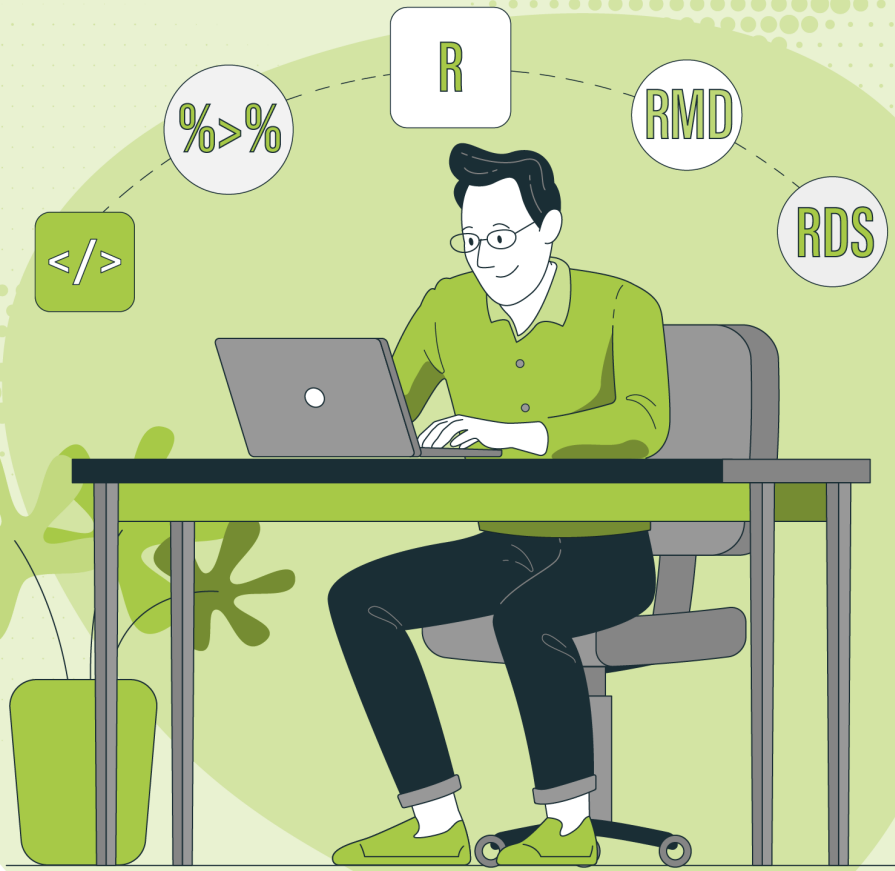
NBIS



Introduction to R

R Foundations for Life Scientists

Marcin Kierczak

Contents

Briefly about R

NBIS

R is ...

- a programming language
- a programming platform (= environment + interpreter)
- a software project driven by the core team and the community
- a very powerful tool for statistical computing
- a very powerful computational tool in general
- a catalyst between an idea and its realization

R is not ...

- a tool to replace a statistician
- the very best programming language
- the most elegant programming solution
- the most efficient programming language

Yet ...

- it is very elegant
- it becomes more and more feature-rich

Timeline

- ca. 1992 — conceived by Robert Gentleman and Ross Ihaka (R&R) at the University of Auckland, NZ as a tool for **teaching statistics**
- 1994 — initial version
- 2000 — stable version

- 2011 — RStudio, first release by J.J. Allaire

- ca. 2017 — Tidyverse by Hadley Wickham

Ideas behind R

- open-source solution — fast development
- based on the S language created at the Bell Labs by John Mc Kinley Chambers to

> *turn ideas into software, quickly and faithfully*

- lexical scope inspired by Lisp syntax
- since 1997 developed by the R Development Core Team (ca. 20 experts, with Chambers onboard; 6 are active)
- overviewed by The R Foundation for Statistical Computing

Packages

- developed by the community
- cover several very diverse areas of science/life
- uniformely structured and documented
- organised in repositiries:
  - CRAN
  - R-Forge
  - Bioconductor
  - GitHub

Pros and cons

NBIS

- ➖ steep learning curve
- ➕ uniform, clear and clean system of documentation and help
- ➖ difficulties due to a limited object-oriented programming capabilities, e.g. an agent-based simulation is a challenge
- ➕ good interconnectivity with compiled languages like Java or C
- ➖ cannot order a pizza for you (?)
- ➕ a very powerful ecosystem of packages
- ➕ free and open source, GNU GPL and GNU GPL 2.0
- ➕ easy to generate high quality graphics

Thank you! Questions?

Graphics from freepik.com

Created: 16-Sep-2021 • Roy Francis • SciLifeLab • NBIS