Reports in Rmarkdown

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Main Title

Report for Species setosa

In this Rmarkdown we will show how to build a workflow around RMarkdown that allows for the automated generation of reports.

Repository Organisation

There are several key files that are often useful when writing remports in `RMarkdown` (especially when the project is *big*):

- **RMarkdown document** (this one)
- **Data** (usually excel/csv files)
- **Control file**: used to automatically generate reports
- R Scripts and additional data wrangling (helps keep long code out of this document)
- Git/version control (we can leave this for another time)

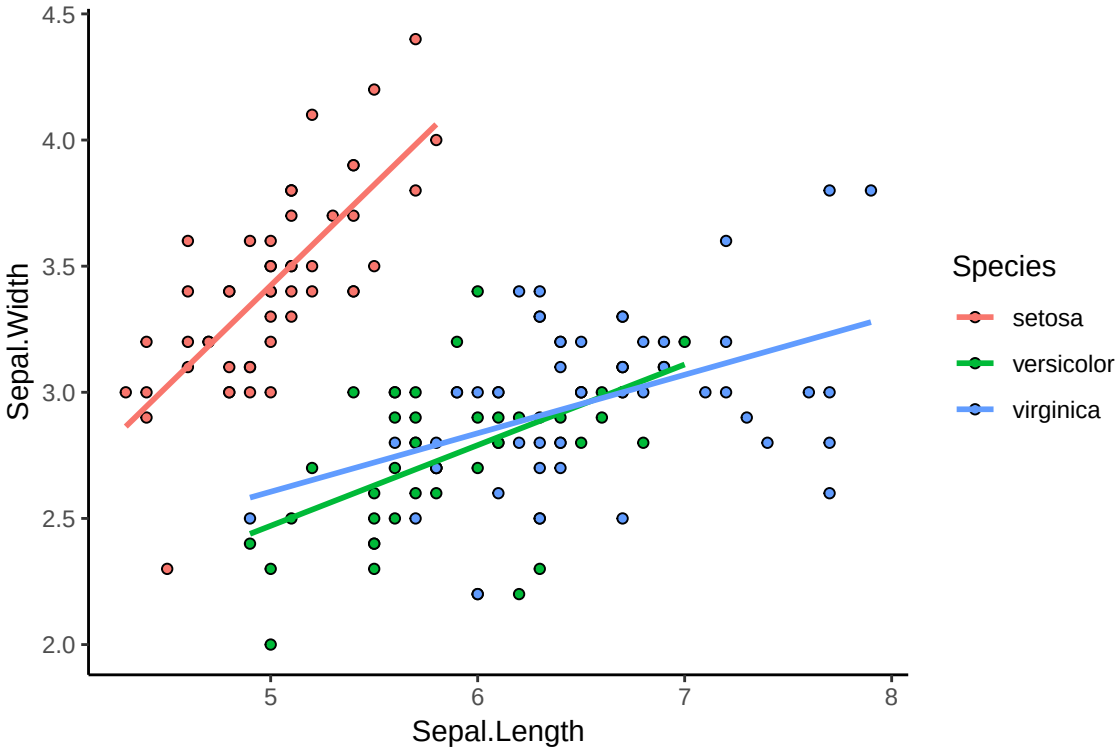
Rmarkdown Basics

RMarkdown is a document written in the markdown language that has embedded `R code`. For instance, I can add a calculation into the the text, such as the sum of two integers (three and five): 8. We can also add *code chunks*:

setosa	versicolor	virginica
50	50	50

Graphical Presentation of Data

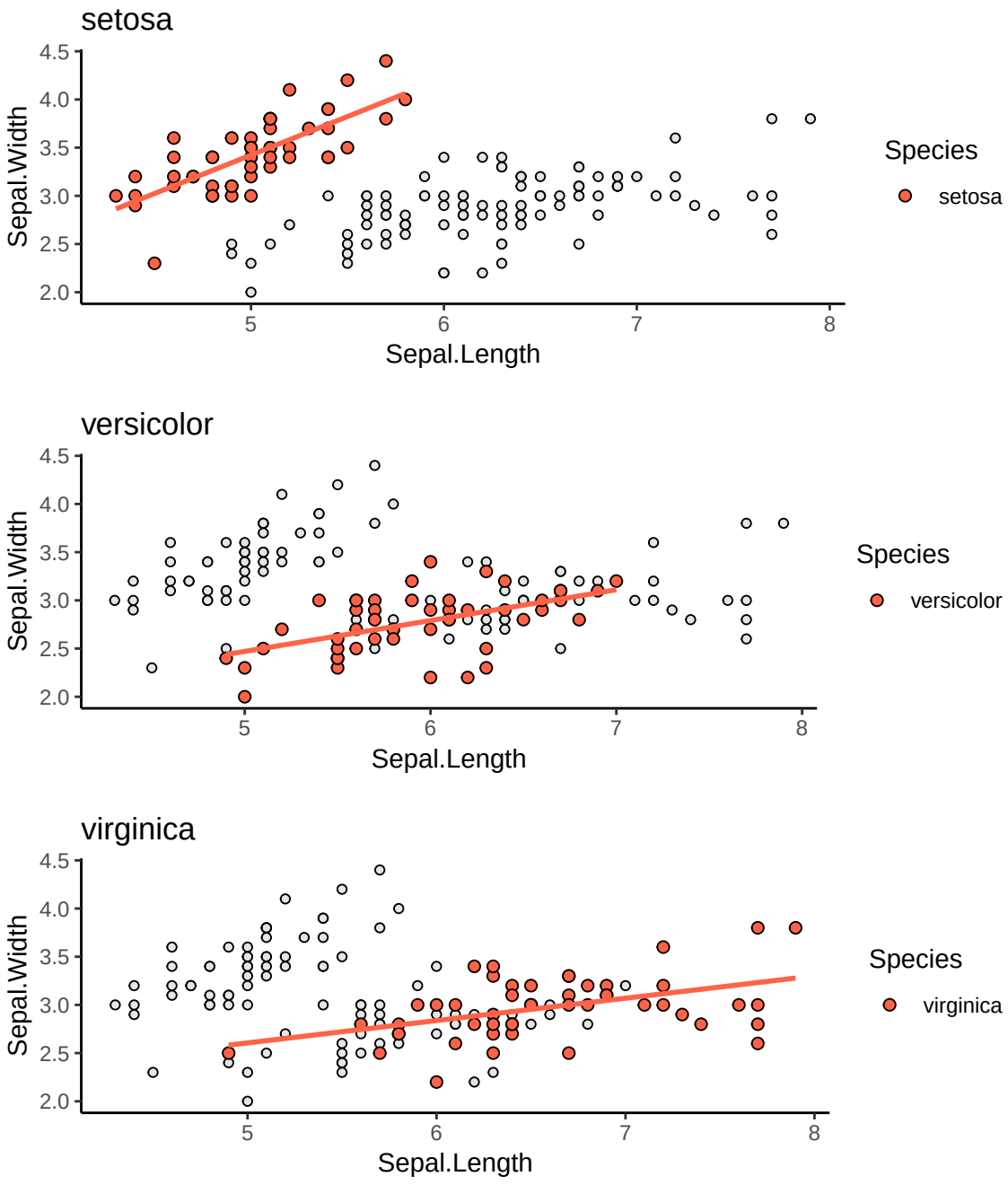
Ultimately, your report will begin to blend text, code, tables and figures. In this case we can include a scatter splot that shows the relationship between sepal length and sepal width for each species:



Generating multiple plots

Now imagine that we want to look at the correlation between sepal lengths and sepal widths for each of the iris plant species, **BUT** we want to keep the other two species unidentifiable... For instance, imagine we want to make a report for *setosa* but we don't want the person reading it to know what the correlation is for the other two species.

If you wanted to make three figures for each species, you could make a loop within this RMarkdown:



Generating multiple reports

But, we are interested in generating multiple reports, so the loop should be placed outside of this RMarkdown, for this purpose we make a control file. The following plot will than render for each unique species

Finally, we can customise large sections of text that someone has written externally and placed in a csv. To do that we map a *csv* file with the custom text to the specific report parameter (Species). The following is taken from the wikipedia entries for each species:

Iris setosa (also known as bristle-pointed iris), is a species in the genus Iris, it is also in the subgenus of Limniris and in the Iris series Tripetalae. It is a rhizomatous perennial from a wide range across the Arctic sea, including Alaska, Maine, Canada (including British Columbia, Newfoundland, Quebec and Yukon), Russia (including Siberia), northeastern Asia, China, Korea and southwards to Japan. The plant has tall branching stems, mid green leaves and violet, purple-blue, violet-blue, blue, to lavender flowers. There are also plants with pink and white flowers