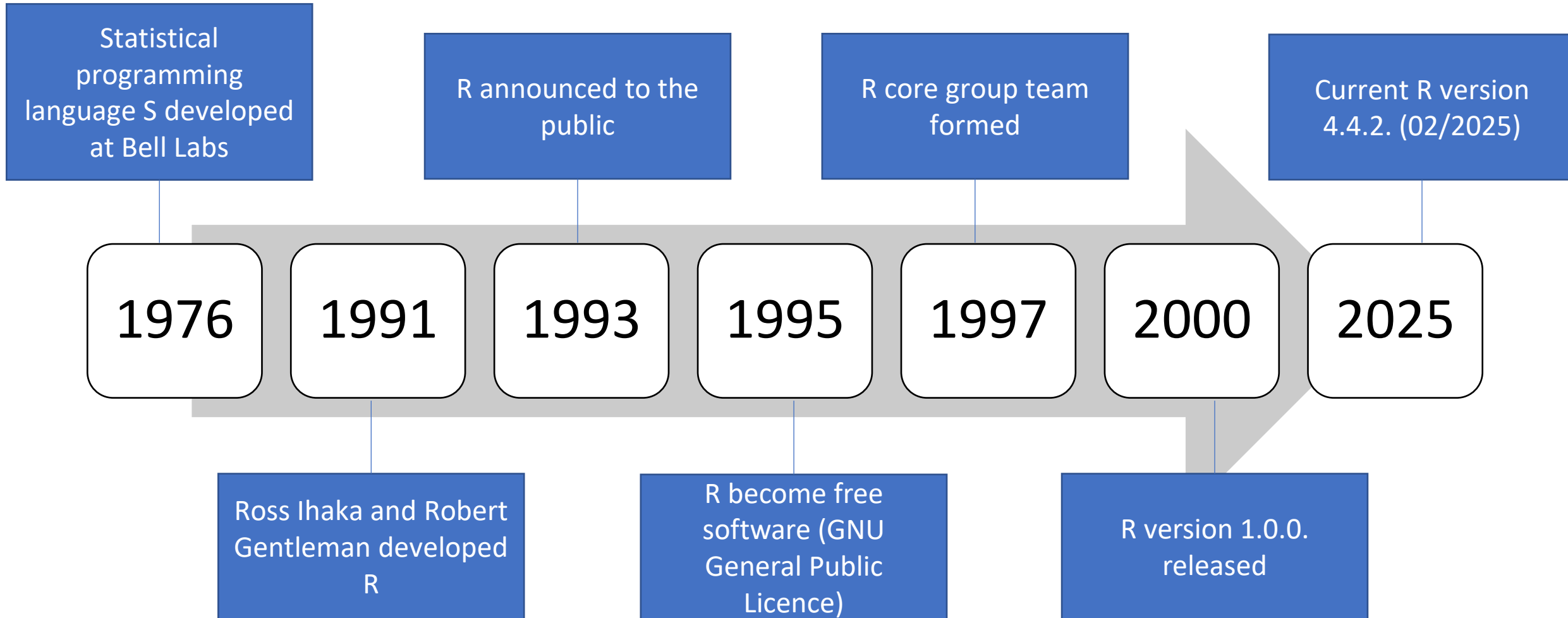# R – a free software environment for statistical computing and graphics

Internal meeting

27th February 2025
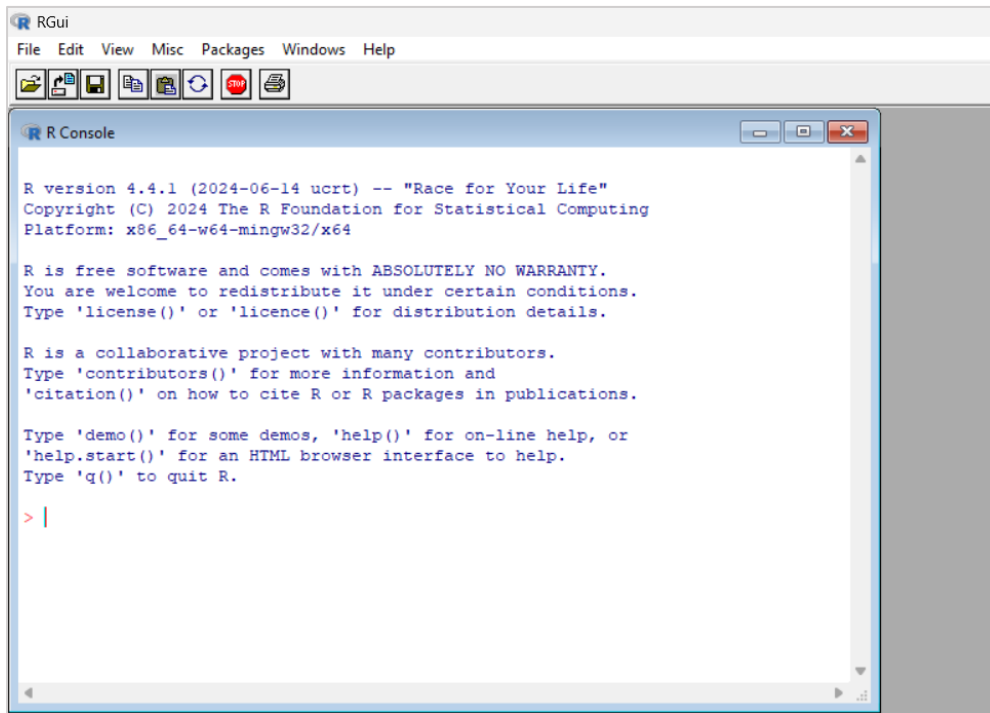
Presented by Sabina Rako

R development timeline
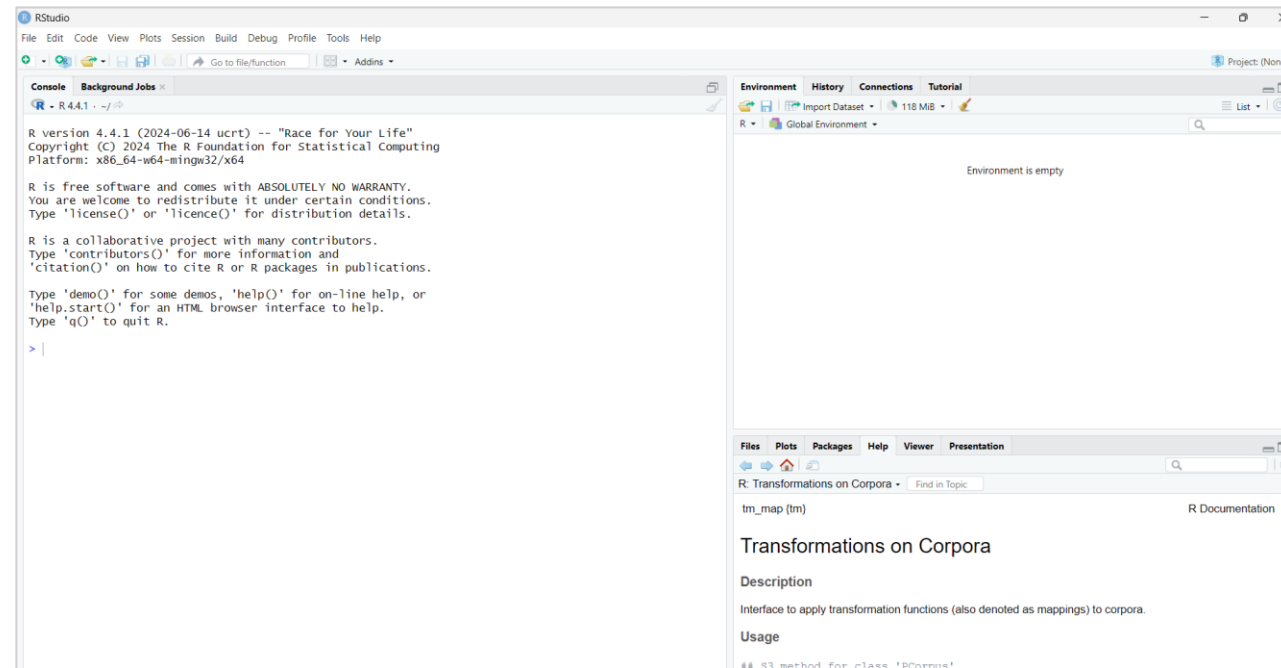

| Statistical programming language S developed at Bell Labs | | R announced to the public | | R core group team formed | | Current R version 4.4.2. (02/2025) |

| 1976 | 1991 | 1993 | 1995 | 1997 | 2000 | 2025 |

Ross Ihaka and Robert Gentleman developed R

R become free software (GNU General Public Licence)

R version 1.0.0. released

Where to download R?

- R
- https://cran.r-project.org/

- RStudio integrated development environment (IDE)
- https://posit.co/download/rstudio-desktop/

Different possibilities

- Personal computer (personal use)

- Hosting on institutional infrastructure (open source code)
  R Studio Server (https://posit.co/download/rstudio-server/)

Download RStudio Server v2024.12.1+563

RStudio Server enables you to run the RStudio IDE you know and love on a Linux server, accessed from your web browser, bringing the power and productivity of the RStudio IDE to a centralized server-based environment.

Select Your Operating System:

Red Hat   Debian / Ubuntu   SLES / OpenSUSE   Build from source

- R in web browser (developed as a PoC)
  https://webr.r-wasm.org/latest/

- Cloud – free (25 projects) https://posit.cloud/
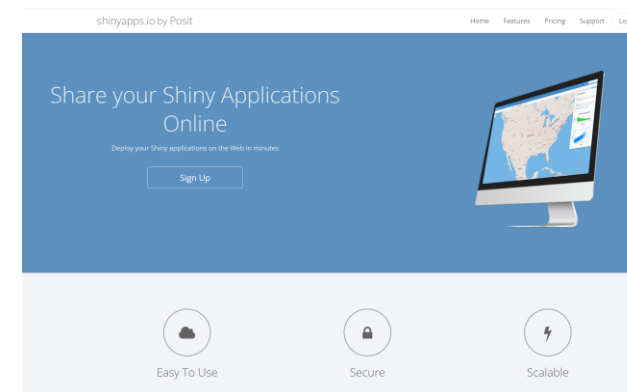
Friction free data science

Posit Cloud lets you access Posit's powerful set of data science tools right in your browser – no installation or complex configuration required.

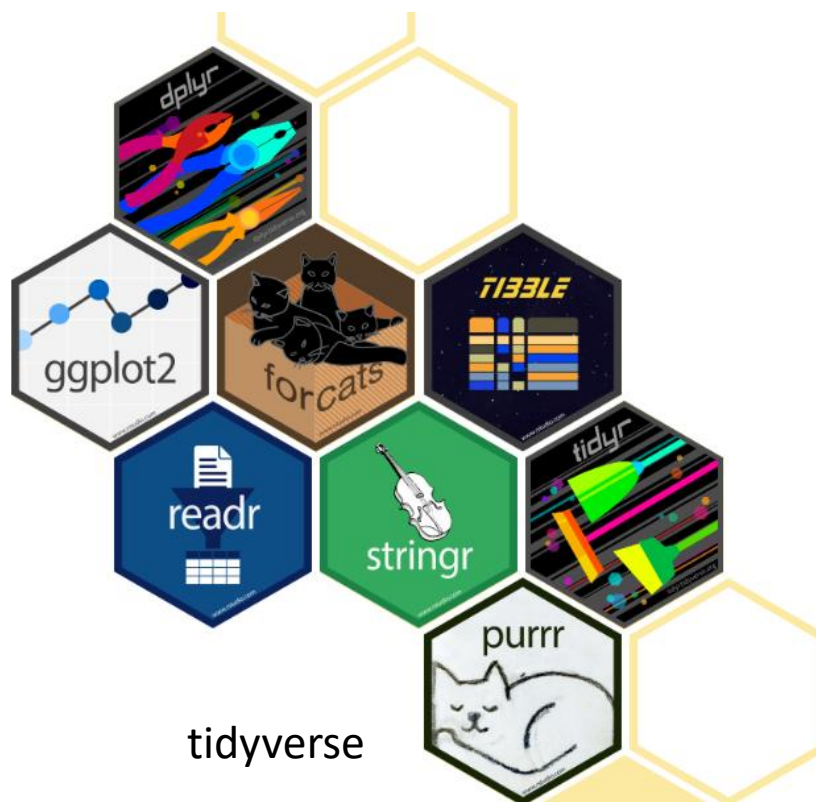**GET STARTED**   **ALREADY A USER? LOG IN**

If you already have a shinyapps.io account, you can log in using your existing credentials.

- Shiny applications https://www.shinyapps.io/

shinyapps.io by Posit   Home Features Pricing Support Log In

Share your Shiny Applications Online

Deploy your Shiny applications on the Web in minutes

Sign Up

Easy To Use   Secure   Scalable

Packages are R's superpower!

tidyverse

15
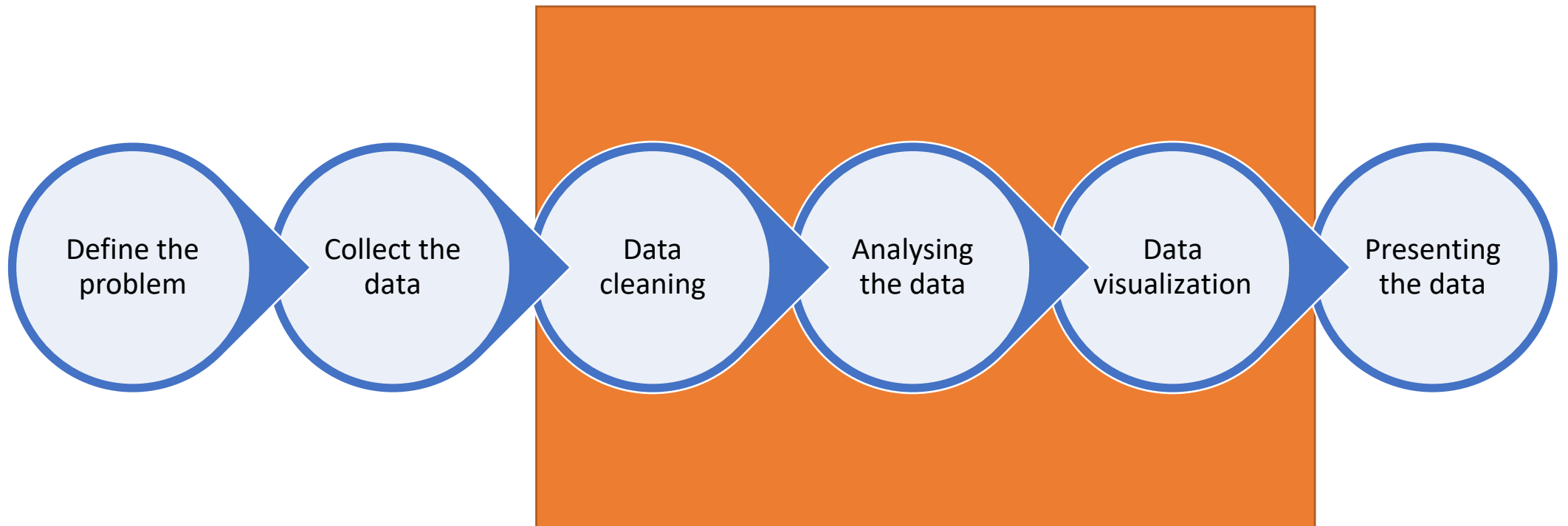base packages

22 097
contributed R packages (02/2025)

https://cran.r-project.org/web/views/

Comprehensive R Archive Network (CRAN) is network of servers around the world that store R distributions, extensions, documentation, and binaries

Other repositories of R packages: Bioconductor and R-Forge
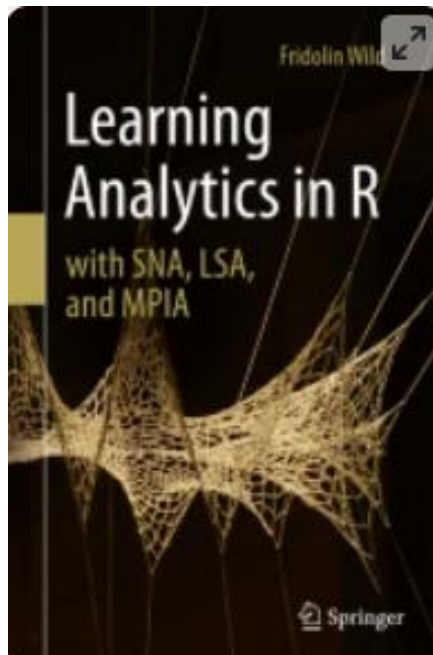
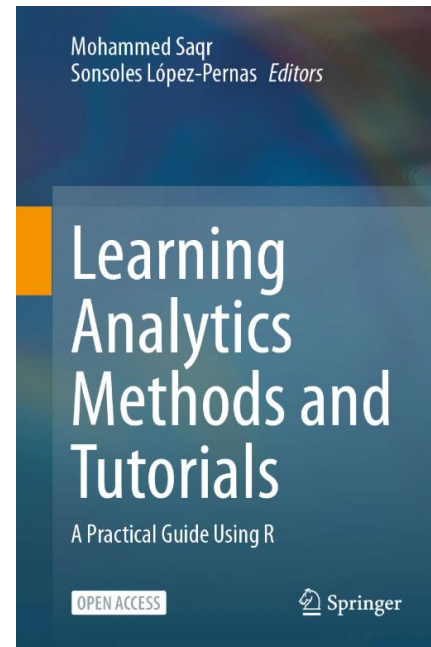# Data analysis process

Examples

- **Example 1: Stacked bar diagram**
- Example 2: Extinct plants
- Example 3: Beyonce and Taylor Swift Lyrics

GitHub: https://github.com/SabinaRa/IET_2025

LA community and R

Learning Analytics in R
with SNA, LSA, and MPIA
Fridolin Wild
Springer

2016

Mohammed Saqr
Sonsoles López-Pernas *Editors*

Learning Analytics Methods and Tutorials
A Practical Guide Using R
OPEN ACCESS
Springer

2024

Open access book
Download link

Written in a tutorial-style
Include reproducible examples and demos

R Studio and GitHub Copilot

- Suggestions during programming in R (or AI)
"AI pair programmer that offers autocomplete-style suggestions as you code"
https://docs.posit.co/ide/user/ide/guide/tools/copilot.html

It can be useful for writing repetitive code (loops, etc.)

Resources and R community

- Free books to start learning R
- Available code on programming code repositories (Git,…)
- Tidy Tuesday https://www.tidytuesday.com/
- The R graph gallery https://r-graph-gallery.com/
- The RStats Running Club https://strava.app.link/VmVYvudjfRb

https://r4ds.hadley.nz/
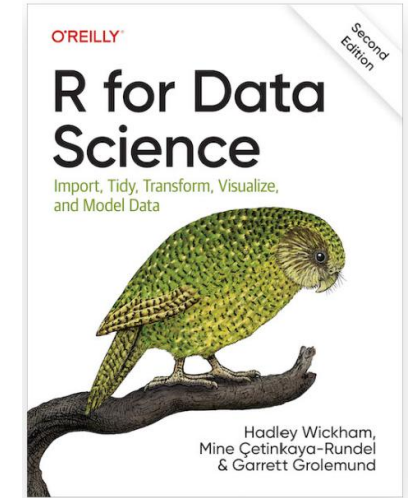
https://posit.co/blog/winners-of-the-2024-shiny-contest/
Code available on Git repositories

My journey with R

2015

First f2f course:
Introduction to R

2017 - 2020

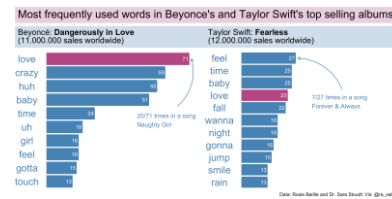Involvment in development of serveral R online and f2f courses

2020 Tidy Tuesday

2022

Data analysis in PhD thesis

e-Rum 2020 conference

https://sabinar.shinyapps.io/CoDaP/

https://github.com/SabinaRa/
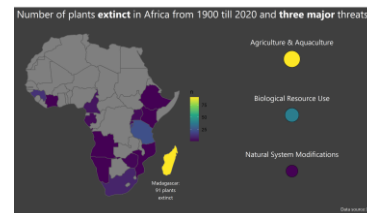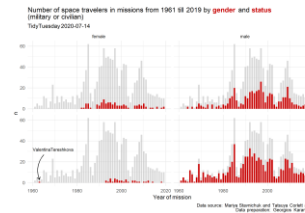
2021

HELA project (Improving HEI maturity to implement learning analytics)
• Natural language processing

Takeaways

- R is used in the LA community.

- Although learning R takes time, many resources are available.

- Suggestions
  - Start with R's core functions and data structures before exploring specific packages.
  - Focus on one skill at a time and practice it (e.g., loading data from different file formats).
  - Look at code prepared by experienced researchers and practitioners.

Thank you!

Q & A

If you want to try R online
…without installing it on your computer

1. https://login.posit.cloud/ - login in with Google

2. Select **Posit Cloud**

3. Select **New Project** -> New Project from Git Repository
https://github.com/SabinaRa/IET_2025