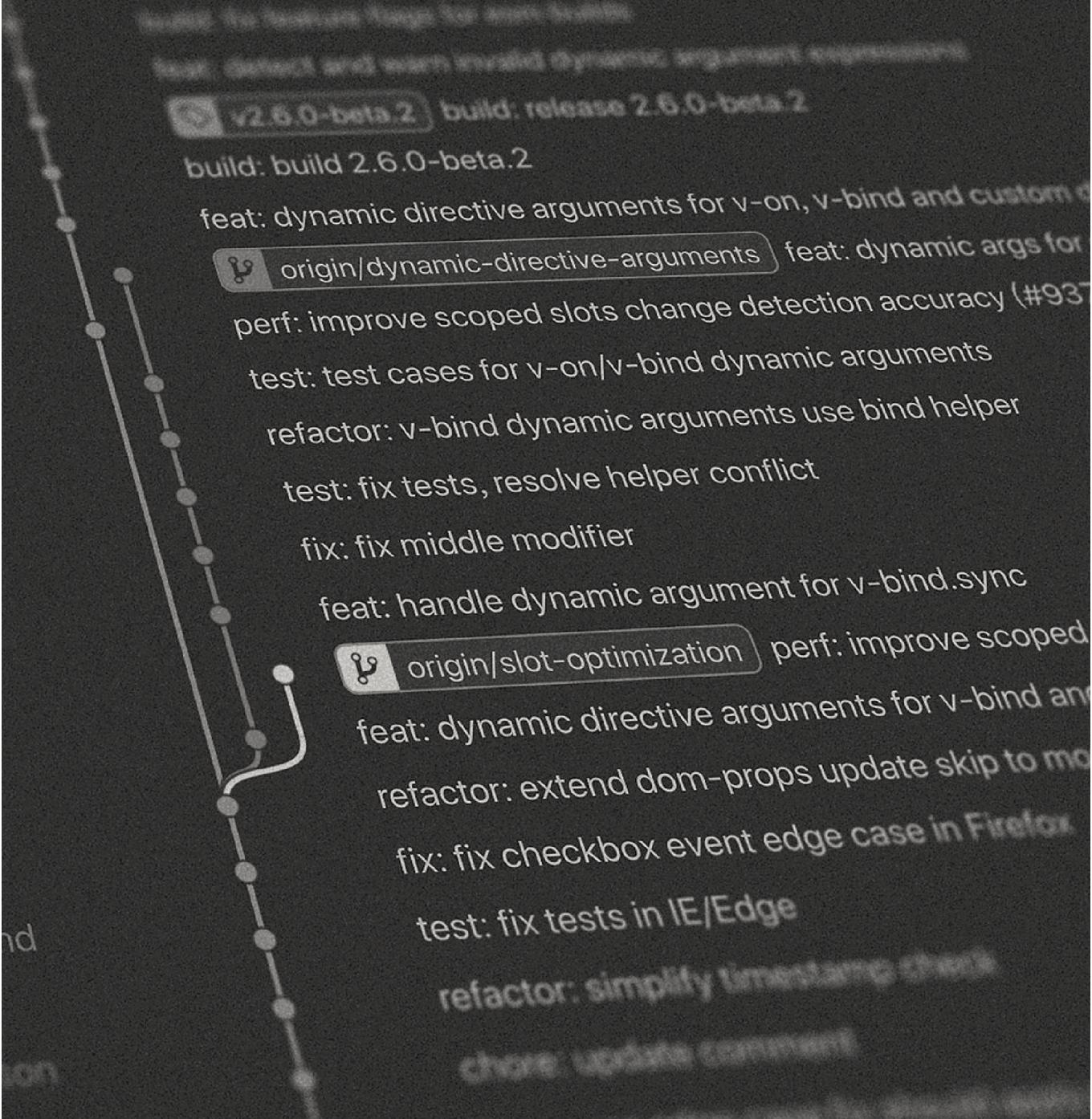


~15 min talk **Agenda**



“The trouble with not having a goal is that you can spend your life running up and down the field and never score.” *Bill Copeland*

What is **Git**

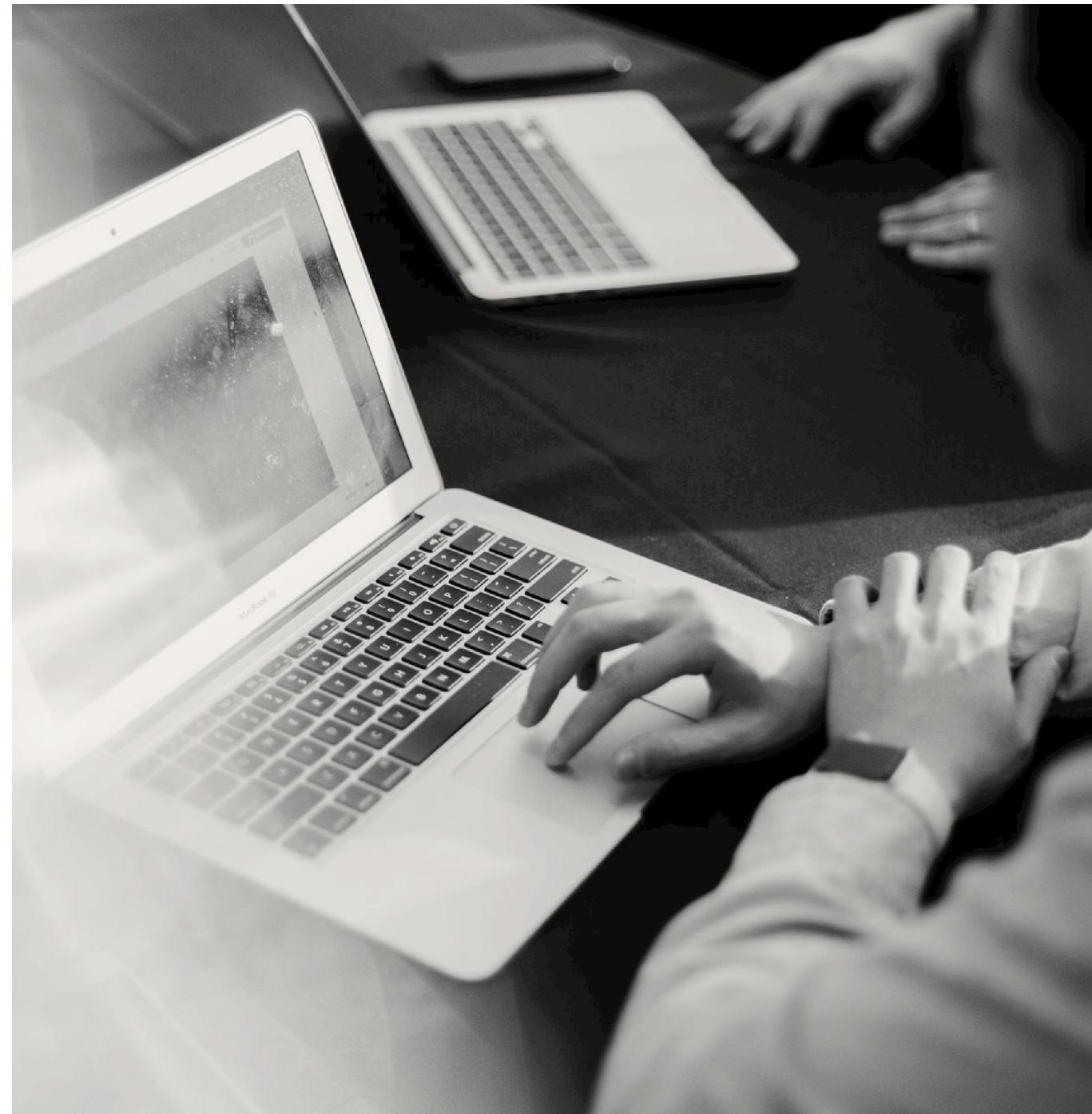


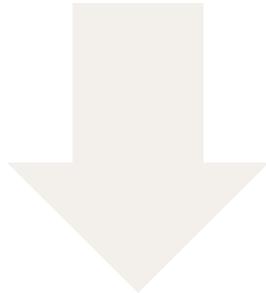
What is **Git**

Git is an application that runs on your computer

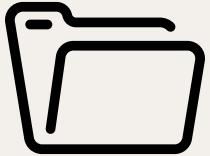
- 1 I **Git helps you manage work & collab**
- 2 I **Git lets you Time travel**
- 3 I **Git lets you experiment**
- 4 I **Git helps you back up your work**

managing work & collabs





Down
in **Local**



thesis-analysis.R



thesis-analysis-2.R



thesis-analysis-3-vincenzo-feedback.R

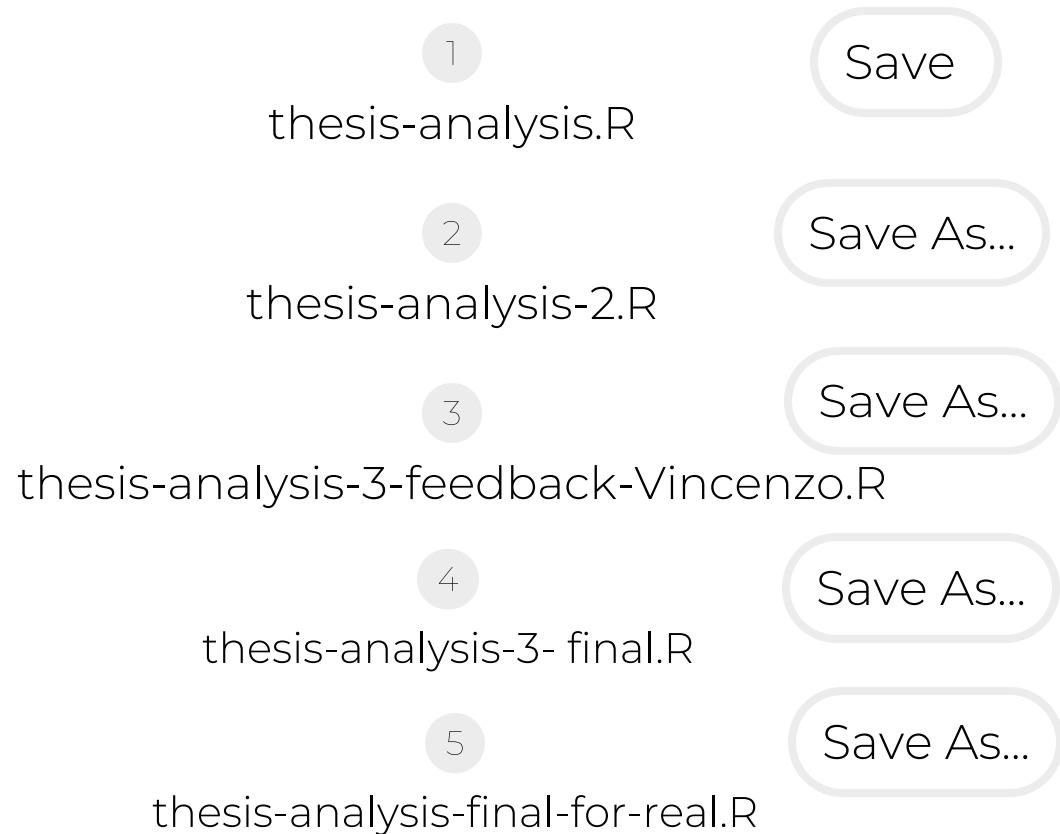


thesis-analysis-3-final.R

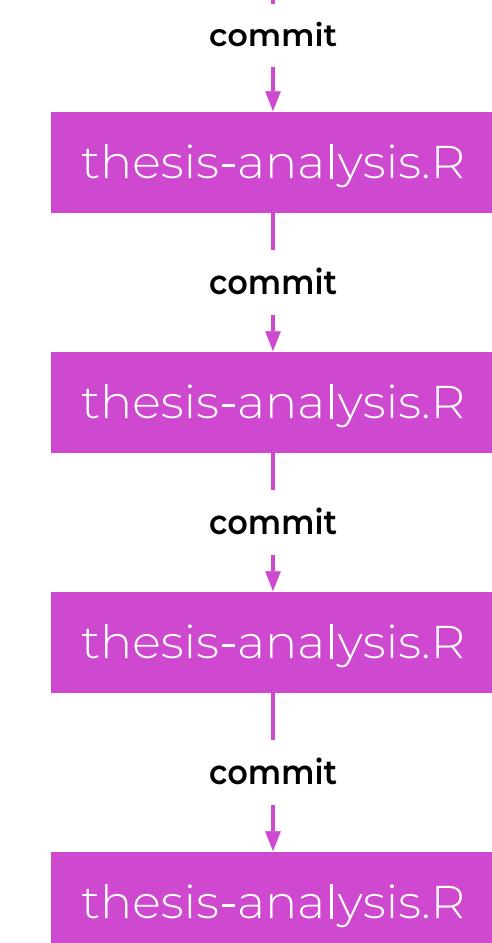


thesis-analysis-final-for-real.R

By saving copies



making commits



A good commit message:

Update link style

User research showed that many people did not spot links in the copy. This commit updates the link style to the new underlined style which performed better.

```
# 1 commit  
Niccolò Salvini  
16:00 21-04-2021
```

Update code style

Find some typos in code documentation, fixed indentation style,
Propose new user defined algorithm reducing complexity time

making commits

commit

thesis-analysis.R

commit

thesis-analysis.R

commit

thesis-analysis.R

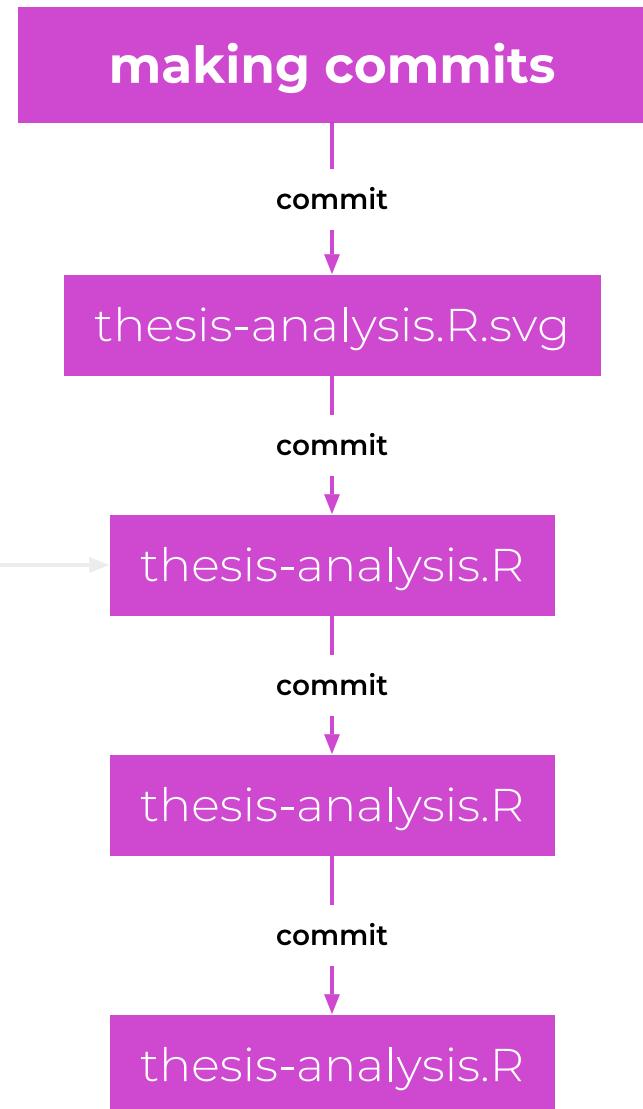
commit

thesis-analysis.R



```
# 2 commit  
Niccolò Salvini  
16:05 21-04-2021
```

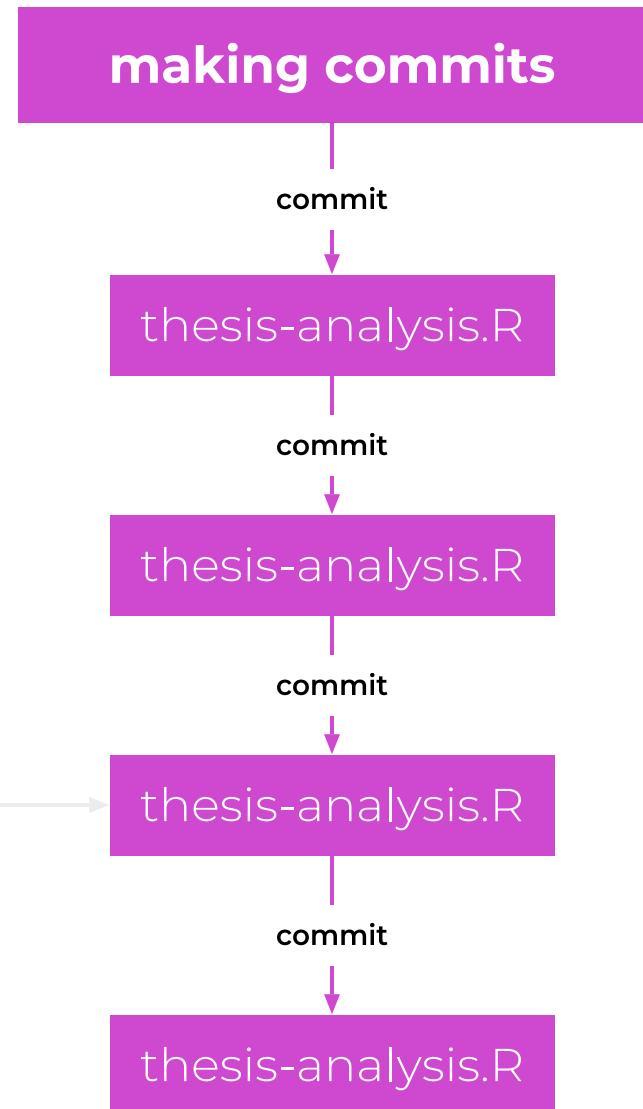
Add new figures
Added figures to chapter 1, 3 and 5. Modified plot at page 5.
Highlighted code at page 52.

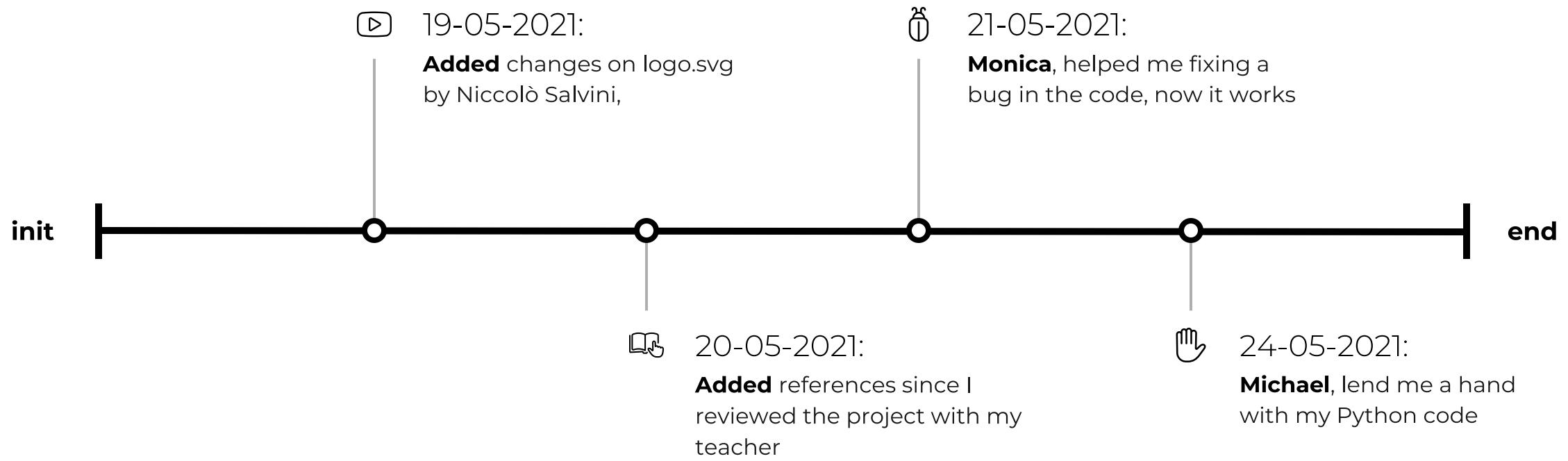


```
# 3 commit  
Niccolò Salvini  
16:10 21-04-2021
```

Vincenzo feedback

Revision from Vincenzo fixing some bugs in the code, in the documentation, in the algorithm design, proposed new solution to the same problem.

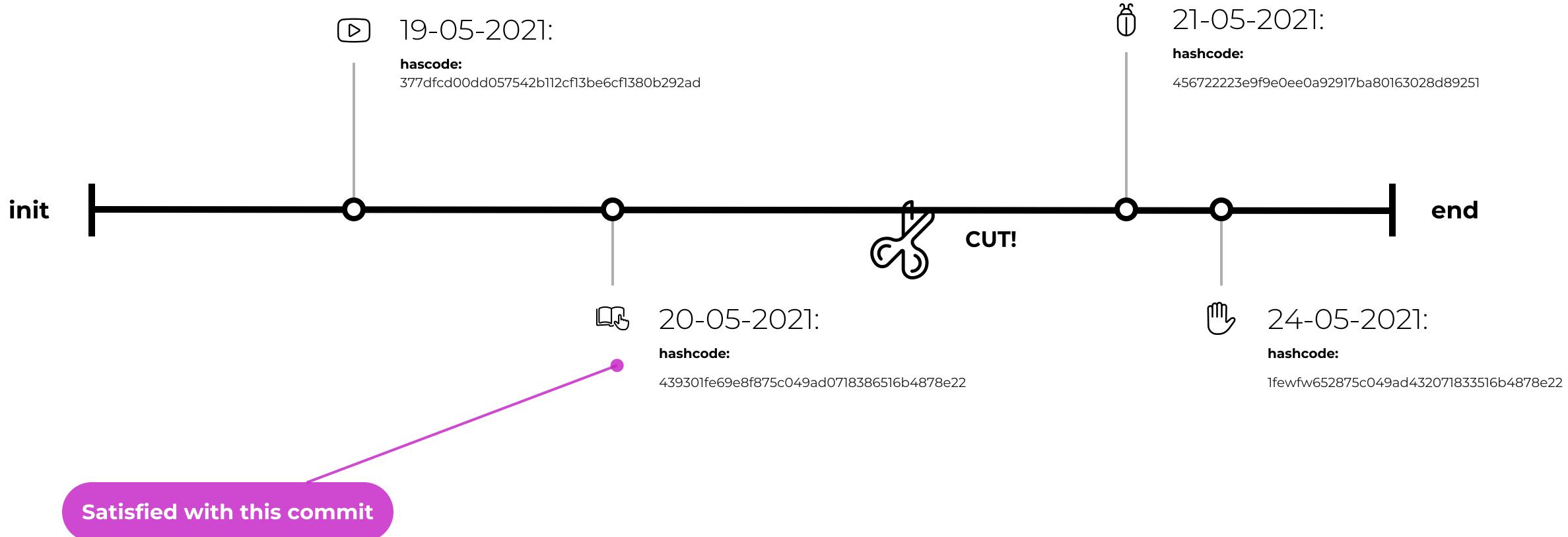




And it goes on & on...

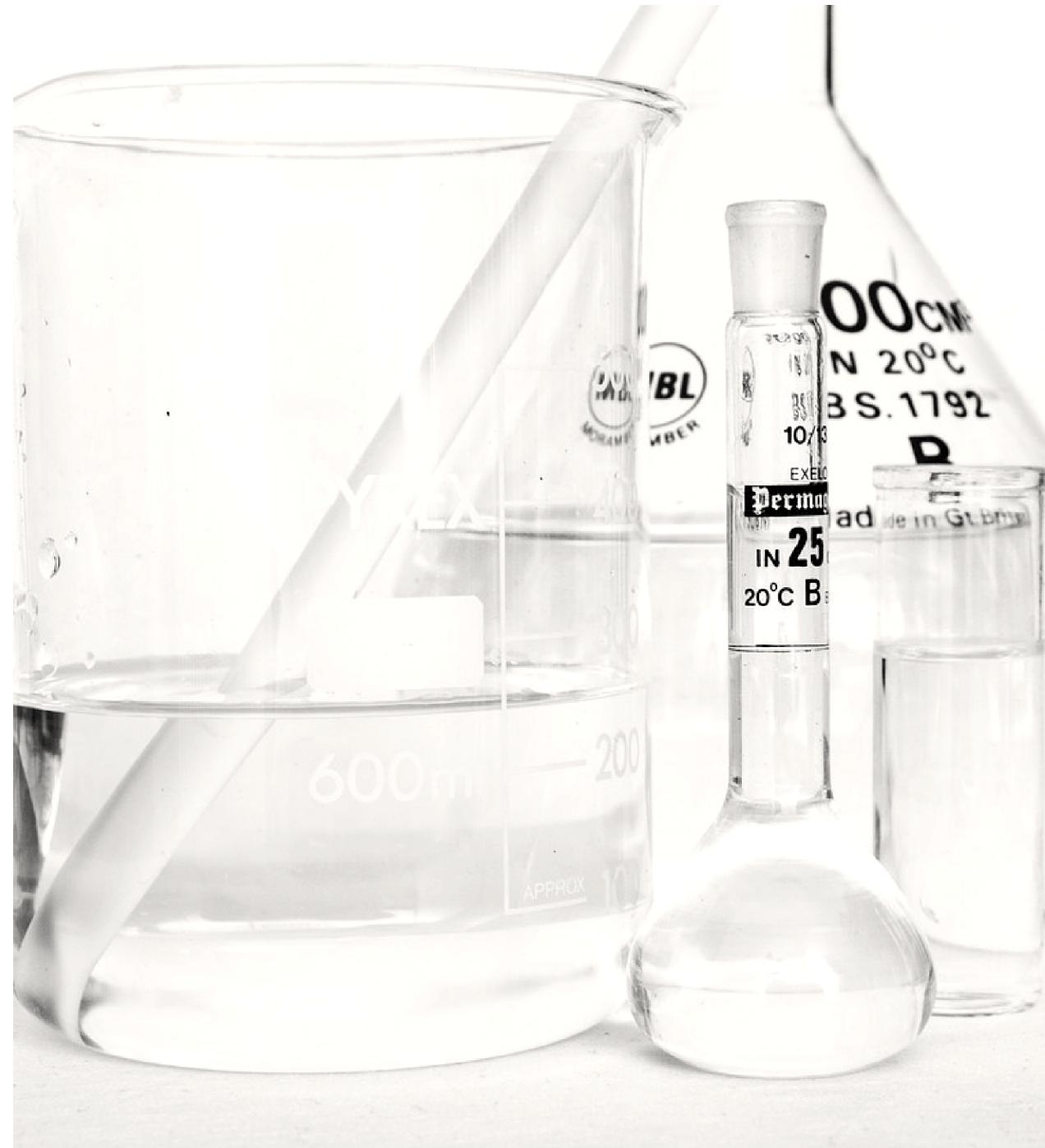
Git **Time**
Travel





This is known as **Check out**

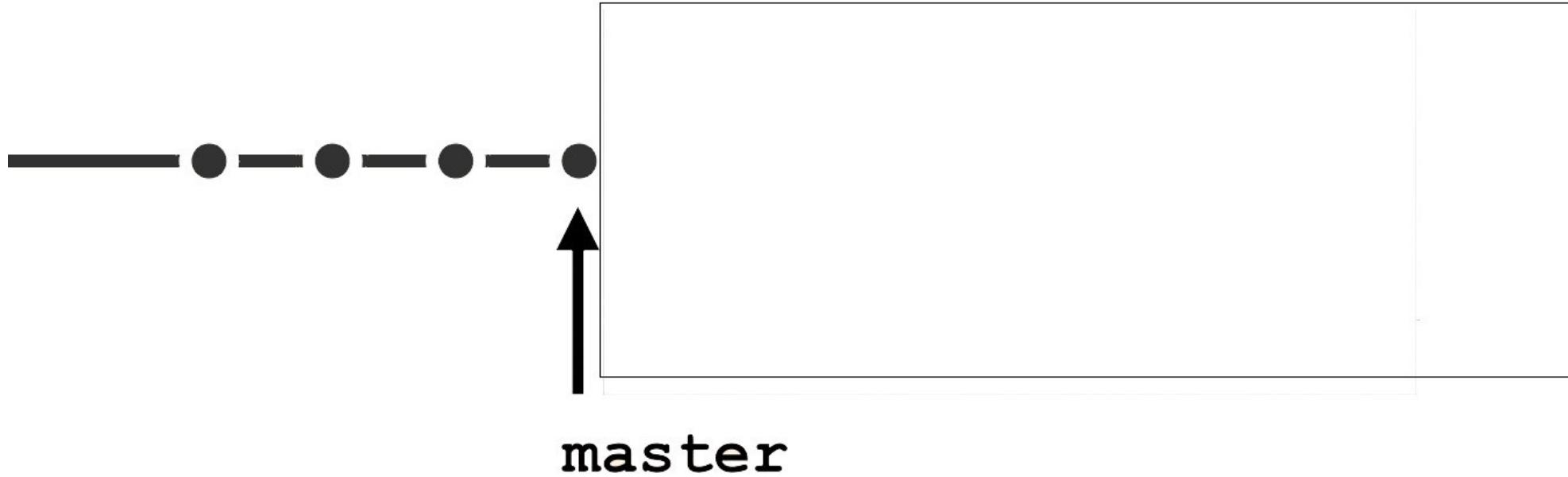
Git lets you
experiment



so far...

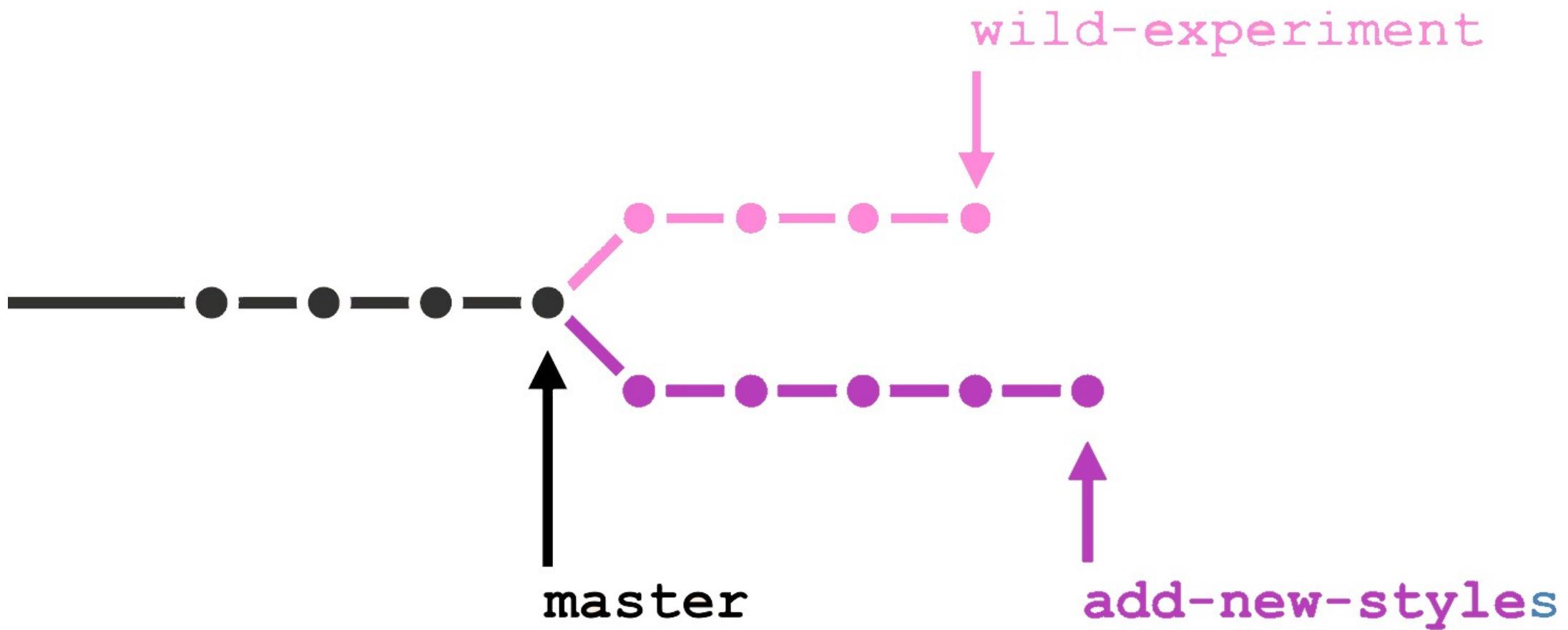
- ¹ Everything has been linear & ordered
- ² But as you probably know this **NEVER** happens
- ³ Moreover this is not how scientific projects works, we need to **experiment** and **try**
- ⁴ A way to do this is with **branch**

The default branch name in Git is **master**

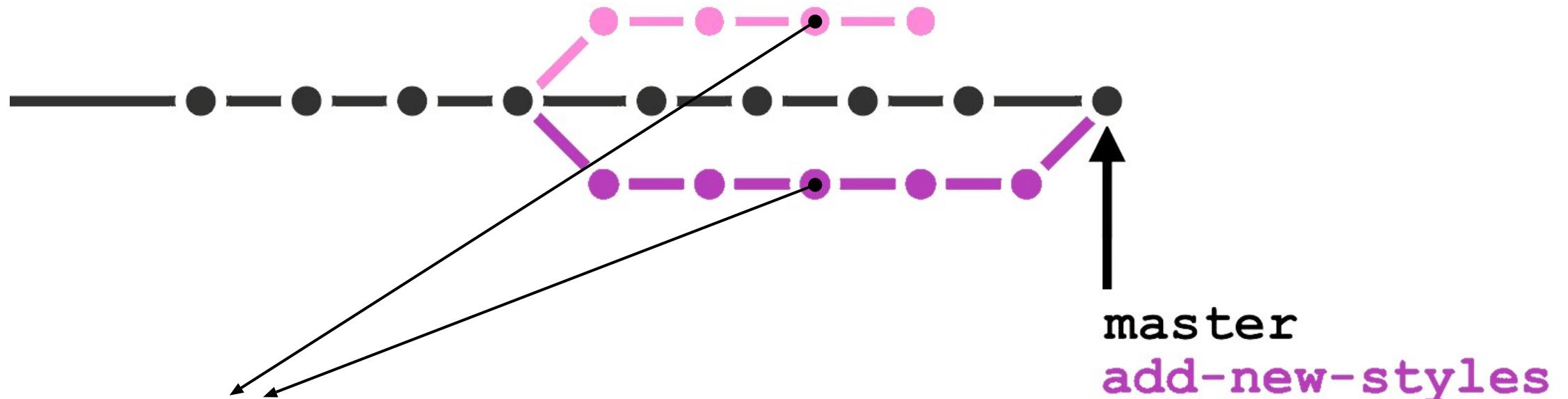


**A developer will often do lots
of work on a branch**





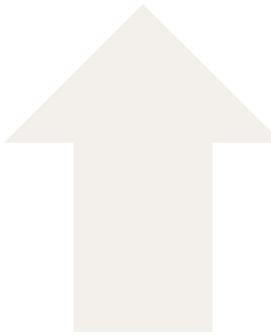
To get changes from one branch
into another, you **merge** them



Manage **Conflicts**

Git lets you
backup
your work

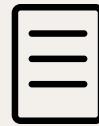




up in the **Cloud**



thesis-analysis.R



thesis-analysis-2.R



thesis-analysis-3-vincenzo-feedback.R



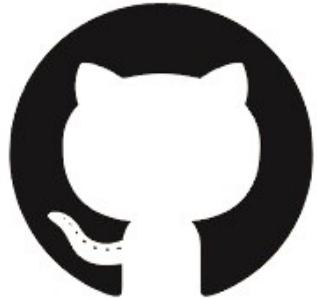
thesis-analysis-3-final.R



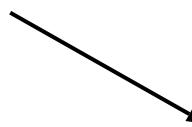
thesis-analysis-final-for-real.R

In Git this place is
called **Remote**



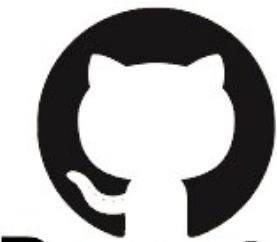


Remote

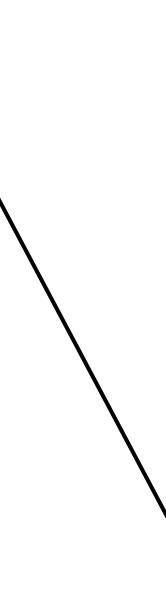


Niccolò memory

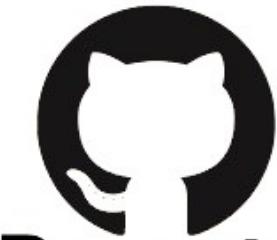




Remote



Vincenzo memory



Remote



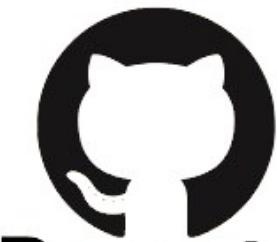
commit

Vincenzo Nardelli

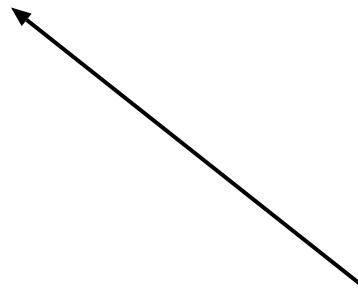
24-05-2021

Fix KNN Parameter

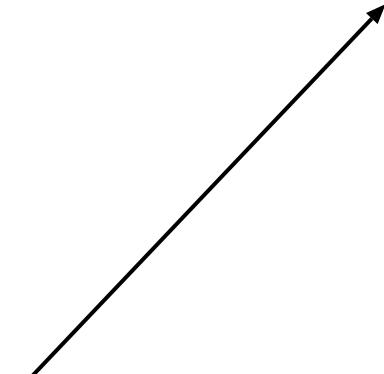
Tried with many **n** neighbours
parameters and ended up finding the
right one

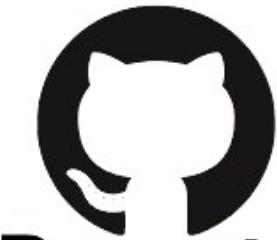


Remote



PUSH

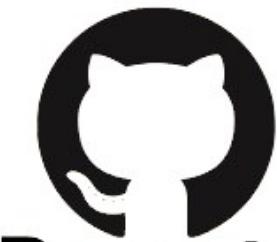




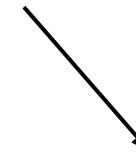
Remote



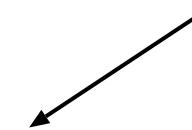
Now I am behind!

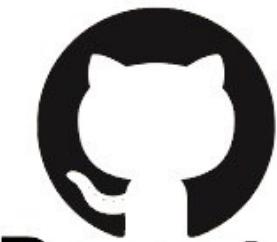


Remote



PULL





Remote



Now everyone is
Up to Date

Git Terms

- **repo/ repository:**

your project folder

- **commit**

a snapshot of your repo

- **hash**

an id for a commit

- **checkout**

time travel to specific commit

- **branch**

a movable label that points to a commit

- **merge**

combining two branches

- **remote**

a computer with the repo on it

- **clone**

get the repository from the remote for the first time

- **push**

send commits to a remote

- **pull**

get commits from a remote

```

1 name: "Introduzione a git & GitHub con R"
2 output_dir: "../docs"
3 include: ["static/"]
4 navbar:
5   title: "Git & GitHub con R"
6   left:
7     - text: "Home"
8       href: index.html
9       icon: fa-home
10    - text: "Parto da 0"
11      menu:
12        - text: "Preliminary Content"
13        - text: "Terminologia"
14          href: terminologia.html
15        - text: "Installazione Git"
16          href: installazioni.html
17        - text: "-----"
18        - text: "Su Rstudio"
19          href: course_rstudio.html
20    - text: "Workflows"
21      menu:
22      - text: "Workflow da Rstudio"
23        href: workflow_rstudio.html
24      - text: "Workflow per la collaborazione"
25        href: workflow_review.html
26    - text: "Altre Risorse"
27      menu:
28      - text: "Templates"
29        href: issue_temp.html

```

16:35 YAML

Environment History Files Connections Git Tutorial

Diff Commit Pull Push History More New Branch master C

Staged Status Path



```

R version 4.0.3 (2020-10-10) -- "Bunny-Wunnies Freak Out"
Copyright (C) 2020 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

R è un software libero ed è rilasciato SENZA ALCUNA GARANZIA.
Siamo ben lieti se potrai redistribuirlo, ma sotto certe condizioni.
Scrivi 'license()' o 'licence()' per dettagli su come puoi utilizzarlo.

R è un progetto di collaborazione con molti contributtori.
Scrivi 'contributors()' per maggiori informazioni e 'citation()' per sapere come citare R o i pacchetti di R nelle pubblicazioni.

Scrivi 'demo()' per una dimostrazione, 'help()' per la documentazione,
'help.start()' per l'help navigabile con browser HTML.
Scrivi 'q()' per uscire da R.

Warning message:
package 'usethis' was built under R version 4.0.5
>

```

| User Library | |
|----------------------|--|
| Name | Description |
| abind | Combine Multidimensional Arrays |
| acepack | ACE and AVAS for Selecting Multiple Regression Variables |
| anytime | Anything to 'POSIXct' or 'Date' Conversion |
| AsioHeaders | 'Asio' C++ Header Files |
| askpass | Safe Password Entry for R, Git, and SSH |
| assertive | Readable Check Functions to Ensure Correctness |
| assertive.base | A Lightweight Core of the 'assertive' Package |
| assertive.code | Assertions to Check Properties of Code |
| assertive.data | Assertions to Check Properties of Data |
| assertive.data.uk | Assertions to Check Properties of String Data |
| assertive.data.us | Assertions to Check Properties of String Data |
| assertive.datetimes | Assertions to Check Properties of Date and Time |
| assertive.files | Assertions to Check Properties of Files |
| assertive.matrices | Assertions to Check Properties of Matrices |
| assertive.models | Assertions to Check Properties of Models |
| assertive.numbers | Assertions to Check Properties of Numbers |
| assertive.properties | Assertions to Check Properties of Variables |
| assertive.reflection | Assertions for Checking the State of R Objects |

References:

(some of them are in **ENG**, some other are in **ITA**)

- [Why Git?](#)

computing for social sciences, University of Chicago

- [Git & GitHub con R](#)

Made by me in ITA, based on [INBO ref](#). It is a quick intro tu using Git within the RStudio env. In itinere.

- [Git for Humans](#)

[YT videos](#) & [slides deck](#)

- [Happy Git with R](#)

very interesting resource for R users