

# rbtl - Research Beyond the Lab

## Version control and more tools

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2022-03-10

# Today

1. Assignment grading and conversion
2. What is Version Control?
3. RStudio Cloud & RStudio IDE

# Assignments & Grades

## Due dates: Assignments 1, 2, and 3

Full points for assignment 1, 2, and 3 if submitted by:

**15th March**

# Submission complete? Full points?

- If you haven't heard from me by Wednesday, then you have successfully submitted your assignment.

# Grade conversion

grade	points
6.00	100
5.75	95
5.50	90
5.25	85
5.00	80
4.75	75
4.50	70
4.25	60
4.00	50
3.50	40
3.00	30
2.50	20
2.00	10
1.00	0

Grading scheme and conversion details in syllabus on course website

# What is Version Control?

# Version Control

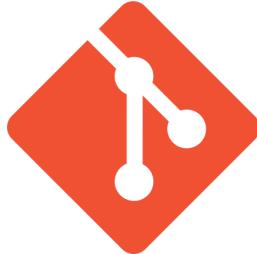
A way to share files with others, so they can:

- download
- re-use
- contribute

You can view the history of files, and jump back in time to any point.

# Why is it useful?

# Git and GitHub



- Git is a software for version control
- Released in 2005
- Popular among programmers collaboratively developing code
- Tracks changes in a set of files (directory/folder/repository)

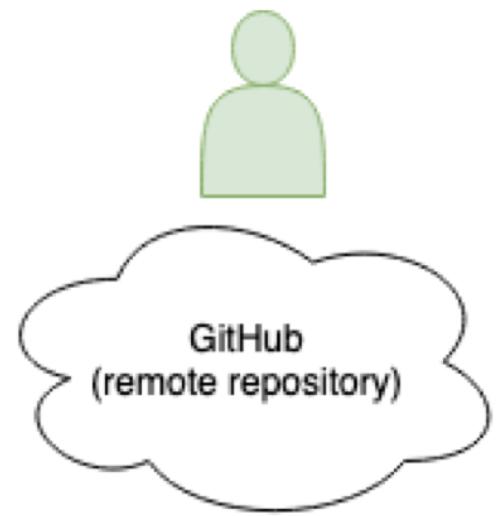


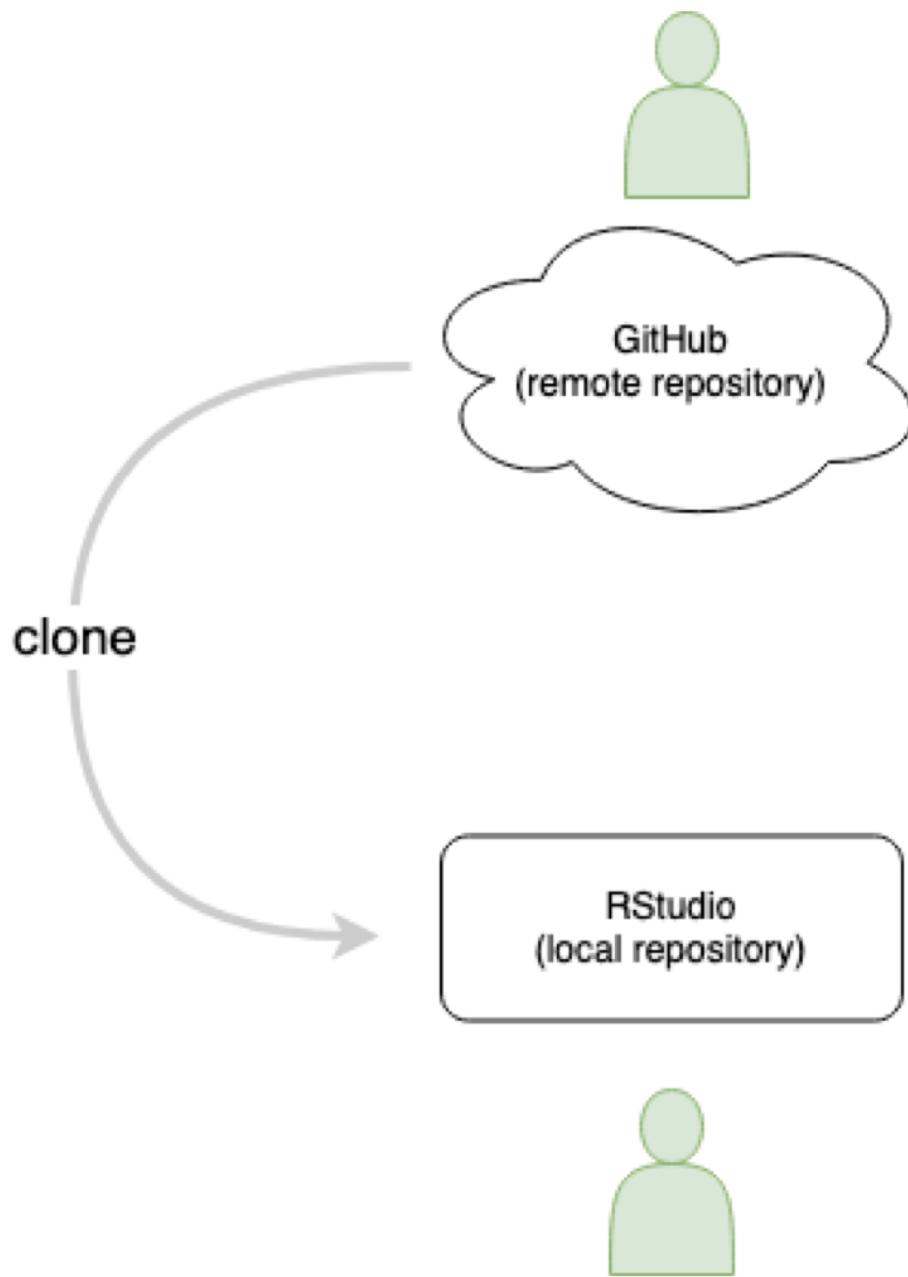
- GitHub is a hosting platform for version control using Git
- Launched in 2008, acquired by Microsoft in 2018, Microsoft for US\$ 7.5 billion
- 73 million Users ([February, 2022](#))
- Facebook for Software Developers

# Homework Assignment 2

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Version Control - Terminology

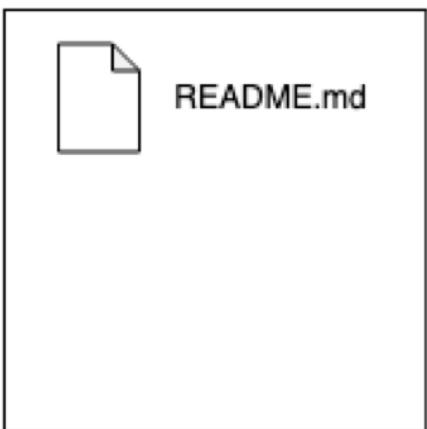


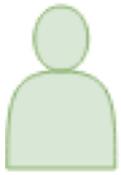




Create README.md

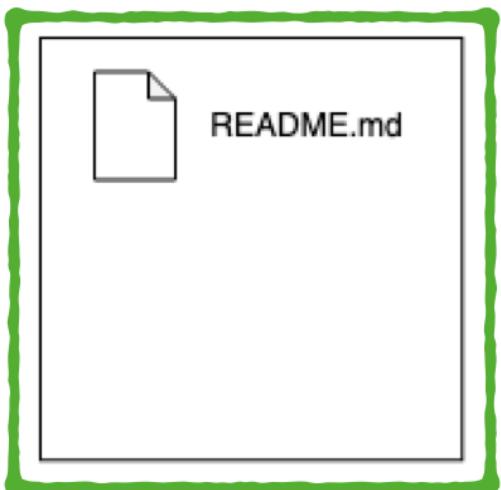
75aa637





Create README.md

75aa637



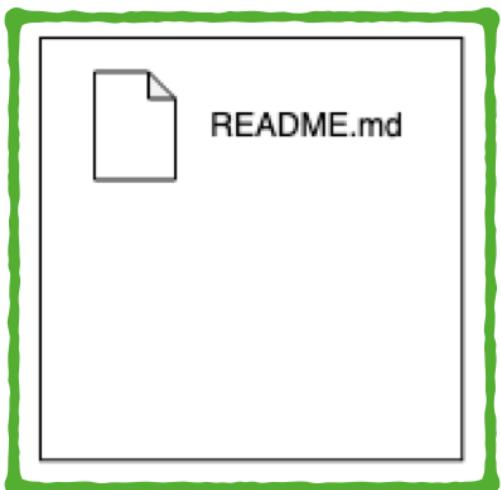
Repo(sitory)

Commit  
message



Create README.md

75aa637



Repo(sitory)

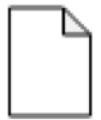
Commit  
message



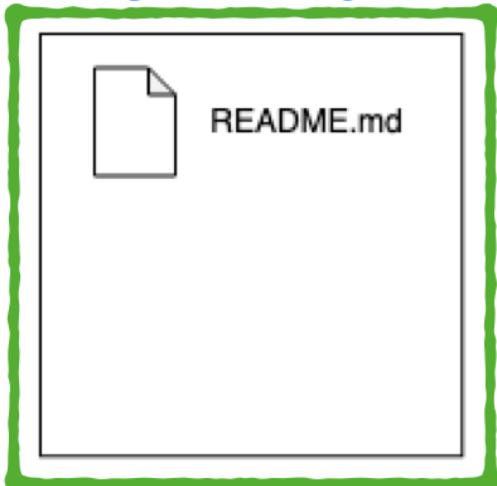
Create README.md

75aa637

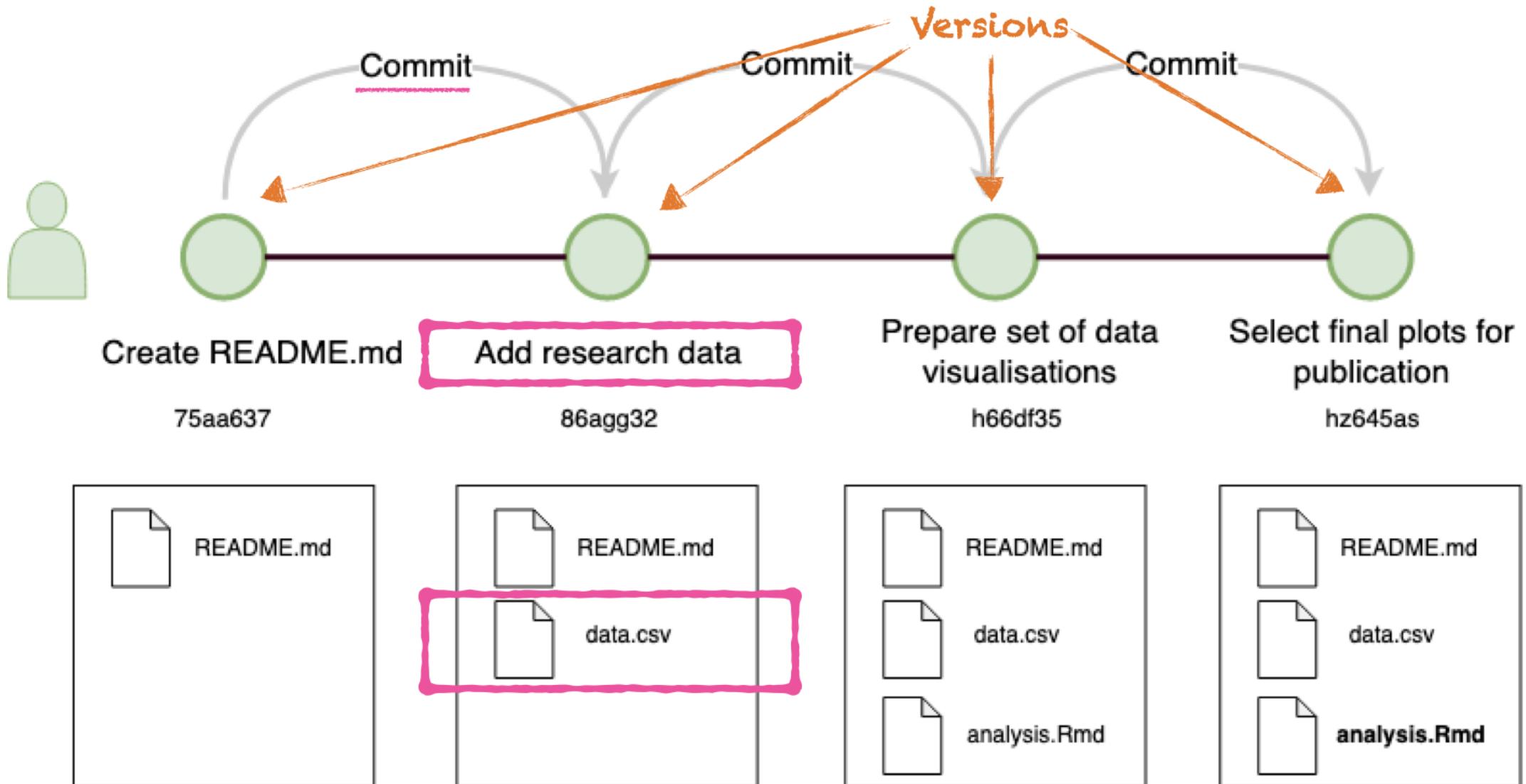
SHA-1 hash

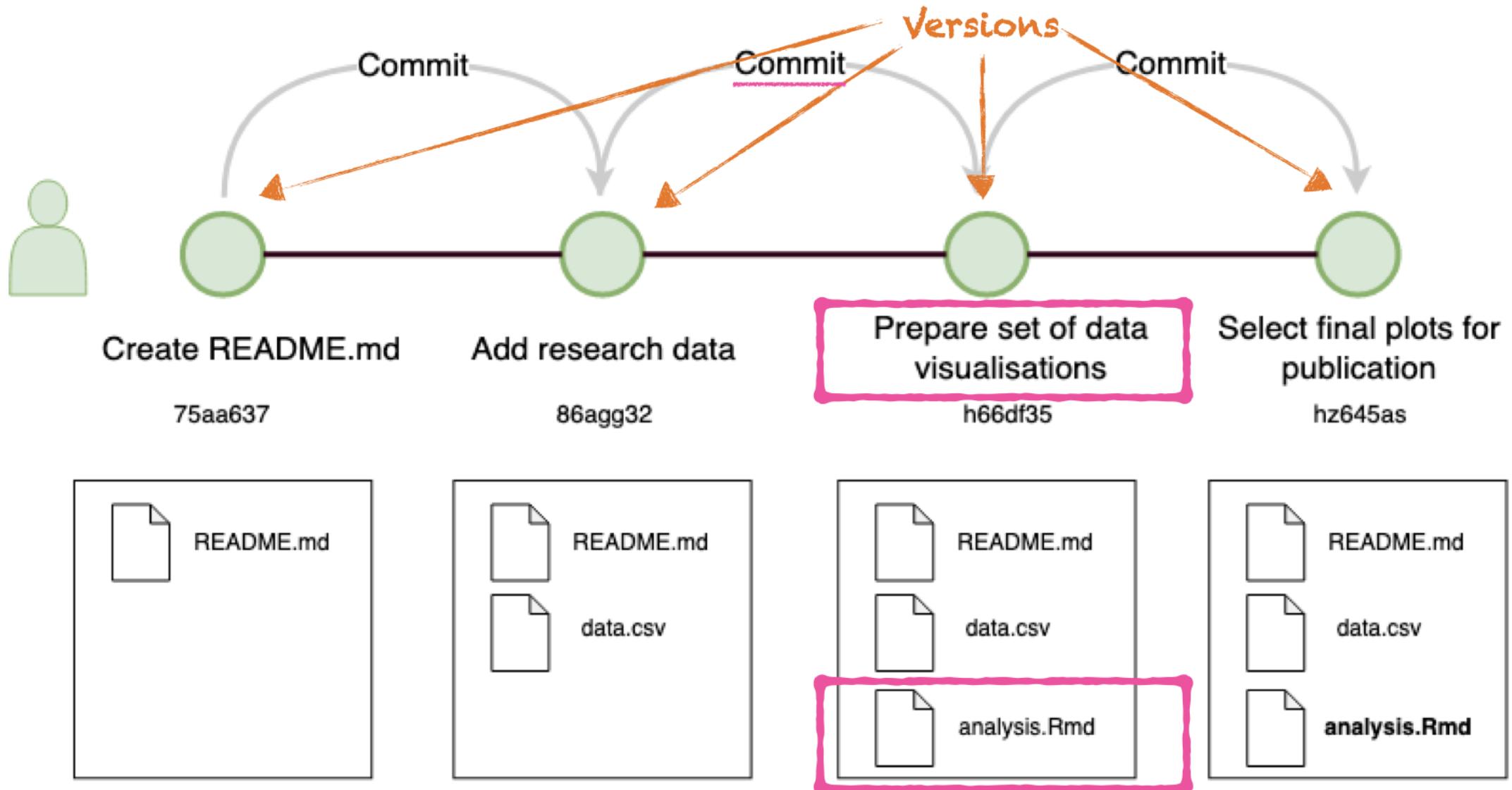


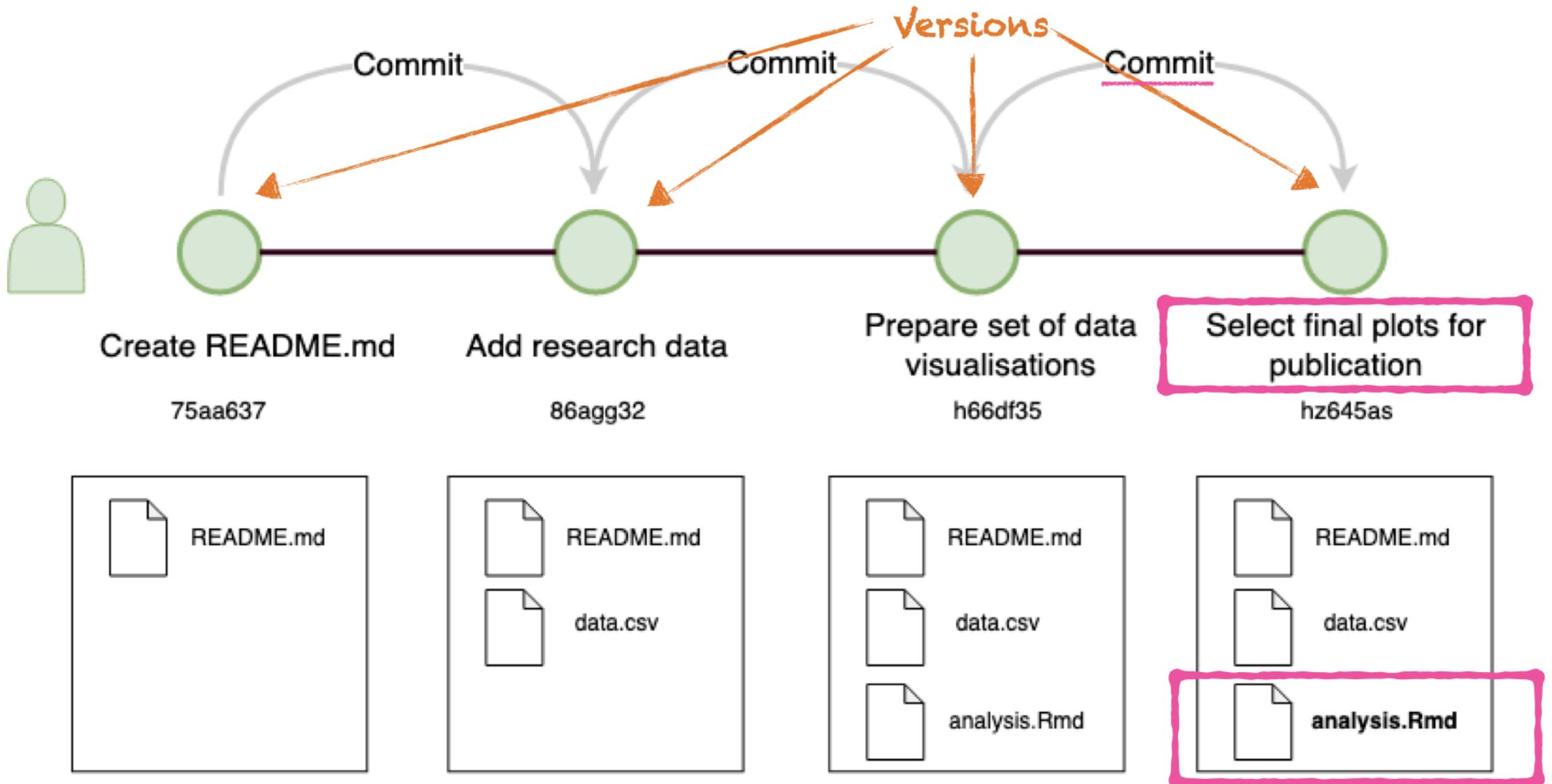
README.md

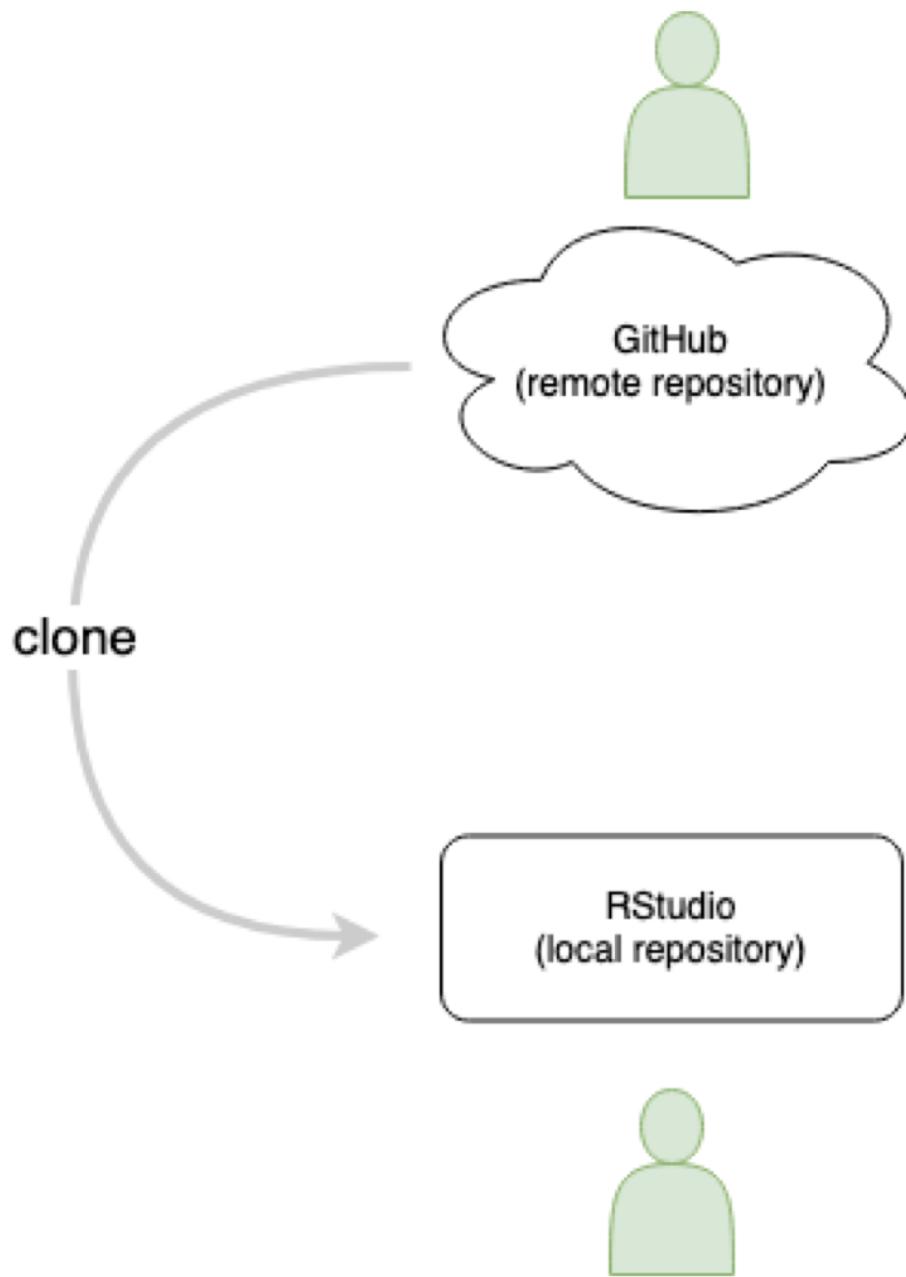


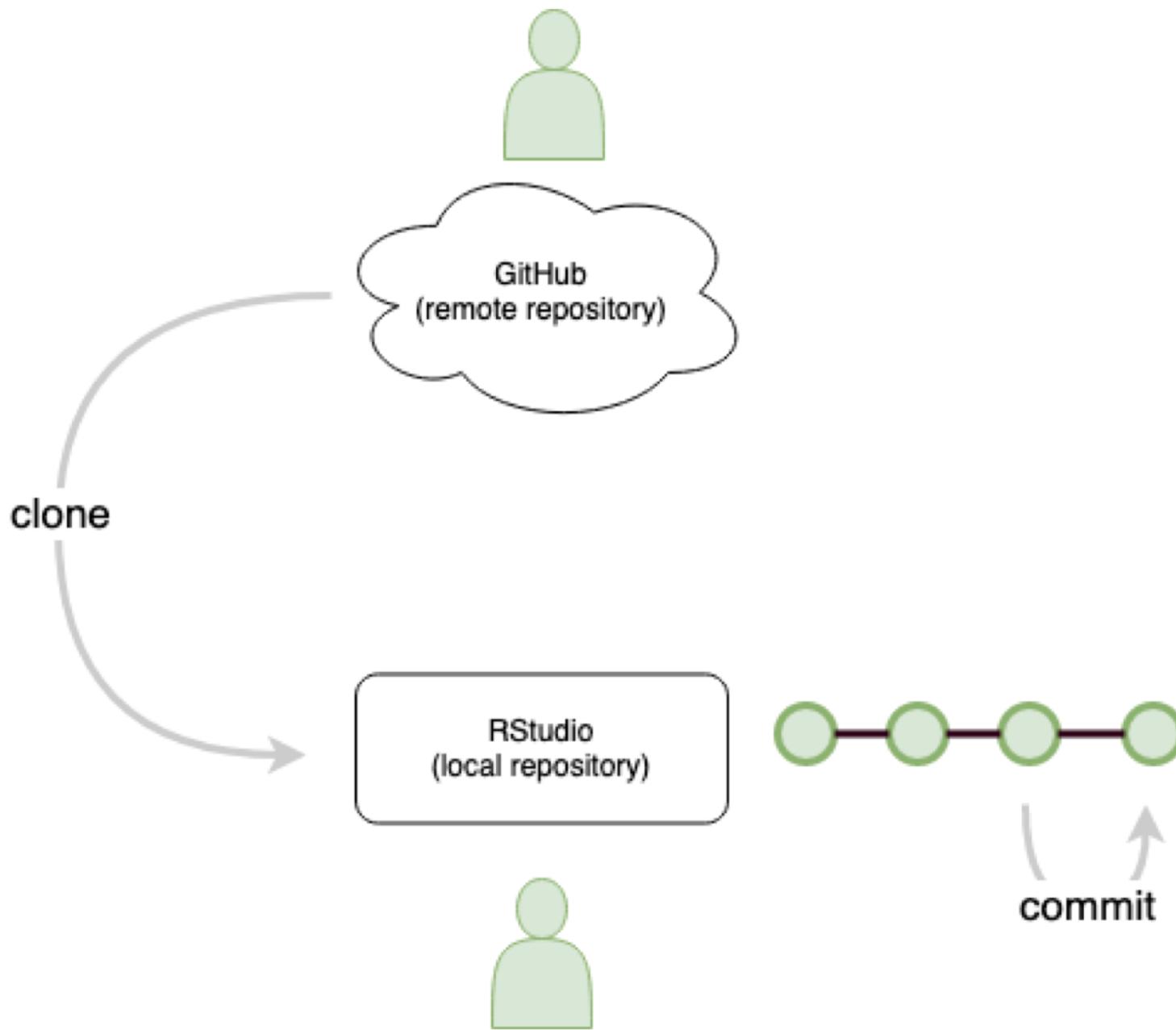
Repo(sitory)

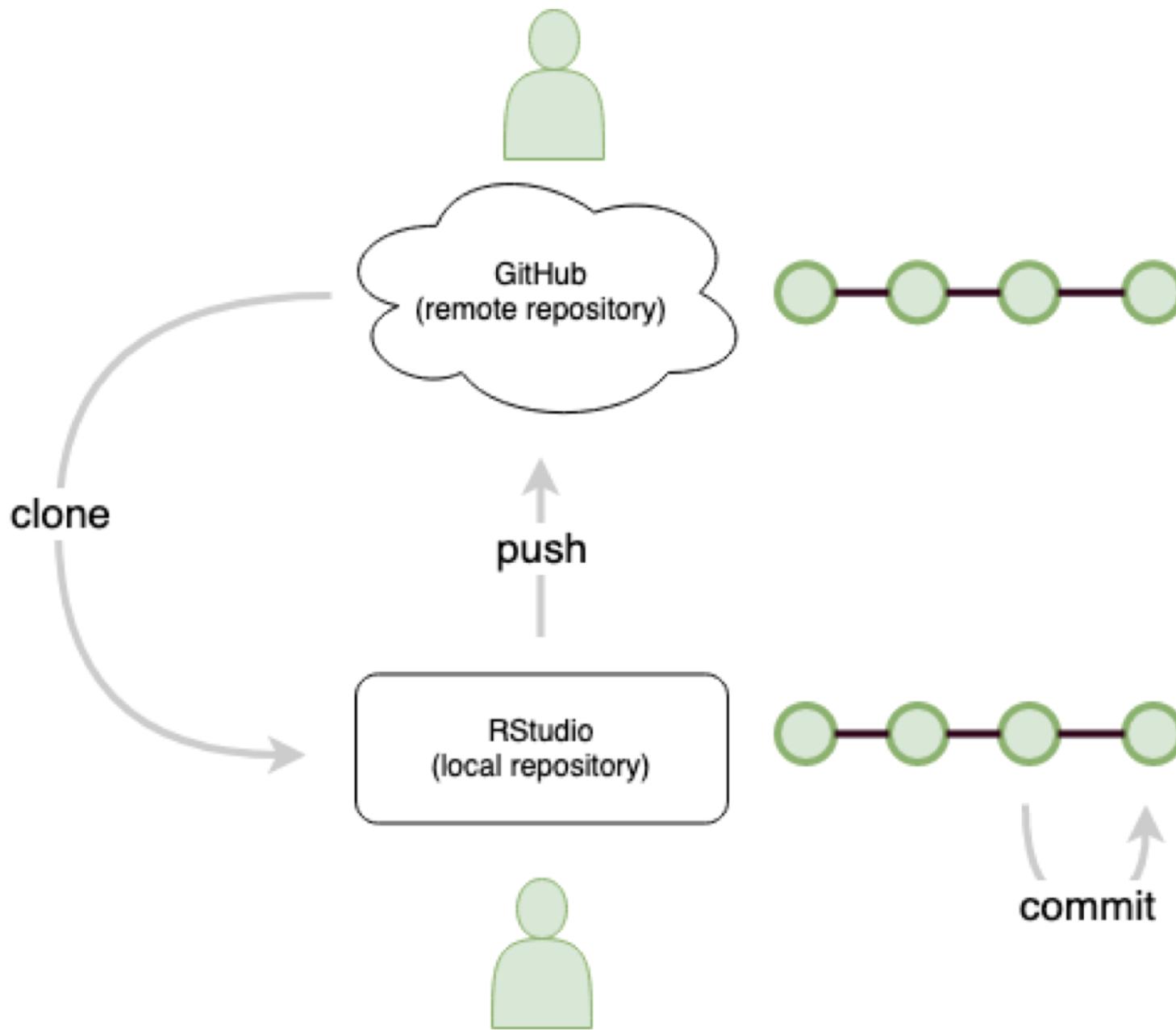








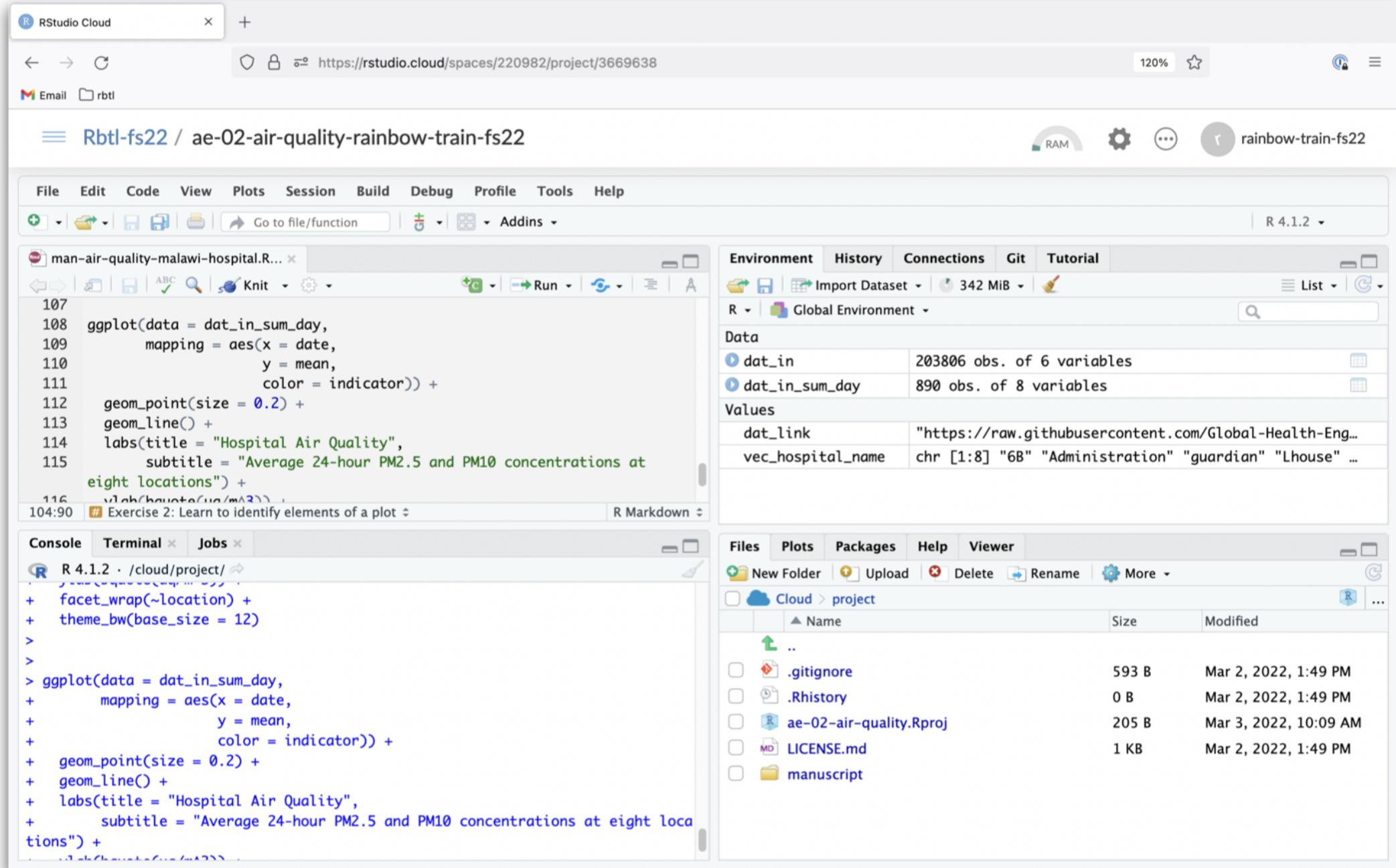




# RStudio

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## RStudio Cloud & RStudio IDE



**browser tab**

RStudio Cloud https://rstudio.cloud/spaces/220982/project/3669638 120% ⚡

R Email rbt1 RStudio Cloud Workspace RAM gear ⚡ rainbow-train-fs22

Rbt-fs22 / ae-02

**File Edit Code View Plots Session Build Debug Profile Tools Help**

**Addins**

**man-air-quality-malawi-hospital.R...**

```
107
108 ggplot(data = dat_in_sum_day,
109   mapping = aes(x = date,
110     y = mean,
111     color = indicator)) +
112   geom_point(size = 0.2) +
113   geom_line() +
114   labs(title = "Hospital Air Quality",
115     subtitle = "Average 24-hour PM2.5 and PM10 concentrations at
116     eight locations") +
117   facet_wrap(~location) +
118   theme_bw(base_size = 12)
```

104:90 # Exercise 2: Learn to identify elements of a plot R Markdown

**Console Terminal Jobs**

```
R 4.1.2 · /cloud/project/
+ facet_wrap(~location) +
+ theme_bw(base_size = 12)
>
>
> ggplot(data = dat_in_sum_day,
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+     subtitle = "Average 24-hour PM2.5 and PM10 concentrations at eight loca
tions") +
```

**Environment History Connections Git Tutorial**

Import Dataset 342 MiB List C

Global Environment

**Data**

dat_in	203806 obs. of 6 variables
dat_in_sum_day	890 obs. of 8 variables

**Values**

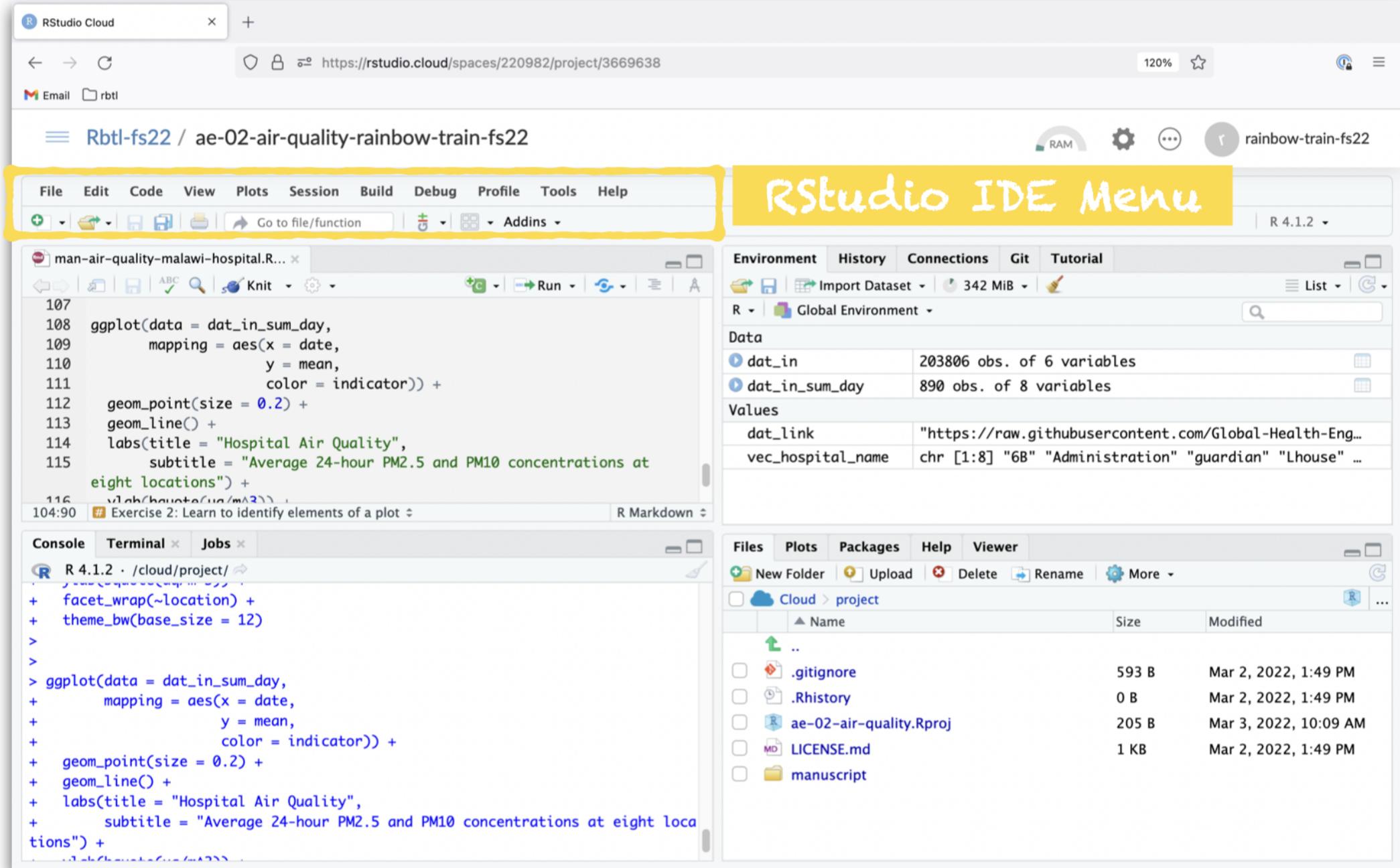
dat_link	"https://raw.githubusercontent.com/Global-Health-Eng...
vec_hospital_name	chr [1:8] "6B" "Administration" "guardian" "Lhouse" ...

**Files Plots Packages Help Viewer**

New Folder Upload Delete Rename More

Cloud > project

Name	Size	Modified
..		
.gitignore	593 B	Mar 2, 2022, 1:49 PM
.Rhistory	0 B	Mar 2, 2022, 1:49 PM
ae-02-air-quality.Rproj	205 B	Mar 3, 2022, 10:09 AM
LICENSE.md	1 KB	Mar 2, 2022, 1:49 PM
manuscript		



RStudio Cloud

https://rstudio.cloud/spaces/220982/project/3669638

120% ⚡

Email rbtl

RStudio IDE Menu | R 4.1.2

### Code Editor

```
man-air-quality-malawi-hospital.R... x
107
108 ggplot(data = dat_in_sum_day,
109         mapping
110         geom_point(size = 0.2) +
111         geom_line() +
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### Console

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+              subtitle = "Average 24-hour PM2.5 and PM10 concentrations at eight loca
+              tions") +
```

### Files

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RAM

Global Environment

Environment History Connections Git Tutorial

Import Dataset 342 MiB

dat\_in 203806 obs. of 6 variables

dat\_in\_sum\_day 890 obs. of 8 variables

dat\_link "https://raw.githubusercontent.com/Global-Health-Eng...

vec\_hospital\_name chr [1:8] "6B" "Administration" "guardian" "Lhouse" ...

RStudio Cloud

https://rstudio.cloud/spaces/220982/project/3669638

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Rbt-fs22 / ae-02-air-quality-rainbow-train-fs22

RAM Settings ⚡ rainbow-train-fs22

File Edit Code View Plots Session Build Debug Profile Tools Help

Addins

man-air-quality-malawi-hospital.R... x

ABC Knit Run

Code Editor

```
107  
108 ggplot(data = dat_in_sum_day,  
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R Markdown

Environment History Connections Git Tutorial

Import Dataset 342 MiB

R Global Environment

Data  
dat\_in  
dat\_in\_s

Values  
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Environment Git

Console Terminal Jobs

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Files Plots Packages Help Viewer

New Folder Upload Delete Rename More

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RStudio Cloud

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120% ⚡

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Rbt-fs22 / ae-02-air-quality-rainbow-train-fs22

RAM  Settings  More  rainbow-train-fs22

File Edit Code View Plots Session Build Debug Profile Tools Help

Addins

man-air-quality-malawi-hospital.R... x

ABC Knit Run

Code Editor

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R Markdown

Environment History Connections Git Tutorial

Import Dataset 342 MiB

R Global Environment

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- dat\_in\_s

Values

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Environment Git

Console Terminal Jobs

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Files Plots Packages Help Viewer

New Folder Upload Delete Rename More

Cloud > project

Name	Size	Modified
..		9 PM
.gitig		9 PM
.Rhist		
ae-02-air-quality.Rproj	205 B	Mar 3, 2022, 10:09 AM
LICENSE.md	1 KB	Mar 2, 2022, 1:49 PM
manuscript		

File Manager

The screenshot displays the RStudio Cloud interface with several panels highlighted by hand-drawn colored boxes:

- Code Editor** (Yellow Box): Shows an R Markdown script for creating a plot of hospital air quality. The code includes ggplot, geom\_point, and geom\_line layers, along with a title and subtitle. A placeholder text "Code Editor" is overlaid on the panel.
- RStudio IDE Menu** (Yellow Box): Shows the main menu bar (File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help) and the toolbar below it. A placeholder text "RStudio IDE Menu" is overlaid on the panel.
- Environment** (Orange Box): Shows the Global Environment pane with variables like dat\_in, dat\_in\_s, dat\_link, and vec\_hospital\_name. A placeholder text "Environment" is overlaid on the left side of the panel, and "Git" is overlaid on the right side.
- Console** (Pink Box): Shows the R console output for running the R Markdown script. The code is identical to the one in the Code Editor. A placeholder text "Console" is overlaid on the panel.
- File Manager** (Green Box): Shows the project file structure in the Cloud. It includes a .gitignore file, a Rhistory file, an Rproj file named ae-02-air-quality.Rproj, a LICENSE.md file, and a manuscript folder. A placeholder text "File Manager" is overlaid on the panel.

Browser Headers:

- RStudio Cloud
- https://rstudio.cloud/spaces/220982/project/3669638
- RAM, Settings, Help, Project Name: rainbow-train-fs22

Bottom Navigation:

- Email, rbt1
- R 4.1.2



Photo by: Matt Walsh

Thanks! 🌻

Slides created via the R packages:

**xaringan**  
gadenbuie/xaringanthemer

The chakra comes from [remark.js](#), [knitr](#), and [R Markdown](#).

Access slides as PDF on [GitHub](#)

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