

Quarto Demonstration

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Preface

This is a Quarto book.

To learn more about Quarto books visit <https://quarto.org/docs/books>.

1 Introduction

Data science is an exciting discipline that allows you to transform raw data into understanding, insight, and knowledge. The goal of “R for Data Science” is to help you learn the most important tools in R that will allow you to do data science efficiently and reproducibly. After reading this book, you’ll have the tools to tackle a wide variety of data science challenges using the best parts of R. This is a book created from markdown and executable code.

Part I

Basics

Our goal in this part of the book is to give you a rapid overview of the main tools of data science: **importing**, **tidying**, **transforming**, and **visualizing data**, as shown in Figure 1.1. We want to show you the “whole game” of data science giving you just enough of all the major pieces so that you can tackle real, if simple, datasets. The later parts of the book, will hit each of these topics in more depth, increasing the range of data science challenges that you can tackle.

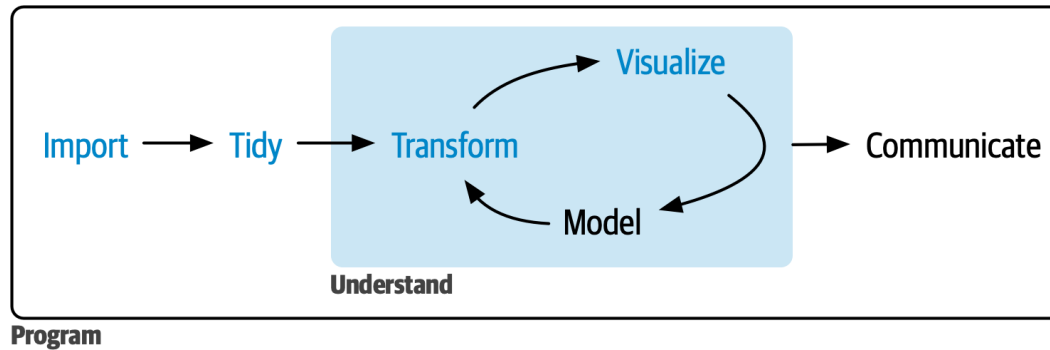


Figure 1.1: In this section of the book, you’ll learn how to import, tidy, transform, and visualize data.

Five chapters focus on the tools of data science:

- Visualisation is a great place to start with R programming, because the payoff is so clear: you get to make elegant and informative plots that help you understand data. In **sec-data-visualization** you’ll dive into visualization, learning the basic structure of a ggplot2 plot, and powerful techniques for turning data into plots.

2 Basics

i Note

This is a note that appears on each chapter. This chapter is largely complete and just needs final proof reading.

2.1 Introduction

In this chapter, you will learn the basics.

2.2 Lists

2.2.1 Unordered List

- apple
- banana
- orange

2.2.2 Ordered List

1. first
2. second
3. third

2.3 Paragraphs

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla hendrerit, urna in posuere vehicula, eros nulla hendrerit tellus, vel tempus dui mi in purus. Mauris mattis tincidunt odio, non efficitur eros porta et. Praesent eu nisl dictum, blandit urna nec, tempus odio. Sed eget elit orci. Aenean elementum enim in erat porttitor tristique. Aenean sed arcu massa. Aenean

sit amet turpis sed eros dictum tincidunt ac vitae ex. Sed porttitor eu eros eu gravida. Etiam a tempus libero. Morbi euismod varius dui, varius mollis ipsum ornare sit amet. Nulla sagittis ex eu mi luctus elementum. Curabitur eleifend dignissim placerat. Aenean at sagittis ante. In a felis mi. Mauris urna mi, mattis id efficitur vitae, gravida id diam.

Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia curae; Donec sed nisl et tortor accumsan dictum. Phasellus cursus purus a scelerisque efficitur. Cras at hendrerit quam. Sed aliquet faucibus facilisis. Pellentesque eget iaculis orci. Quisque fermentum quis lorem et fermentum. Sed feugiat erat ut sapien lobortis, in tempor dui aliquam. Aenean a malesuada arcu. Pellentesque dapibus viverra efficitur.

2.4 Text options

2.4.1 Adding bold text

You can add inline **bold txt**

2.4.2 Adding italics

You can also add inline *italics!*

2.4.3 Code

2.4.3.1 Inline

Here is some `inline code`.

2.5 Summary

The basics are fairly similar to standard markdown.

3 Tables

i Note

This is a note that appears on each chapter. This chapter is largely complete and just needs final proof reading.

3.1 Introduction

In this chapter, you'll learn tools available table formats and style options.

3.1.1 Prerequisites

In this chapter, some data is loaded from flat files / CSV in R with the **readr** package, which is part of the core tidyverse.

```
library(tidyverse)
```

3.2 Basic Markdown Tables

	mpg	cyl	disp	hp
Mazda RX4	21.0	6	160	110
Mazda RX4 Wag	21.0	6	160	110
Datsun 710	22.8	4	108	93
Hornet 4 Drive	21.4	6	258	110
Hornet Sportabout	18.7	8	360	175
Valiant	18.1	6	225	105

3.3 Markdown Tables Alignment

Table 3.2: Demonstration of pipe table syntax

Default	Left	Right	Center
12	12	12	12
123	123	123	123
1	1	1	1

3.4 Table from CSV Data

Here is what a simple CSV file looks like when loaded into a table

Table 3.3: Data from the students.csv file as a table.

Student ID	Full Name	favourite.food	mealPlan	AGE
1	Sunil Huffmann	Strawberry yoghurt	Lunch only	4
2	Barclay Lynn	French fries	Lunch only	5
3	Jayendra Lyne	N/A	Breakfast and lunch	7
4	Leon Rossini	Anchovies	Lunch only	NA
5	Chidiegwu Dunkel	Pizza	Breakfast and lunch	five
6	Güvenç Attila	Ice cream	Lunch only	6

Tip With Caption

This is an example of a callout with a caption. The `Subtables` examples resulted in weird content within the PDF

3.5 Summary

- Overall, appears to work pretty well
- The `Subtables` examples resulted in weird content within the PDF

4 Images

! Important

This is a note that appears on each chapter. This chapter is currently a dumping ground for ideas, and we don't recommend reading it.

4.1 Introduction

In this chapter, you'll learn to add basic images.

4.2 Basic PNG

This is a basic PNG image reference

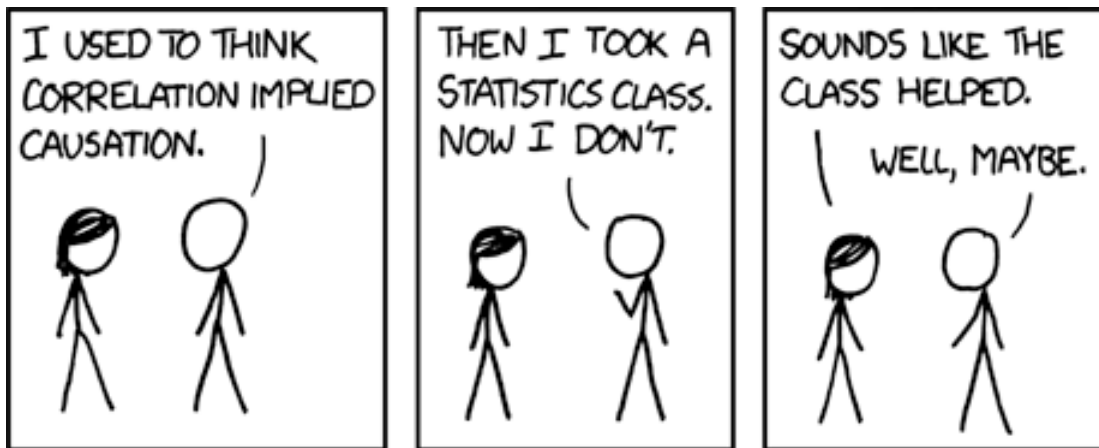


Figure 4.1: Test Image 4

4.3 Simple Centered PNG File

This is a simple centered PNG file

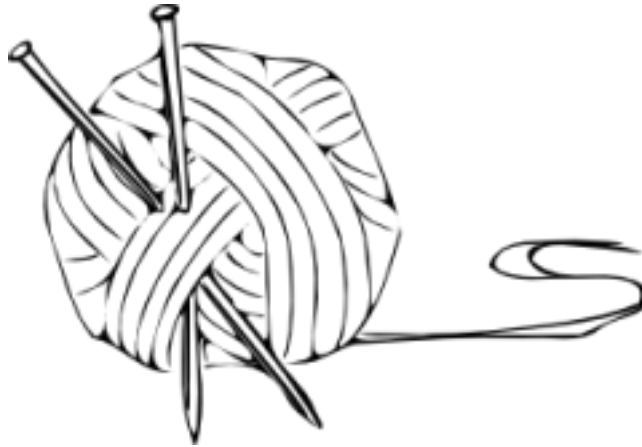


Figure 4.2: Test Image 3

4.4 Simple Right-Aligned PNG File

This is a simple right-aligned PNG file.

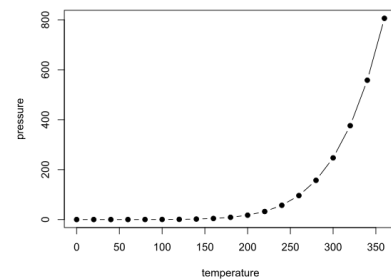


Figure 4.3: This is a caption

4.5 Summary

There is no basic summary

Part II

Visualize

i Note

This is a note that appears on each chapter. This chapter should be readable but is currently undergoing final polishing.

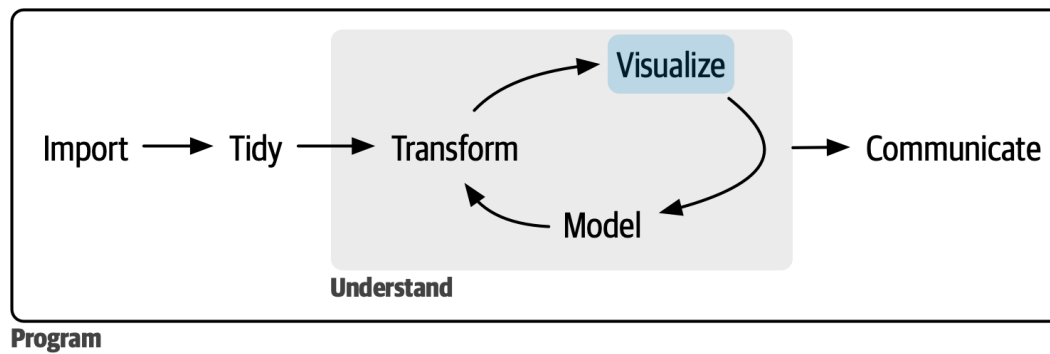


Figure 4.4: Data visualization is often the first step in data exploration.

Each chapter addresses one to a few aspects of creating a data visualization.

5 Charts

! Important

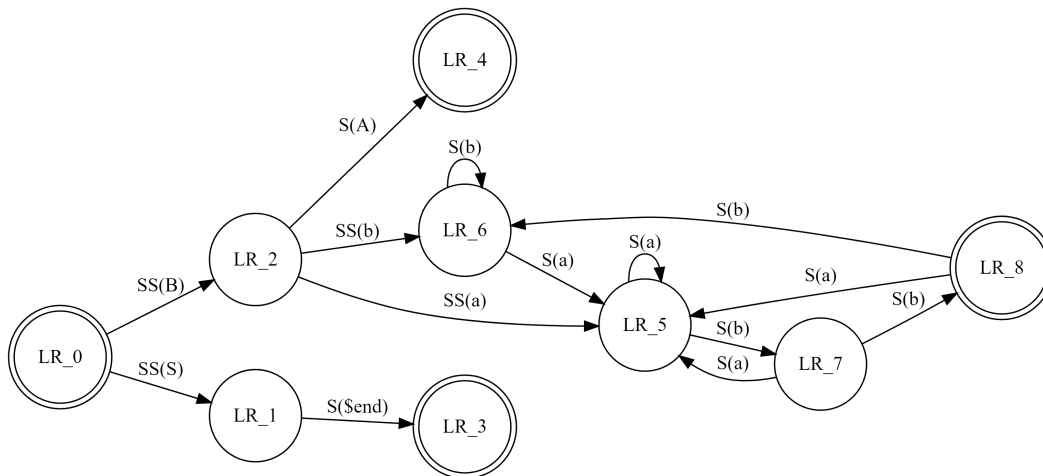
This is a note that appears on each chapter. This chapter is undergoing heavy restructuring and may be confusing or incomplete.

```
library(tidyverse)
library(ggrepel)
library(patchwork)
```

5.1 Introduction

In this chapter, you'll learn the basic supported diagrams.

5.1.1 Basic GraphViz diagram



5.1.2 Basic Plant UML diagram

There does not appear to be a built-in plantuml support like there is with mermaid, but there might be a few ways, including extension methods

Hello from Ezplantuml!

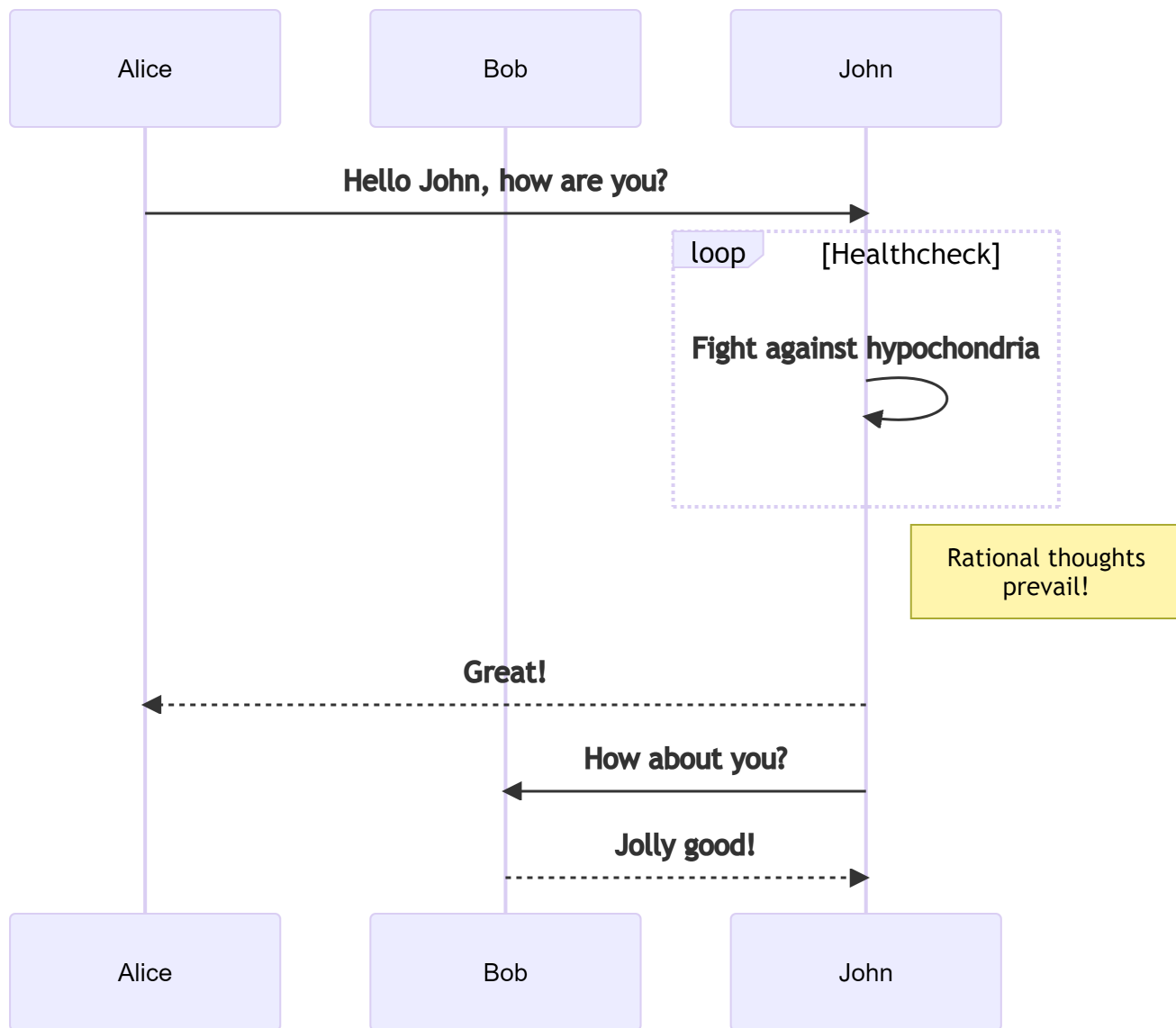
```
@startuml
```

```
Alice -> Bob: Authentication Request Bob --> Alice: Authentication Response
```

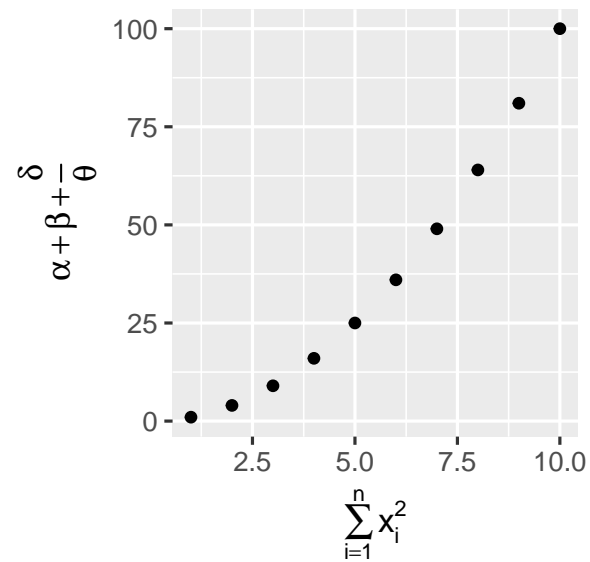
```
Alice -> Bob: Another authentication Request Alice <-- Bob: another Response
```

```
@enduml
```

6 Basic Mermaid Diagram



6.1 ggplot



6.2 Basic line chart with ggplot2 and geom line

6.3 Summary

- Overall, there are some good built-in features here
- Missing built-in plantuml support is a negative, but we have options.
- matplotlib also had some dependency issues, but ggplot works.

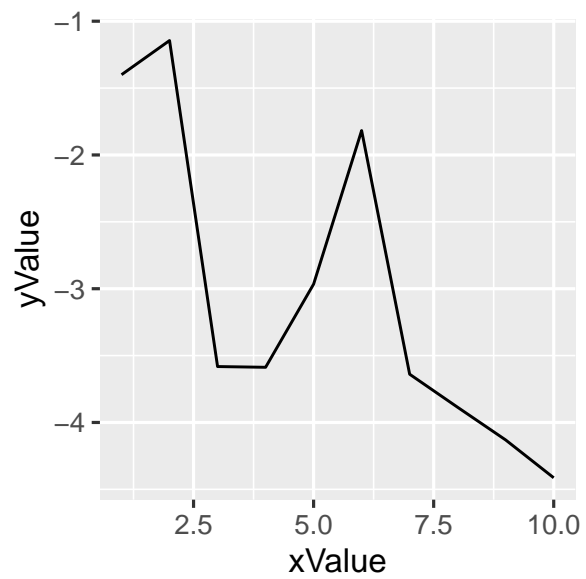


Figure 6.1: Basic line chart with ggplot2 and geom line

References