

Intro to R and RStudio

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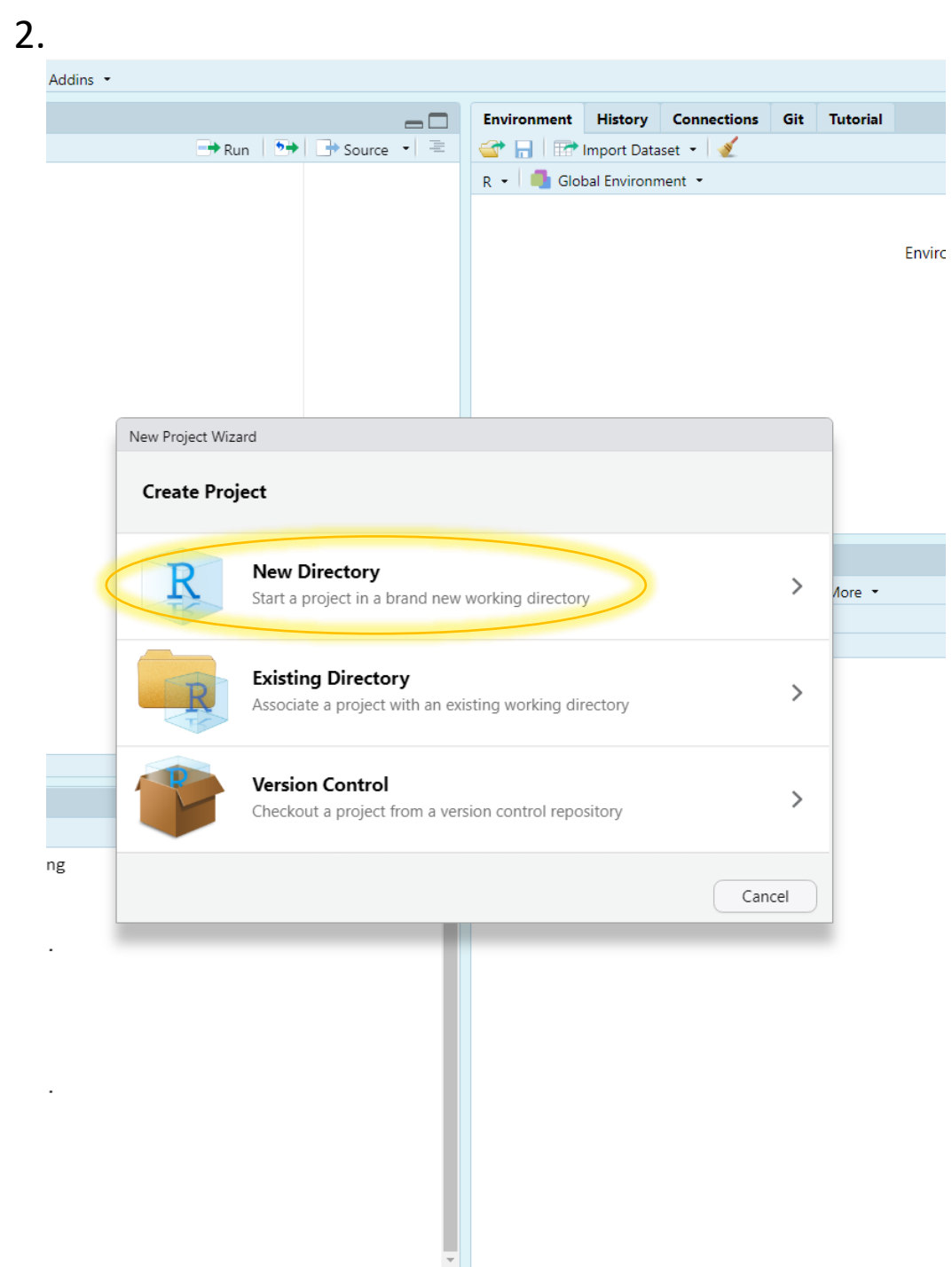
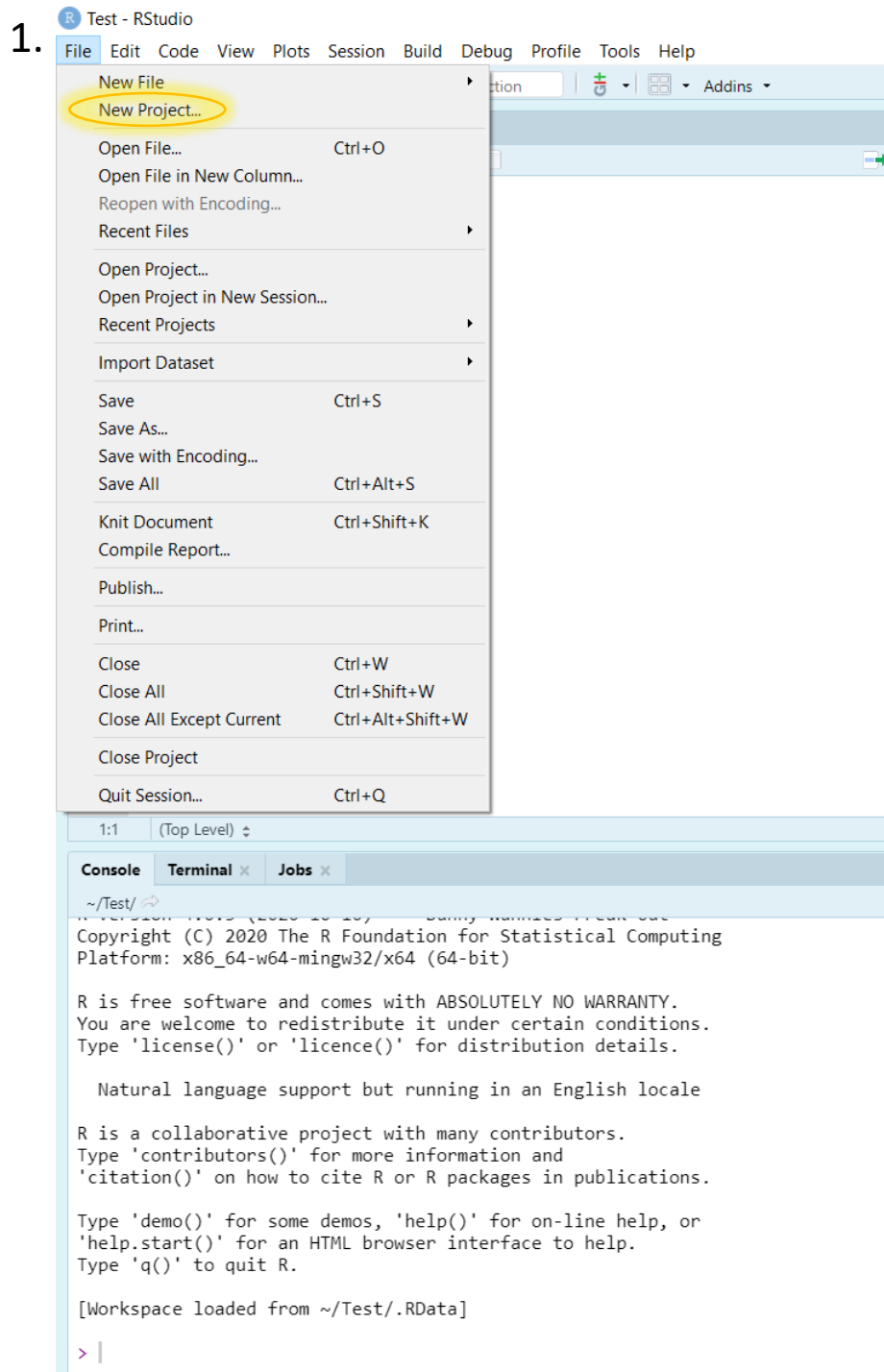


Learning objectives

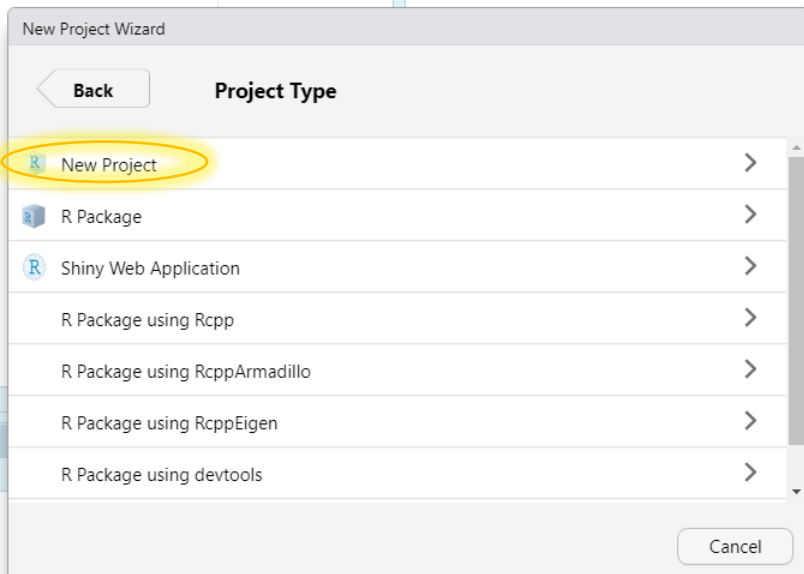
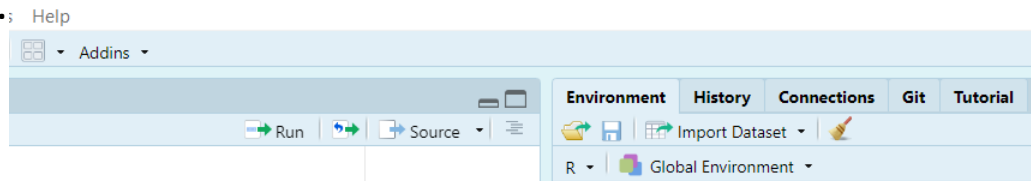
- Learn to setup R projects and tidy-work environment
- Learn data wrangling using dplyr
- Data visualization (ggplot2)

Necessary Programs

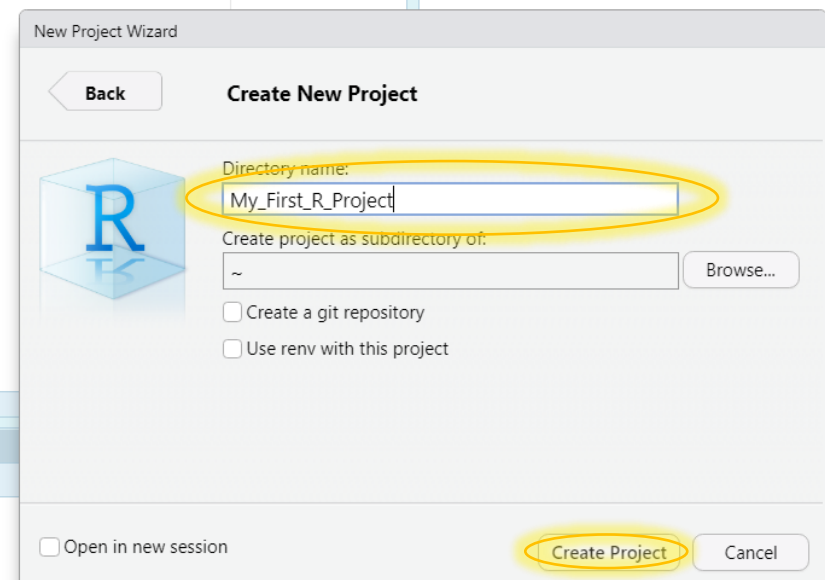
- First, download R (<https://cran.r-project.org/>) for Linux, macOS, or Windows
- Next, download Rstudio Desktop (<https://www.rstudio.com/products/rstudio/download/#download>)
- Follow suggested installation prompts for both R and Rstudio



3.



4.



Untitled1 x

Source on Save

Run

Source

1

Working Script

Environment History Connections Git Tutorial

Import Dataset

Global Environment

Environment is empty

Environment/History

Files Plots Packages Help Viewer

New Folder Delete Rename More

Home > My_First_R_Project

Name	Size	Modified
..		
My_First_R_Project.Rproj	218 B	Aug 25, 2022, 11:16 AM

Files/Plots/Packages/Help

Console Terminal Jobs

~/My_First_R_Project/

```
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 is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> |
```

Console

R packages

R packages play an essential role in extending the basic functionality of R, enabling users to perform a wide variety of tasks more efficiently.

Data Manipulation (**dplyr**: Data manipulation and transformation, **tidyr**: Data tidying, **readr**: Reading rectangular data (csv,...))

Data Visualization (**ggplot2**: Creating complex multi-layered graphics)

Network Analysis (**igraph**: Network analysis and visualization, **ggraph**: An extension of ggplot2 for graphs and networks)

➤ `install.package("dplyr")`

➤ `library(dplyr)`

Tidyverse

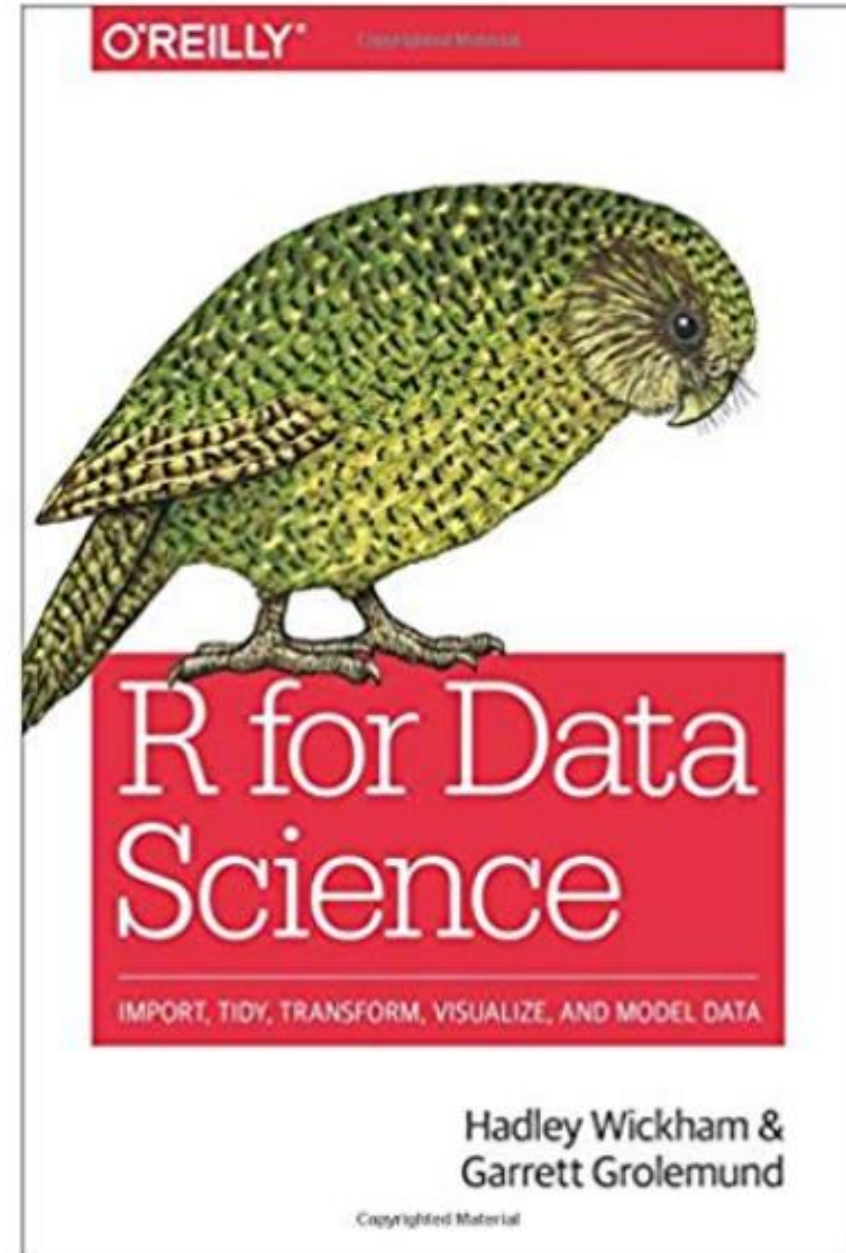
Collection of R packages designed for simple, straightforward data manipulation, exploration and visualization.



Suggested Reading

R for Data Science

<http://r4ds.had.co.nz/>



[illegible]

A photograph of a laboratory bench. In the foreground, there are two microplate racks: one white and one blue, both filled with white microplates. Behind them, a blue 'VIBRA-TIP' shaker is visible. To the right, a multi-channel pipette is mounted on a stand. Various other lab supplies, including a bottle of water, a container of pens, and a small electronic device, are scattered on the black lab surface. The background shows typical lab shelving with various containers and equipment.

Organized lab

Data wrangling and basic plots using tidyverse

Key dplyr functions in dplyr package for data manipulation

- `filter()`
- `arrange()`
- `select()`
- `mutate()`
- `group_by()`
- `summarise()`

