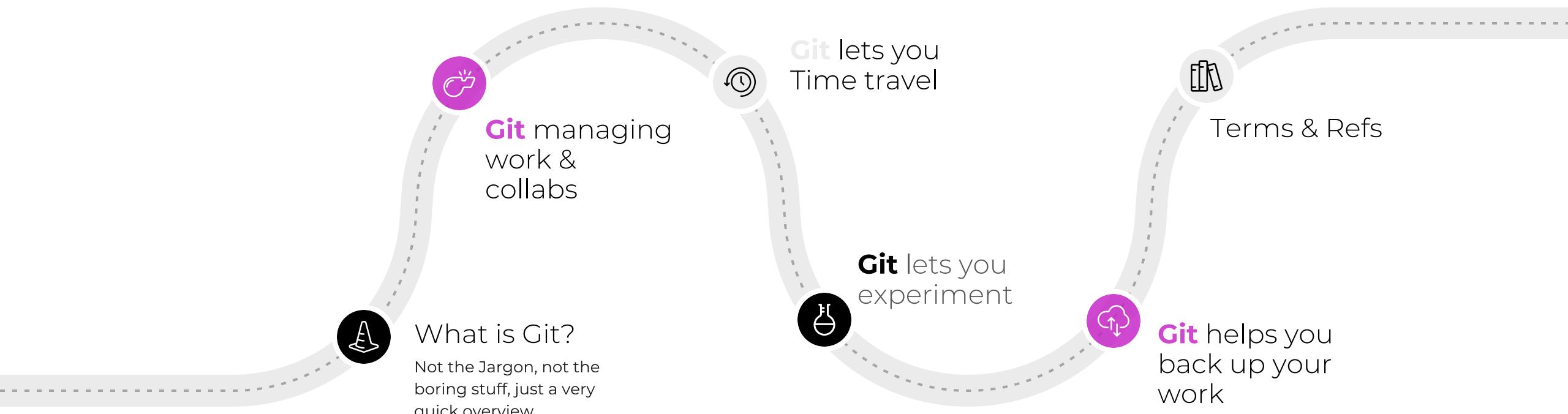


Git

+ Github

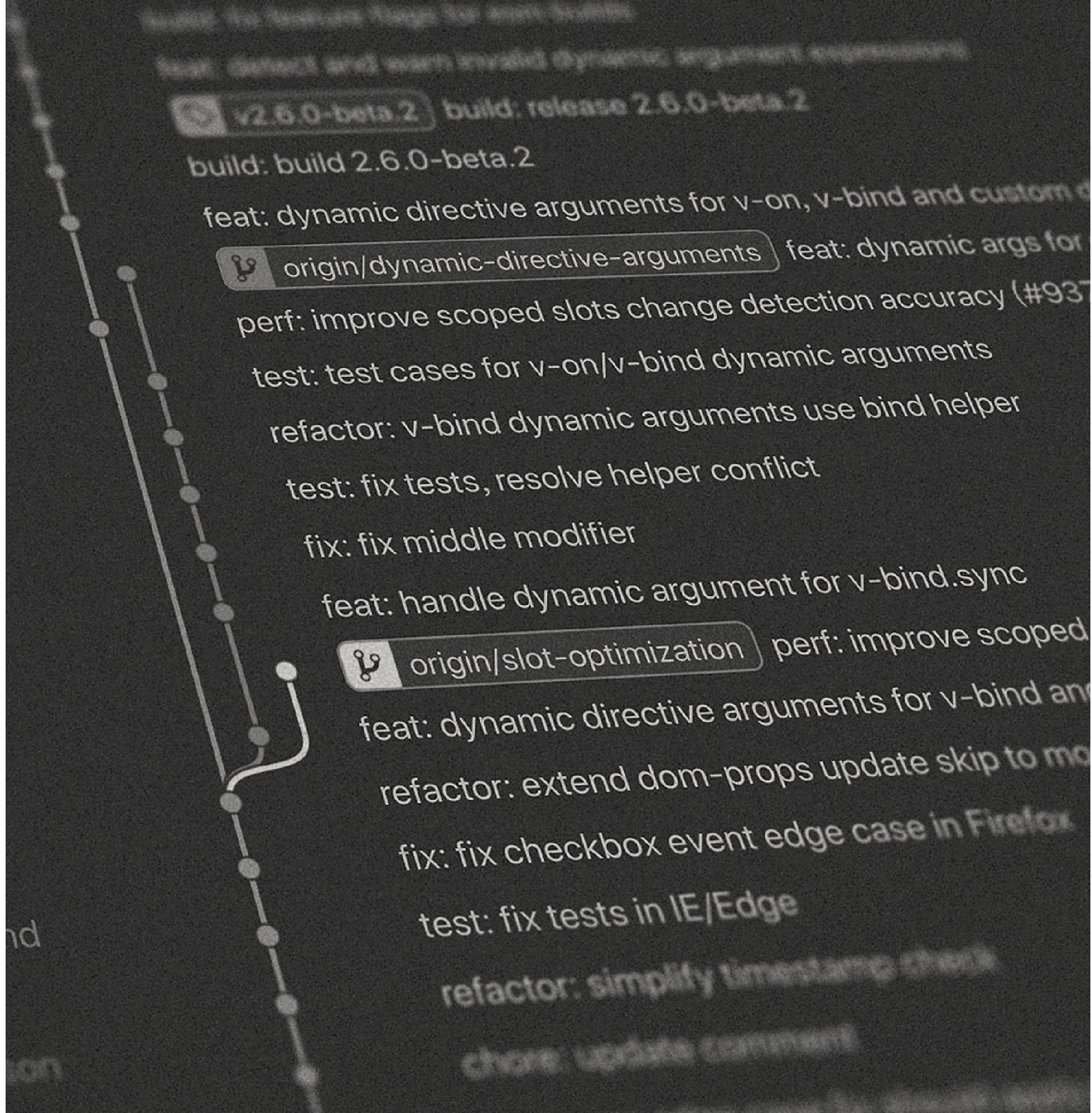


~15 min talk **Agenda**



“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**

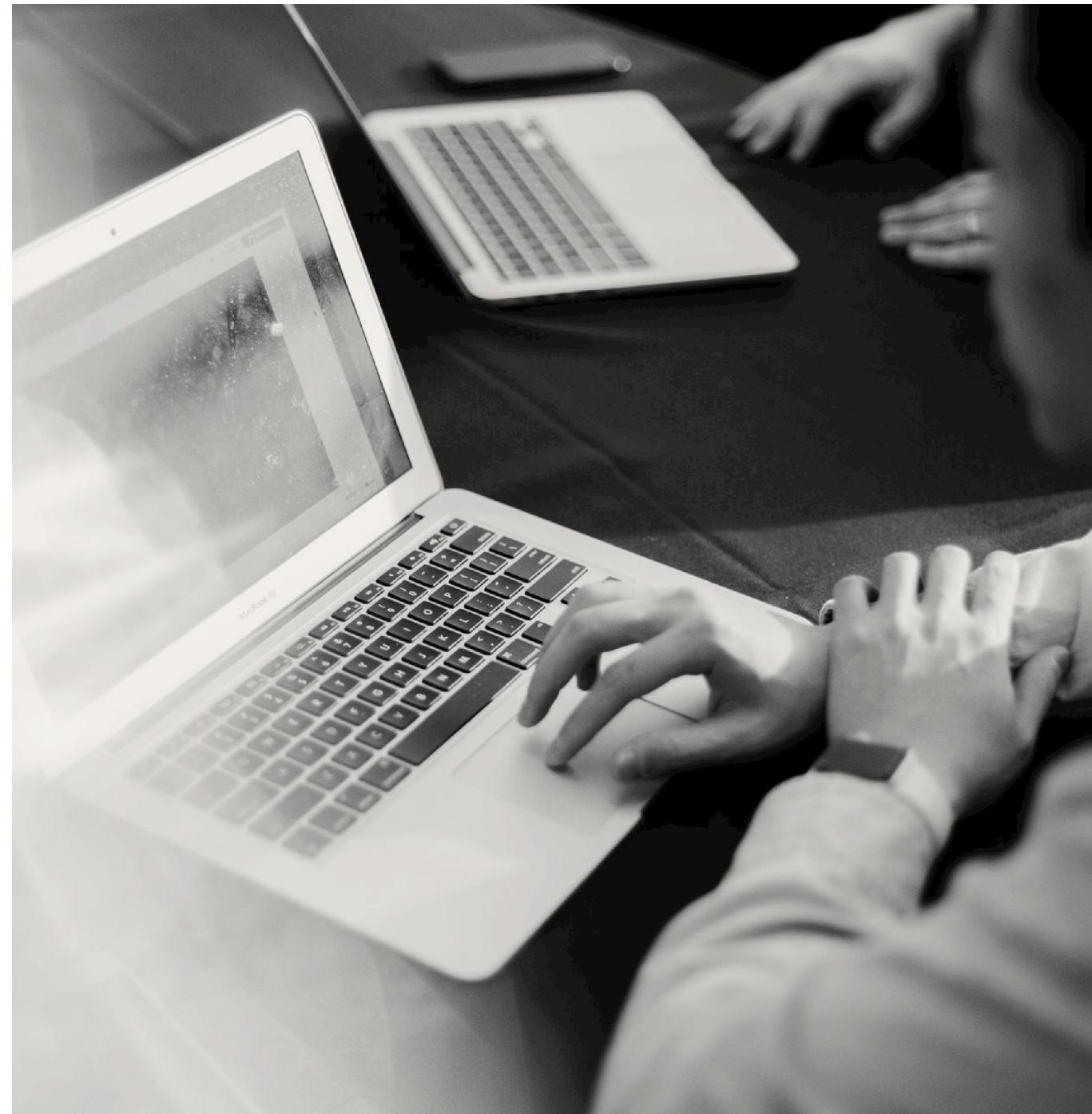


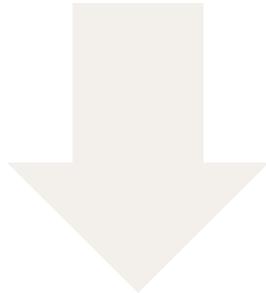
What is **Git**

Git is an application that runs on your computer

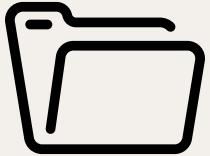
- 1 I **Git helps you manage work & collab**
- 2 I **Git lets you Time travel**
- 3 I **Git lets you experiment**
- 4 I **Git helps you back up your work**

managing work & collabs





Down
in **Local**



thesis-analysis.R



thesis-analysis-2.R



thesis-analysis-3-vincenzo-feedback.R

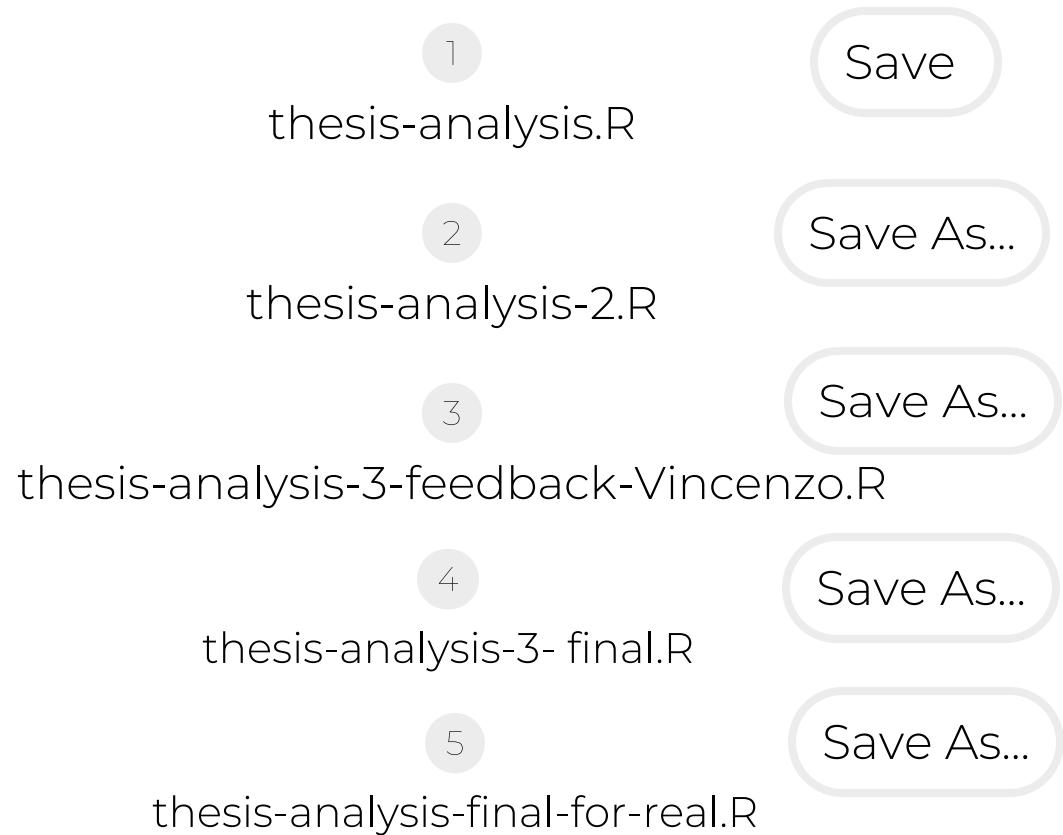


thesis-analysis-3-final.R

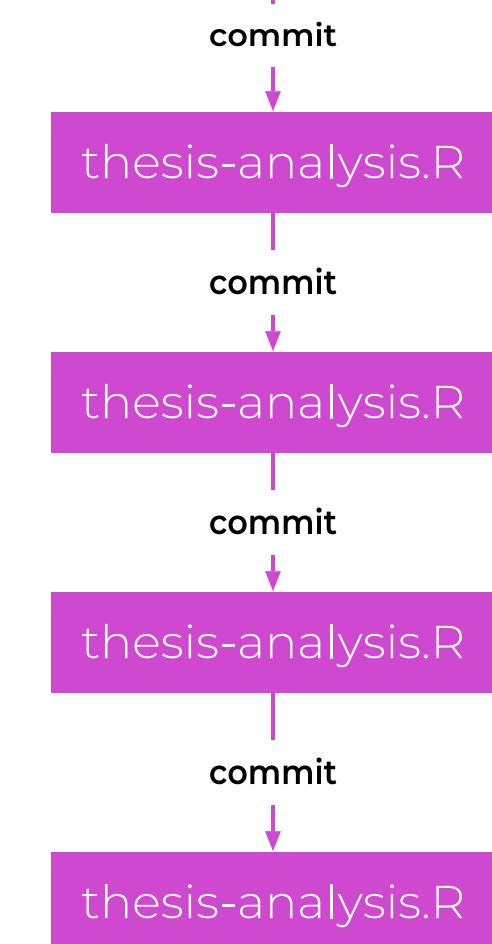


thesis-analysis-final-for-real.R

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

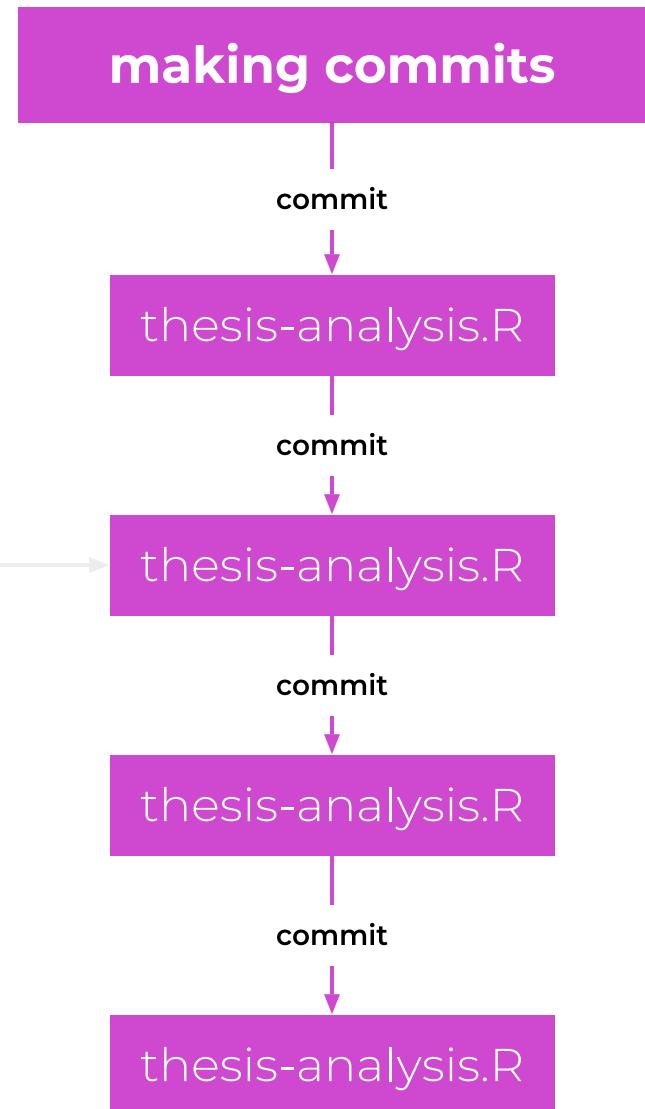
commit

thesis-analysis.R



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

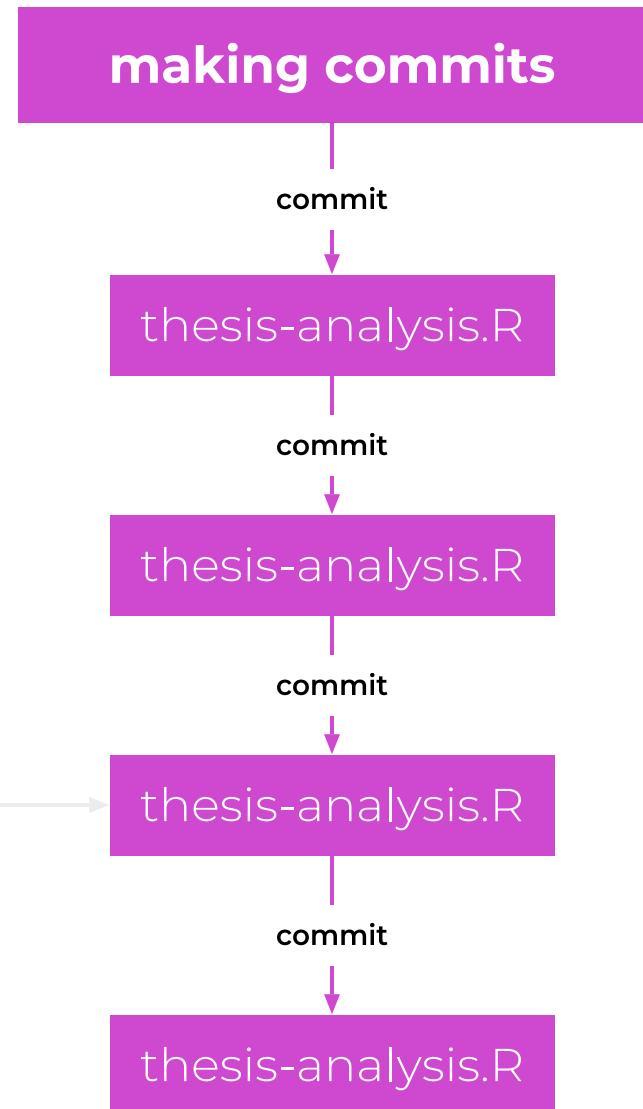
Add new figures
Added figures to chapter 1, 3 and 5. Modified plot at page 5.
Highlighted code at page 52.

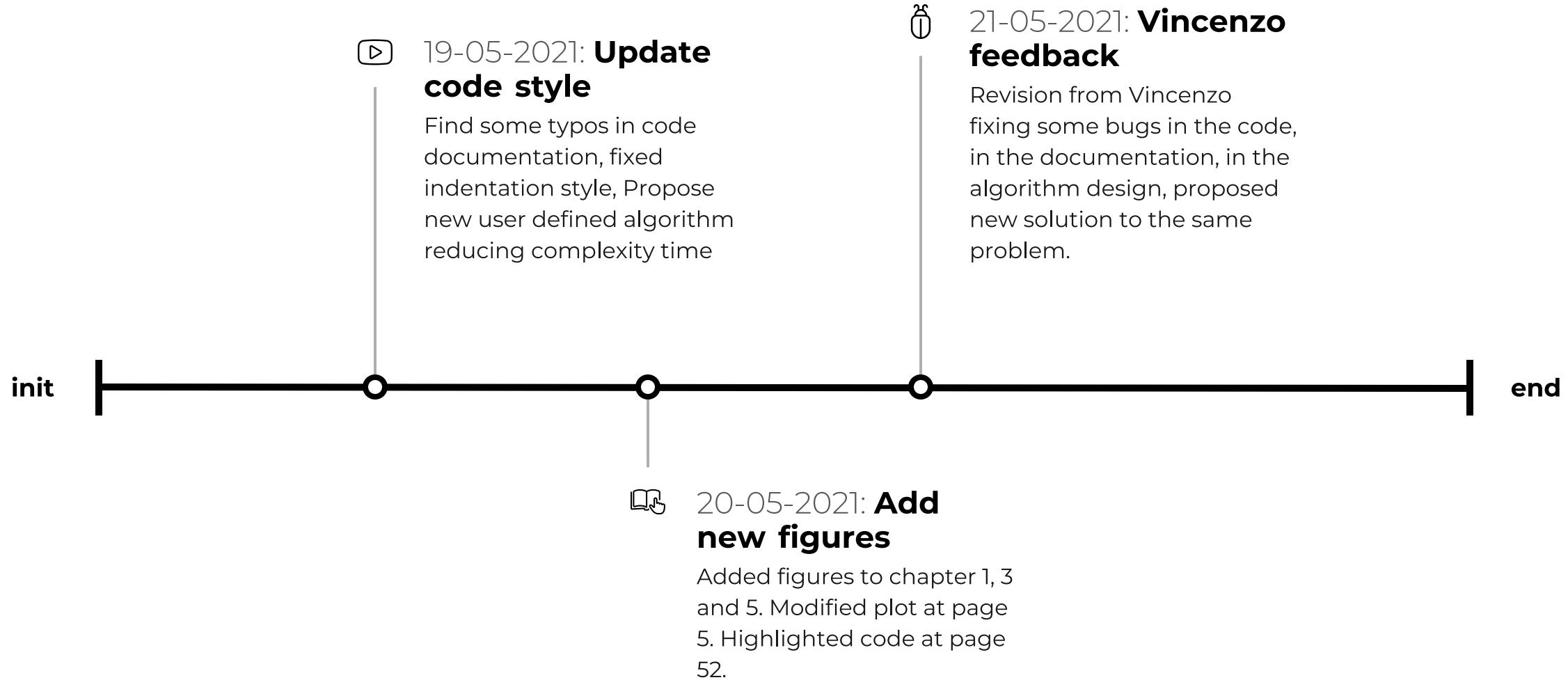


```
# 3 commit  
Vincenzo Nardelli  
16:10 21-04-2021
```

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.

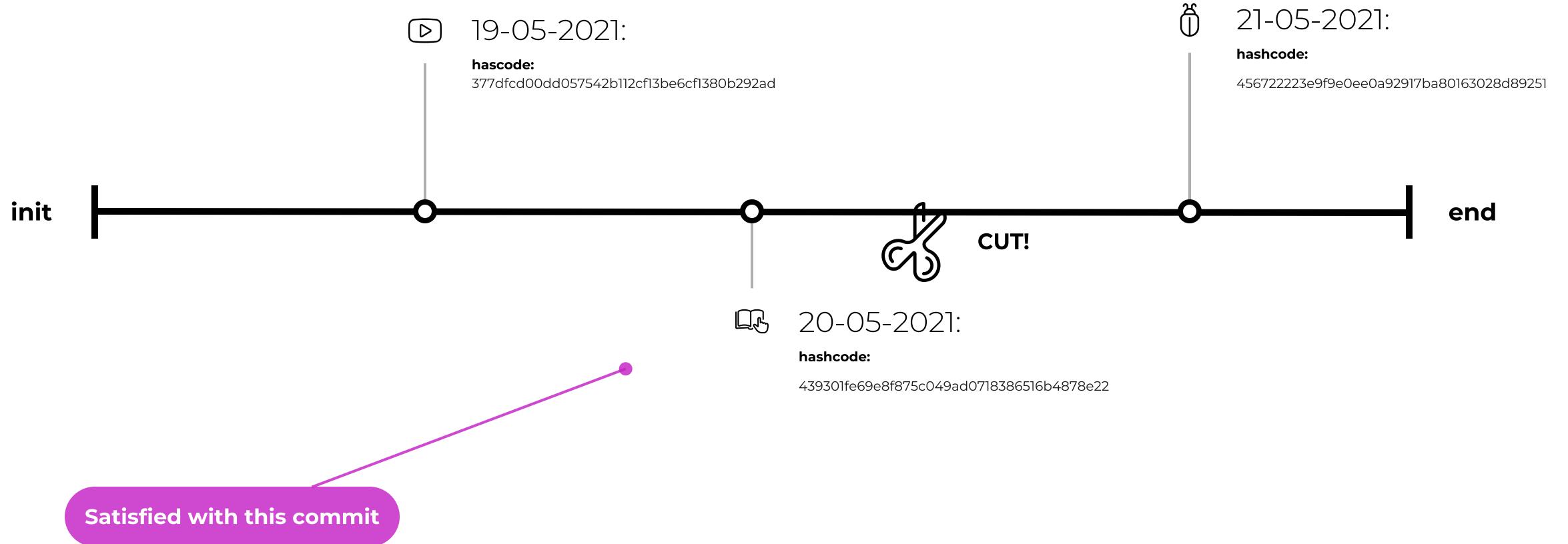




And it goes on & on...

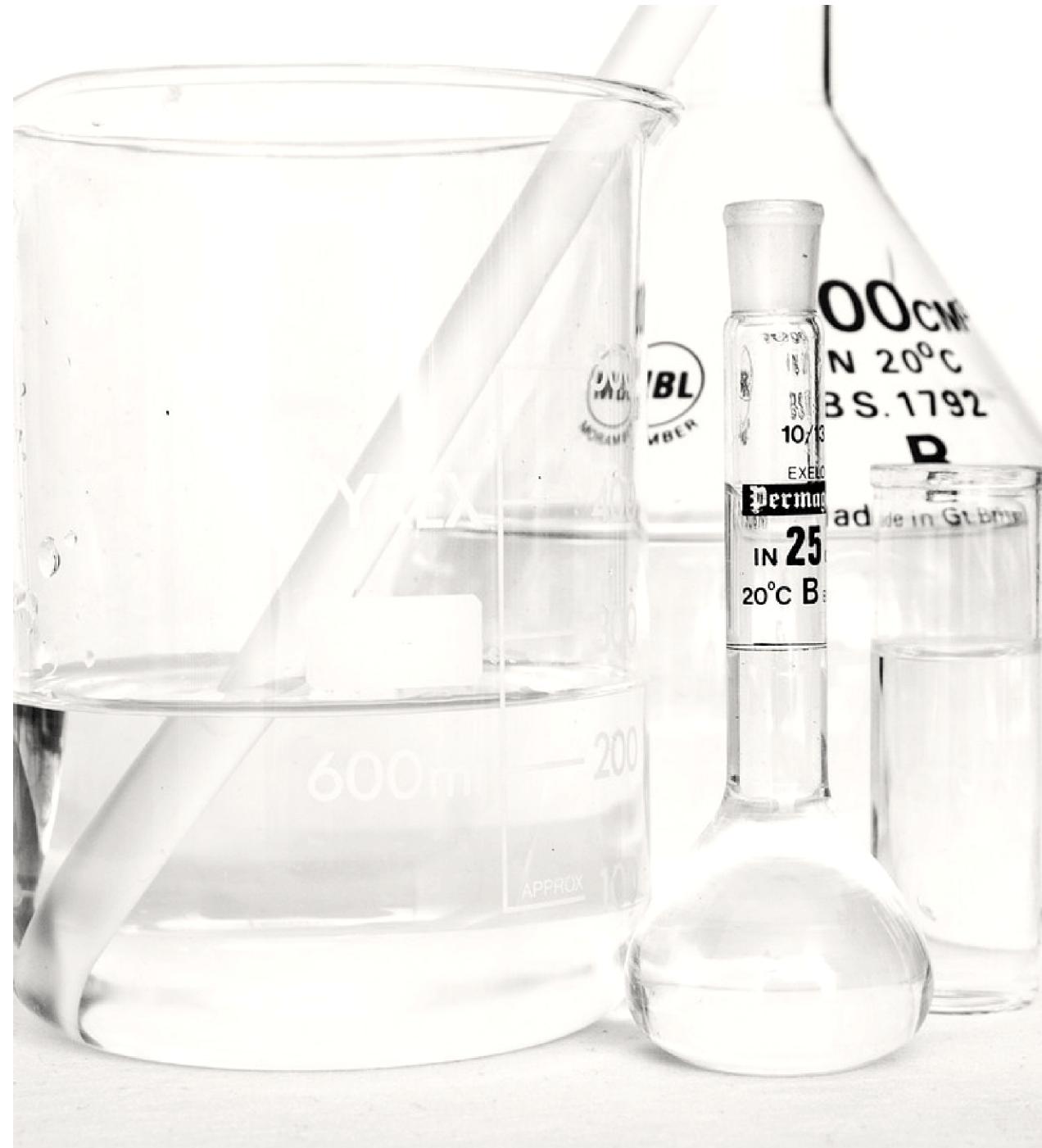
Git **Time**
Travel





This is known as **Check out**

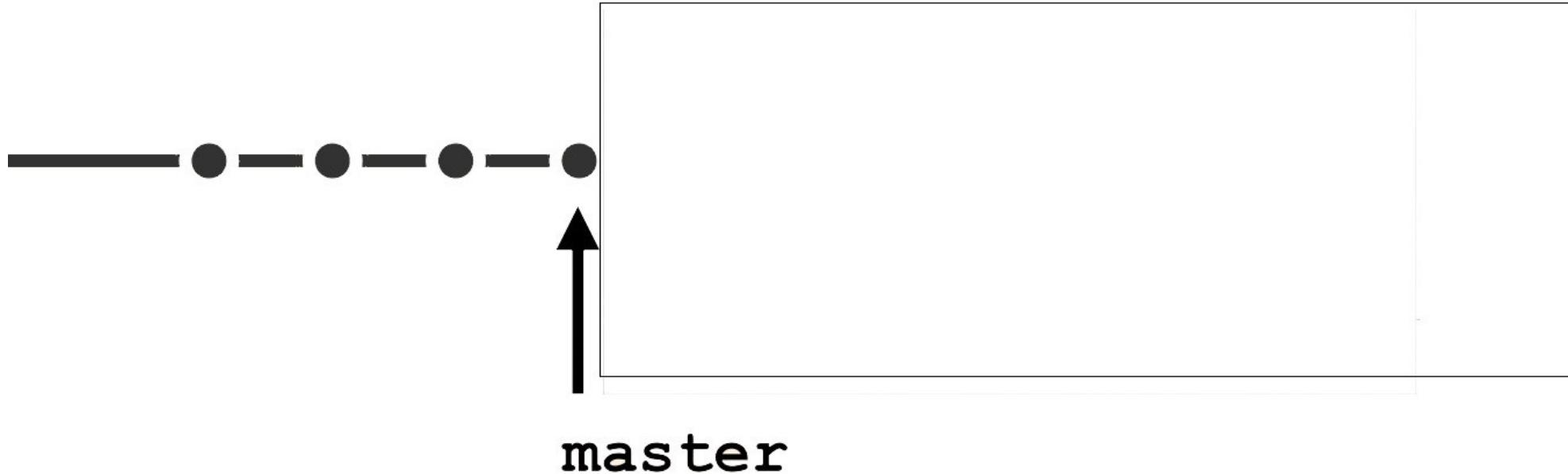
Git lets you
experiment



so far...

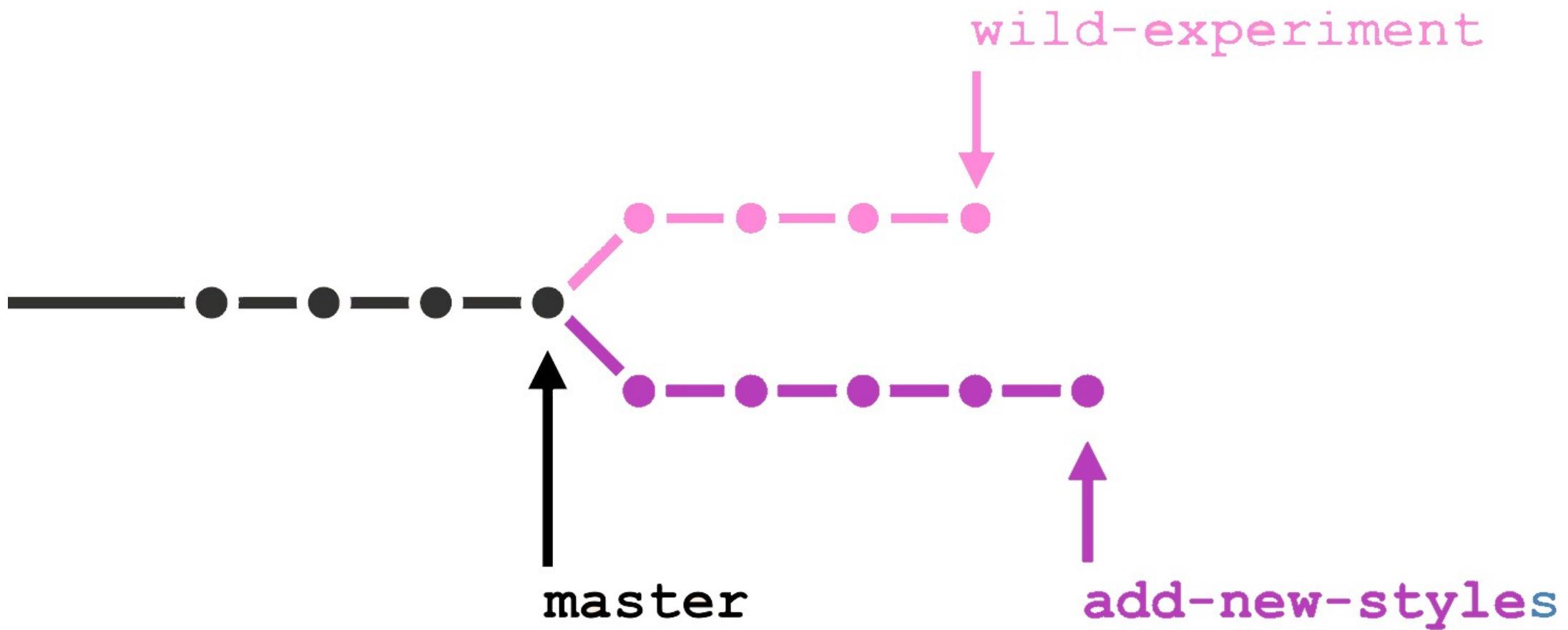
- ¹ Everything has been linear & ordered
- ² But as you probably know this **NEVER** happens
- ³ Moreover this is not how scientific projects works, we need to **experiment** and **try**
- ⁴ A way to do this is with **branch**

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

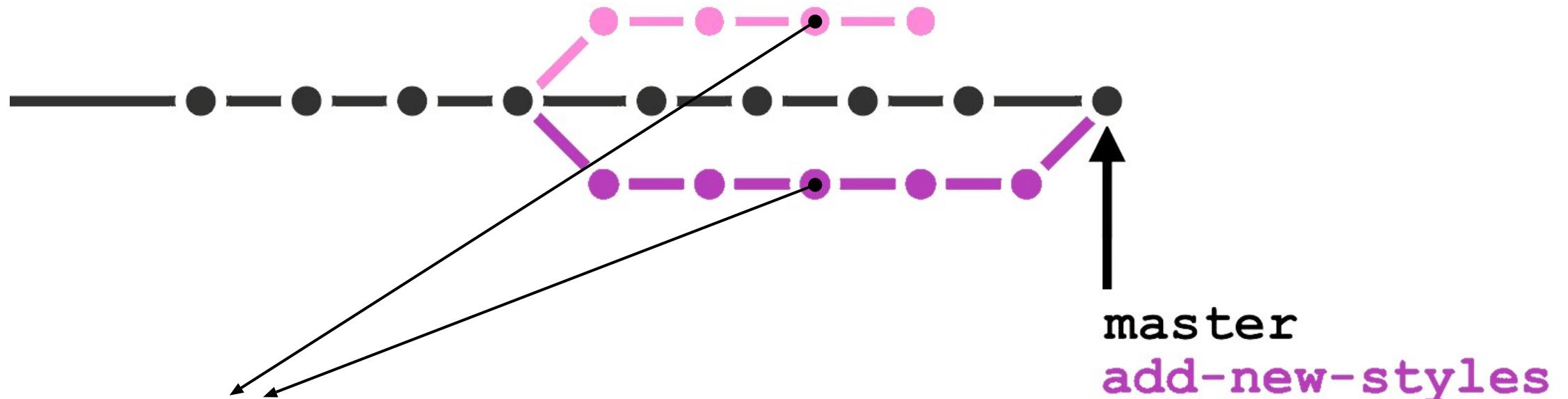


**A developer will often do lots
of work on a branch**





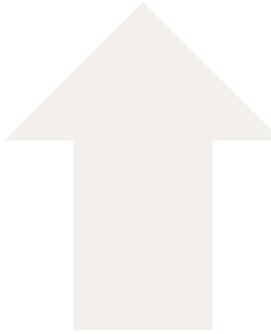
To get changes from one branch
into another, you **merge** them



Manage **Conflicts**

Git lets you
backup
your work

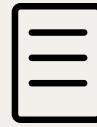




up in the **Cloud**



thesis-analysis.R



thesis-analysis-2.R



thesis-analysis-3-vincenzo-feedback.R



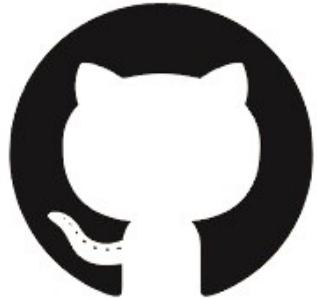
thesis-analysis-3-final.R



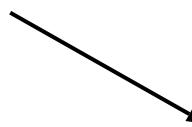
thesis-analysis-final-for-real.R

In Git this place is
called **Remote**



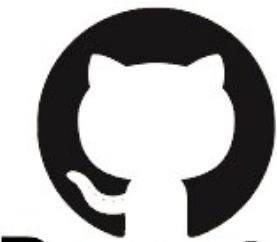


Remote

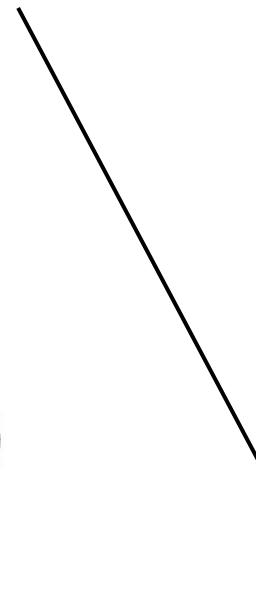
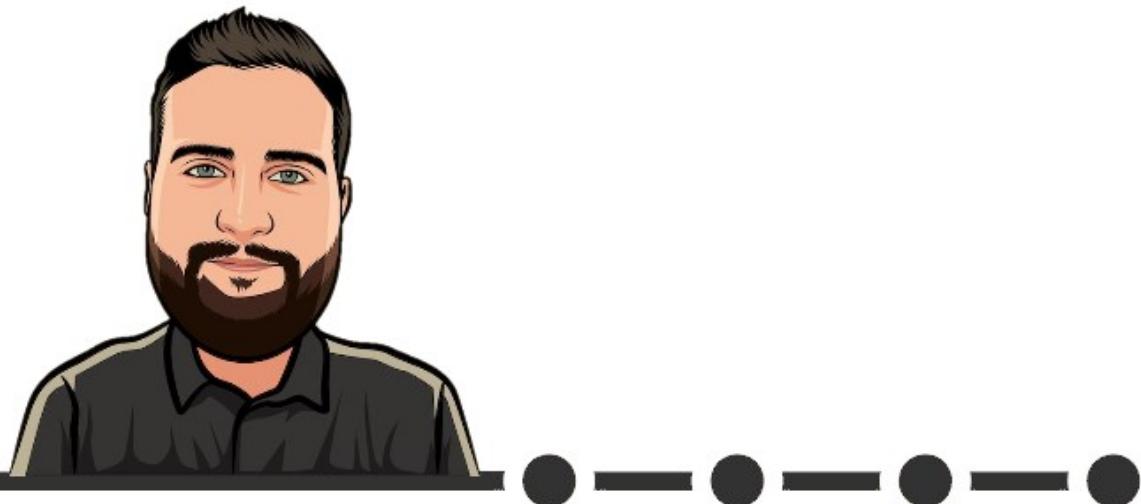


Niccolò memory

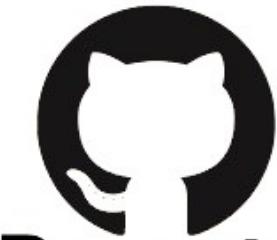




Remote



Vincenzo memory



Remote



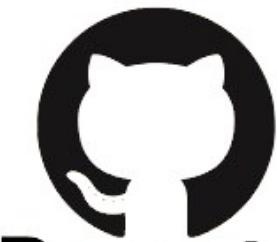
commit

Vincenzo Nardelli

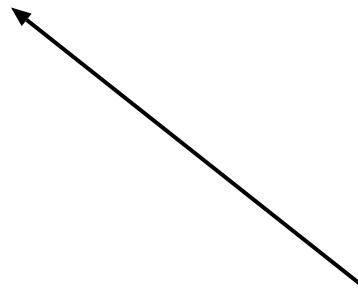
24-05-2021

Fix KNN Parameter

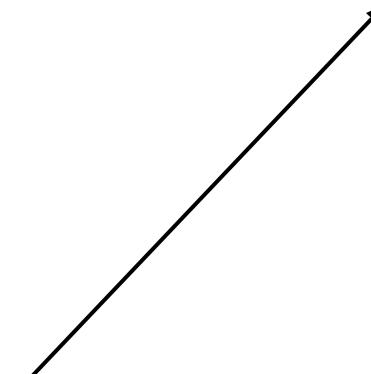
Tried with many **n** neighbours
parameters and ended up finding the
right one

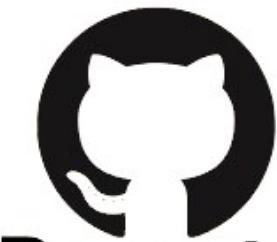


Remote



PUSH

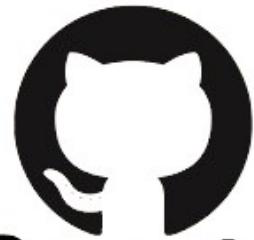




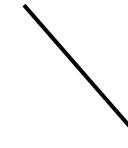
Remote



Now I am behind!

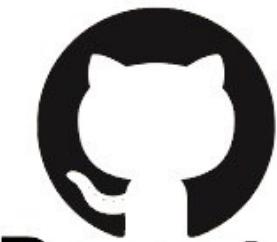


Remote



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
assertive.data.us	Assertions to Check Properties of String
assertive.datetimes	Assertions to Check Properties of Date
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