SQMB 2022/23 – Summative Assessment 2

PUT YOUR EXAM NUMBER HERE

2023-03-24

Contents

1 Set-up instructions

- **Before changing anything in this document, render it to PDF** to make sure that everything is rendered as it should be.
  - If you receive the error `Error in library (knitr) : there is no package called 'knitr'`, then in the console, run `install.packages('knitr')` and try again.
- Include your **exam number as the author** in the document preamble.
- Before you submit, delete the "Set-up instructions" and "Table and figure examples" sections. **Your submission should contain only your own work.**

Instructions for completing the assessment itself are given in `sqmb-s2/README.md`.

2 Table and figure examples

2.1 How to present a data frame as a table with a caption

The first step is to create a data frame that contains only the information you want to display in the table. (Some helpful functions for modifying a data frame include tidyverse's `filter()` and `select()`.)

I'll illustrate this using R's built-in data frame `iris`. This data frame contains information about the shape and size of 150 different iris flowers, 50 each from three different species. Here, I'll create a table displaying only the first six rows of this data frame.

Once your data frame is ready, it can be displayed using the function `kable()` from the library `knitr`. `kable()` takes in a data frame and converts it into a markdown table. Then, when the document is knit to PDF, this markdown table is rendered into a professional-looking table.

`kable()` also has an argument `caption`. Use this argument to give the table a caption that describes for the reader what the table is showing.

Table 1: Sepal and petal measurements in centimetres for six setosa irises.

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

2.2 How to present a ggplot as a figure with a caption

For illustration, I'll create a scatter plot that shows the association between the irises' petal width and petal length, with points coloured by species.

Including a caption for a figure works a little differently than for a table: you have to include the text caption in the header of the code chunk. You can do this using the chunk option `fig.cap`. Have a look at the example in the code.

More information about including tables and figures in your Rmarkdown document can be found here: https://rmd4sci.njtierney.com/figures-tables-captions-.html.

(Don't worry if the tables or figures appear in a different place in the PDF than they do in the Rmd file. Tables and figures might "float" around a little, based on what the typesetting algorithm thinks looks best, and this is to be expected.)

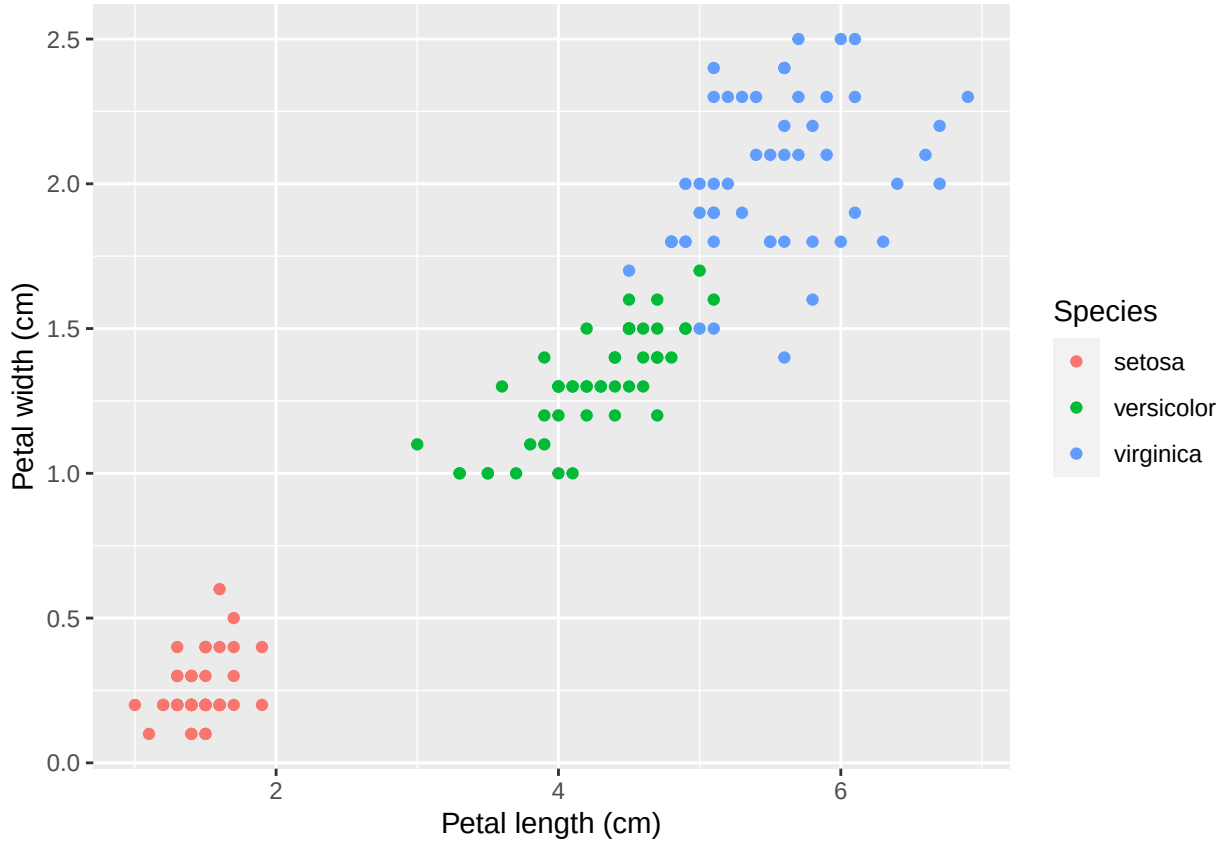

Figure 1: Petal length in irises is positively associated with petal width. Setosas have the smallest petals, while those of versicolors and virginicas are larger.