Outlook on installation

17.03.2020, Data Science (SpSe 2022): T1

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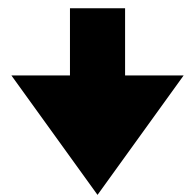Department of Pluralist Economics

Goals of this outlook

I. Understand the difference between R and R Studio

II. Learn what an R Package is and how to install it

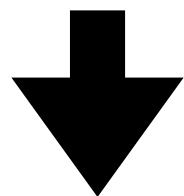III. Help you to clarify your problems with installing software

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R and R-Studio

- R is a programming language

  - It is a language that allows you to issue commands to your computer:

    > fib_n(4)
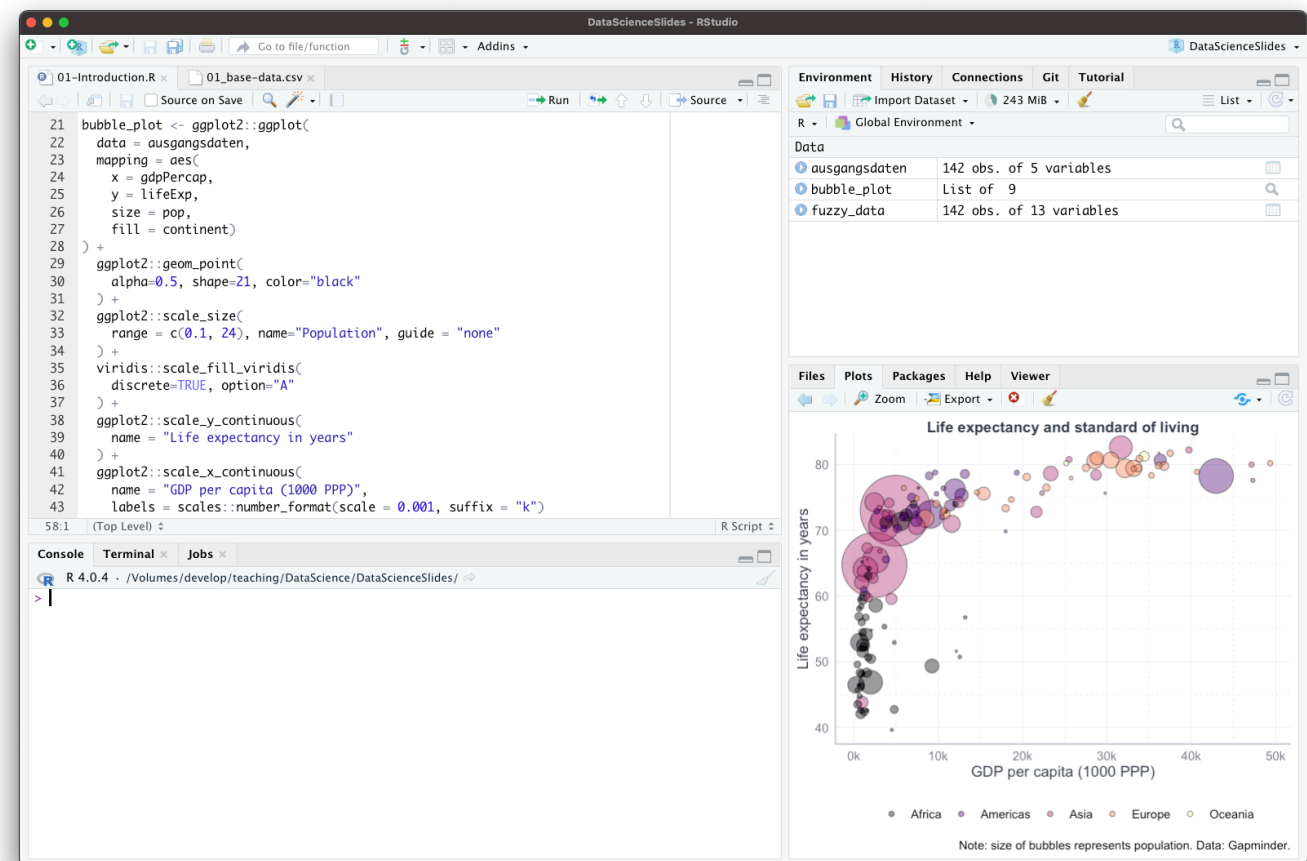
    8B542408 83FA0077 06B80000 0000C383
    FA027706 B8010000 00C353BB 01000000
    B9010000 008D0419 83FA0376 078BD989
    C14AEBF1 5BC3

    [1] 3

- R-Studio is an integrated development environment

  - Basically a fancy text editor with additional features that make programming easy

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R and R-Studio

- R is a programming language
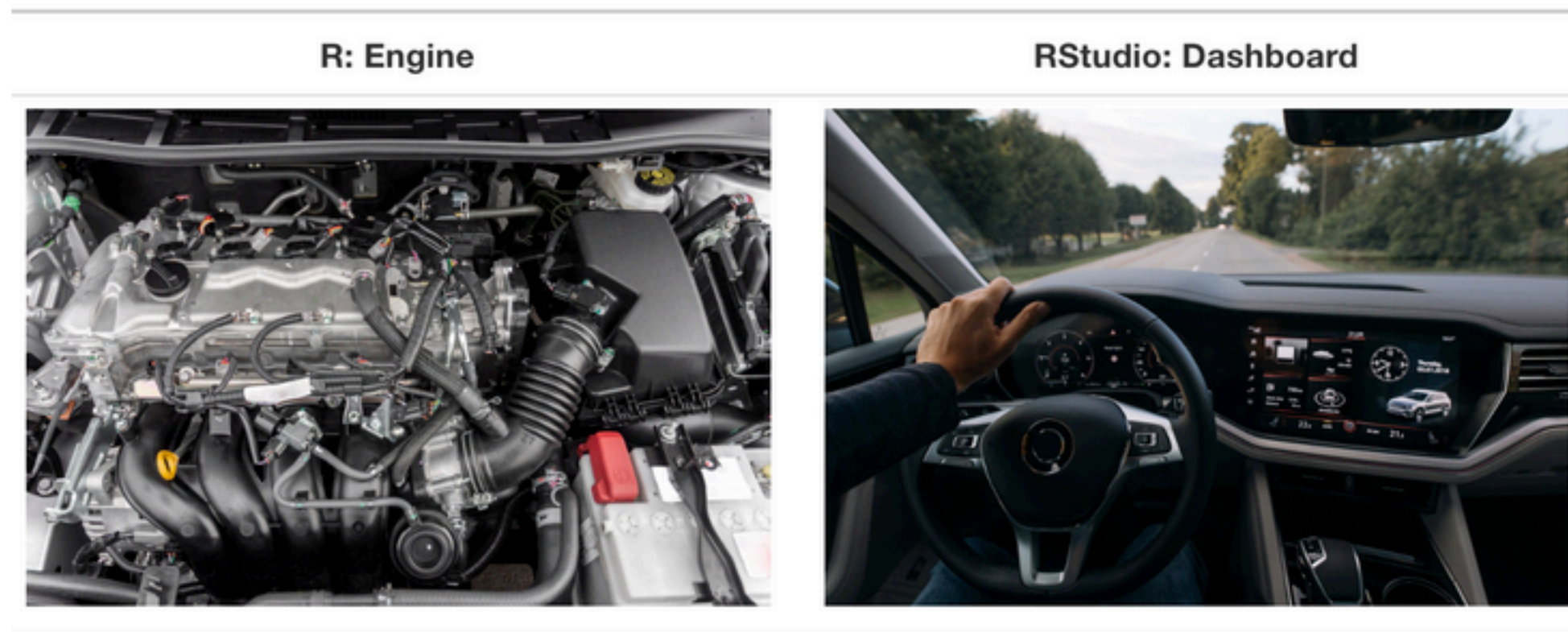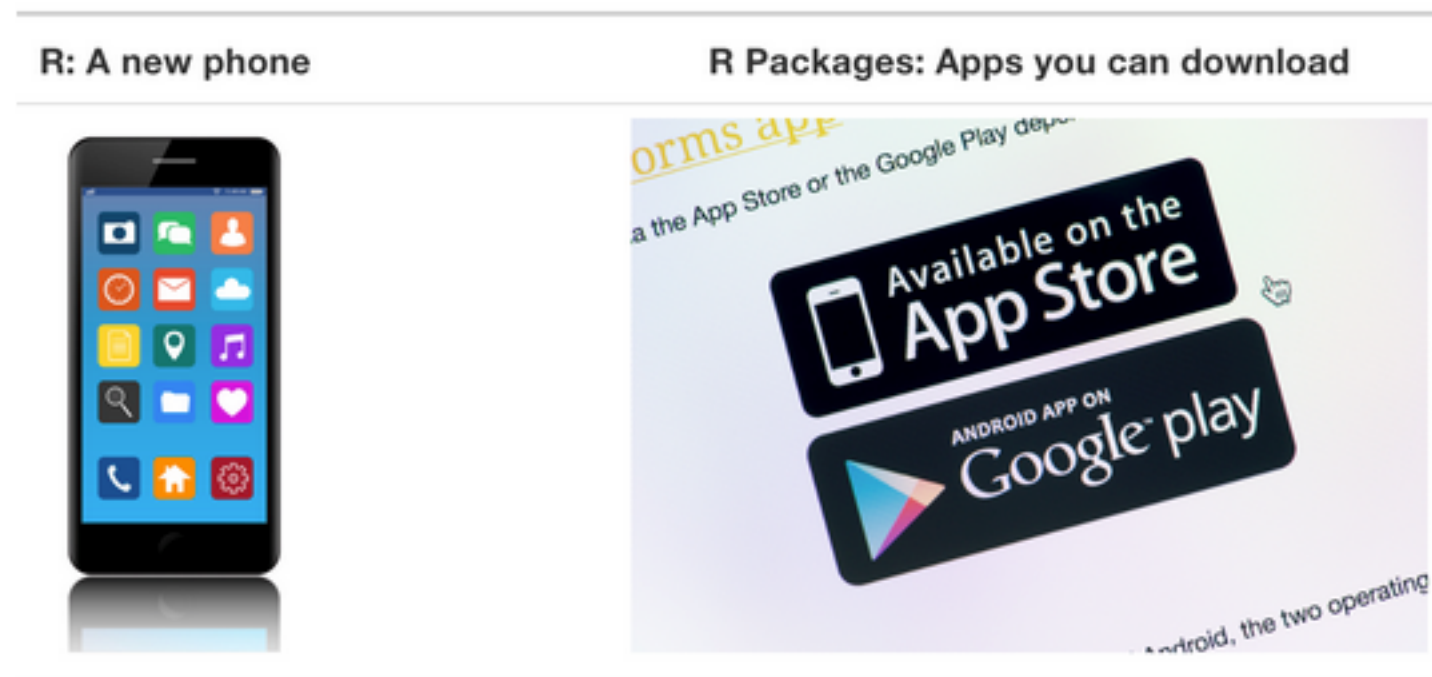- R-Studio is an integrated development environment

Figure: Ismay & Kim (2022)

- You need to install R first, then you can install R Studio

- After that, you basically only use R Studio → it calls R whenever necessary

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R and R packages

- If you install R, you can issue a lot of commands that your computer immediately understands

- However, there might be some routines that R "doesn't understand"

- You might "teach" R this by defining, for instance, certain functions that perform these operations

- You might then even "save" these functions and pass it on to others, so that they can use them as well

- This is the idea of **R packages**: a collection of variables and functions written by others that you can install on your computer and use them

- Once an R package is installed, you can use all functions and variables defined by the creator of the package
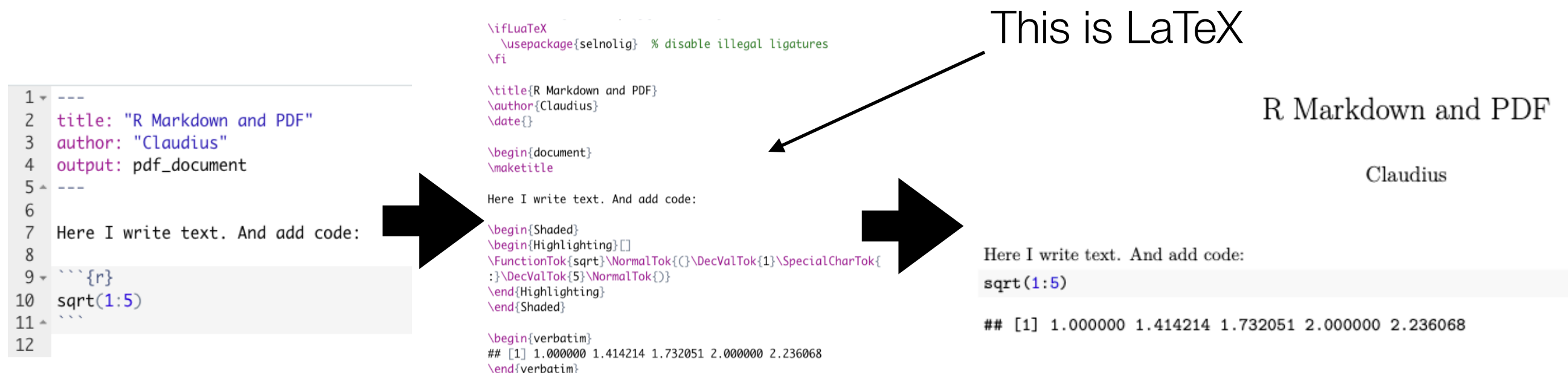
R and R packages

- Again, Ismay & Kim (2022) have a nice analogy:

- I wrote a small script that installs all packages that we will use throughout the semester, so we can already resolve all installation issues now

And what about LaTeX?

- In this course we learn how to write nice reports in R markdown

  - You put R code and text into one file, and you get a webpage in HTML or a nice PDF file

- Creating HTML code is easy, but creating a PDF is nothing trivial

  - To do this, we need a software called LaTeX → a typesetting system

  - It turns plain text into nice text within a PDF document

This is LaTeX

```
1  ---
2  title: "R Markdown and PDF"
3  author: "Claudius"
4  output: pdf_document
5  ---
6
7  Here I write text. And add code:
8
9  ```{r}
10 sqrt(1:5)
11 ```
12
```

```
\ifLuaTeX
  \usepackage{selnolig}  % disable illegal ligatures
\fi

\title{R Markdown and PDF}
\author{Claudius}
\date{}

\begin{document}
\maketitle

Here I write text. And add code:

\begin{Shaded}
\begin{Highlighting}[]
\FunctionTok{sqrt}\NormalTok{(}\DecValTok{1}\SpecialCharTok{:}\DecValTok{5}\NormalTok{)}
\end{Highlighting}
\end{Shaded}

\begin{verbatim}
## [1] 1.000000 1.414214 1.732051 2.000000 2.236068
\end{verbatim}
```

R Markdown and PDF

Claudius

Here I write text. And add code:

```
sqrt(1:5)

## [1] 1.000000 1.414214 1.732051 2.000000 2.236068
```

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Homework for next week

- It is absolutely essential that you install all the necessary software as soon as possible → installation guidelines on the course homepage

- Until next week you should have…

  - …tried to install R, R Studio and Git → follow my tutorials

  - …posted all problems with a screenshot in the Moodle forum

  - …tried to help others in the forum with their problems

- We will dedicate large parts of the second session to problem solving → you need to be prepared, trying to install R shortly before the session is 🤬

- We need to solve all installation problems until the end of next week

  - I will not provide support after the second semester week

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Problems with the installation?

1. Check again in the tutorials

2. Post them on Moodle

3. Accompany them with screenshots

4. Come prepared to the next session