

Creating Economic Tutorials with and **learnr**

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Introduction to R and `learnr`

What is R?

R is a system for statistical computation and graphics.

R CORE TEAM

R provides, among other things:

- a programming language;
- high level graphics;
- interfaces to other languages;
- debugging facilities.

Everything that exists in R is an object.

JOHN M. CHAMBERS

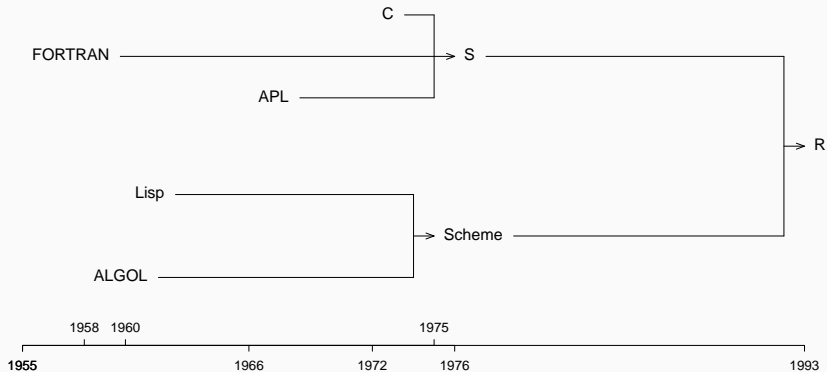
Everything that happens in R is a function call.

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Interfaces to other languages are a part of R.

JOHN M. CHAMBERS

R Genealogy



What is `learnr`?

`learnr` is an R package created and maintained by employees of Posit (formerly RStudio).

It creates interactive tutorials using R `Markdown` and `Shiny`.

`learnr` uses a combination of:

- narrative,
- figures,
- videos,
- exercises,
- and quizzes

to create self-paced tutorials for learning about R and R packages.

RStudio/Posit: The Company Behind `learnr`!

Table 1: Top 5 most downloaded packages in August 2023

rank	package	maintainer
1	<code>ragg</code>	<code>thomas.pedersen@posit.co</code>
2	<code>textshaping</code>	<code>thomas.pedersen@rstudio.com</code>
3	<code>ggplot2</code>	<code>thomas.pedersen@posit.co</code>
4	<code>pkgdown</code>	<code>hadley@rstudio.com</code>
5	<code>devtools</code>	<code>jenny@rstudio.com</code>

Source: <https://cran.rstudio.com>

The Pillars of `learnr`

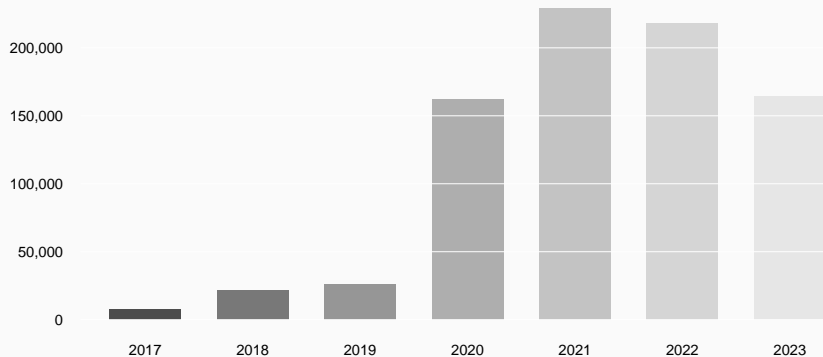
Developer interface (`R Studio` + `knitr` + `pandoc`):

- `learnr` tutorials are built around R Markdown documents;
- `shiny` inputs and outputs are components of HTML-based Rmd documents;
- `shiny` apps are easily embedded in HTML-based Rmd documents;
- `shiny` apps published on the web can also be included with `knitr::include_app()`.

Web interface (`shiny`):

- use R functions to create HTML and CSS code;
- publish tutorials on <https://shinyapps.io>, Shiny Server or Posit Connect.

The Growing Popularity of Learnr (Downloads per Year)



learnr Tutorials Hosted in the Cloud

Posit Cloud Primers

Twenty six **learnr** tutorials divided into 6 topics:

- The Basics;
- Work with Data;
- Visualize Data;
- Tidy Your Data;
- Iterate;
- Write Functions.

R was written for statisticians, by statisticians.

MAREK GAGOLEWSKI

OpenIntro::Introduction to Modern Statistics

Six **learnr** tutorials, each of them corresponding to one part of the book and comprised of multiple lessons for a total of 35 lessons that cover the entire content of the book.

Learnr Tutorials Distributed as R Packages

When assigned 'R for Data Science' students should read the book and type in all the associated R commands themselves. Sadly, that never happens. These tutorials allow students to demonstrate (and their instructors to be sure) that all work has been completed.

DAVID KANE

Learnr Tutorials Distributed as R Packages

Kane, D. (2023) `r4ds.tutorials`: Tutorials for 'R for Data Science'

Kane, D. (2023) `tidymodel.tutorials`: Tutorials for 'Tidy Modeling with R'

Kane, D. (2023) `primer.tutorials`: Tutorials for 'Primer for Bayesian Data Science'

Kane D (2023) `tidycensus.tutorials`: Tutorials for Analyzing US Census Data.

