

Script for the Class DS101  
Data Driven Entrepreneurship: Prediction Algorithms with R

Joschka Schwarz

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# Preface

This script are the class notes used in the TUHH Data Science course.

```
install.packages("bookdown")  
# or the development version  
# devtools::install_github("rstudio/bookdown")
```



# Acknowledgments

Remember each Rmd file contains one and only one chapter, and a chapter is defined by the first-level heading #.

To compile this example to PDF, you need XeLaTeX. You are recommended to install TinyTeX (which includes XeLaTeX): <https://yihui.name/tinytex/>.





# Chapter 1

## Getting started with R and RStudio

You can label chapter and section titles using `{#label}` after them, e.g., we can reference Chapter 1. If you do not manually label them, there will be automatic labels anyway, e.g., Chapter 3.

Figures and tables with captions will be placed in `figure` and `table` environments, respectively.

```
par(mar = c(4, 4, .1, .1))
plot(pressure, type = 'b', pch = 19)
```

Reference a figure by its code chunk label with the `fig:` prefix, e.g., see Figure 1.1. Similarly, you can reference tables generated from `knitr::kable()`, e.g., see Table 1.1.

```
knitr::kable(
  head(iris, 20), caption = 'Here is a nice table!',
  booktabs = TRUE
)
```

You can write citations, too. For example, we are using the **bookdown** package (Xie, 2020) in this sample book, which was built on top of R Markdown and **knitr** (Xie, 2015).

### 1.1 Installing R

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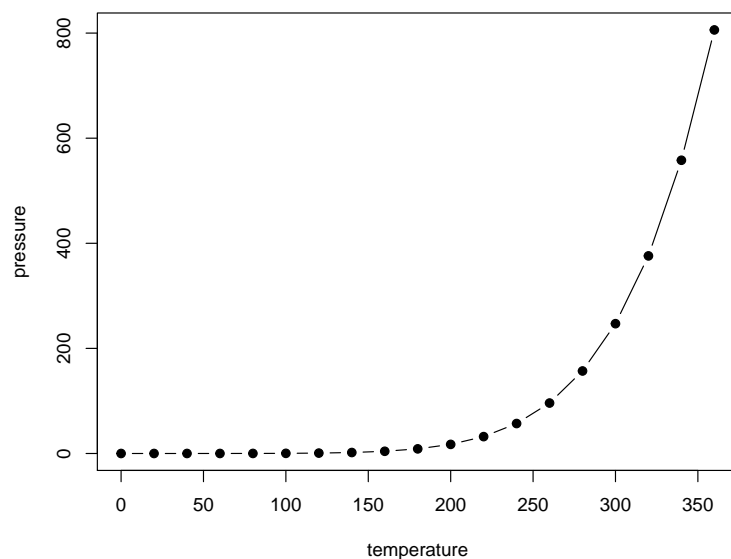


Figure 1.1: Here is a nice figure!

Table 1.1: Here is a nice table!

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa
4.6	3.4	1.4	0.3	setosa
5.0	3.4	1.5	0.2	setosa
4.4	2.9	1.4	0.2	setosa
4.9	3.1	1.5	0.1	setosa
5.4	3.7	1.5	0.2	setosa
4.8	3.4	1.6	0.2	setosa
4.8	3.0	1.4	0.1	setosa
4.3	3.0	1.1	0.1	setosa
5.8	4.0	1.2	0.2	setosa
5.7	4.4	1.5	0.4	setosa
5.4	3.9	1.3	0.4	setosa
5.1	3.5	1.4	0.3	setosa
5.7	3.8	1.7	0.3	setosa
5.1	3.8	1.5	0.3	setosa

## 1.2 Installing RStudio

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## 1.3 Working with RStudio

### 1.3.1 Console

### 1.3.2 Script Editor

### 1.3.3 Workspace Environment

### 1.3.4 Misc. Displays

### 1.3.5 Exercise

1. Identify what working directory you are working out of.
2. Create a folder on your computer titled Learning R. Within R, set your working directory to this folder.

## 1.4 Working with Packages

### 1.4.1 Installing Packages

```
# install package from CRAN  
install.packages("dplyr")
```

### 1.4.2 Loading packages

```
# load the package to use in the current R session  
library("packagename")  
  
# use a particular function within a package without loading the package  
packagename::functionname
```

### 1.4.3 Exercise

`dplyr` is an extremely popular package for common data transformation activities and is available from CRAN. Perform the following tasks:

1. Install the `dplyr` package.
2. Load the `dplyr` package.
3. Access the help documentation for the `dplyr` package.
4. Check out the vignette(s) for `dplyr`

## Part I

## R



## Chapter 2

# Literature

Here is a review of existing methods.





## Part II

# Data Visualization



## Chapter 3

# Methods

We describe our methods in this chapter.



**Part III**

**Statistics with R**



## Chapter 4

# Applications

Some *significant* applications are demonstrated in this chapter.

### 4.1 Example one

### 4.2 Example two





## Chapter 5

# Final Words

We have finished a nice book.



# Bibliography

Xie, Y. (2015). *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2nd edition. ISBN 978-1498716963.

Xie, Y. (2020). *bookdown: Authoring Books and Technical Documents with R Markdown*. R package version 0.17.