

Quarto Markdown Template

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1 Introduction

For large files, we can cache the file, and use `cache.lazy = T` to reuse the pre-computed results. To avoid overwriting the previously cached file, it is better to set the `cache= F`, when you want to use `cache.lazy` to get the previously saved results. In this case, you do not need to cache the file again. You can also load the cached file, and check the environment to see whether the variables have already been saved.

If `cache = T`, knitr will skip the execution of this code chunk if it has been executed before and nothing in the code chunk has changed since then. This is particularly useful when you want to reuse the figure (time-consuming). **When you modify the code chunk (e.g., revise the code or the chunk options), the previous cache will be automatically invalidated, and knitr will cache the chunk again.**

You can also use cross-reference for a Section 2.

You can also cite a paper like this ([Kirby et al. 2016](#)).

```
print("Hello R markdown!")
```

```
[1] "Hello R markdown!"
```

```
ls figures/*
```

```
figures/CTMCgraphs-1.pdf
figures/CTMCgraphs-1.png
figures/fig-histogram-rng-1.png
figures/histogram-1.png
figures/histogram-rng-1.png
figures/simpletikz 2-1.png
figures/simpletikz-1.pdf
figures/simpletikz-1.png
figures/simpletikz2-1.pdf
```

2 Data and Methods

Age	Frequency
18-25	15
26-35	33
36-45	22

```
#include <Rcpp.h>
using namespace Rcpp;
// [[Rcpp::export]]
NumericVector timesTwo(NumericVector x) {
  return x * 2;
}
```

```
timesTwo(10) # test function in R chunk or console
```

3 Results

We can also save the plot as png files, by setting the `dev = "png"`, and change the quality of the picture by setting `dpi = 300`.

Alternatively, you can convert all the saved pdfs into pngs with `imagemagick` in terminal:

```
convert -density 150 *.pdf -quality 100 -set filename:basename "%[basename]" "%[filename:b
```

3.1 Cross-reference of figures, tables and equations

In order to decrease the figure sizes, you can try to use `png` or `jpeg` rather than `pdf` output.

We can also co-refer a plot in Figure 1. **Note:** you need to set `include = T` when producing the plot. Otherwise, the co-reference won't work.

```
# two ways of include a picture in R
# ![example picture](./figures/histogram-1.png){width=90% height=80%}
knitr::include_graphics("./figures/histogram-rng-1.png")
```

3.2 Citations

You can cite a paper in Rmarkdown in different ways, e.g., if you want to have the citation with exact page number. You can use the following ways (see [Jing et al. 2022:45](#)) or [Jing et al. \(2022:404\)](#).

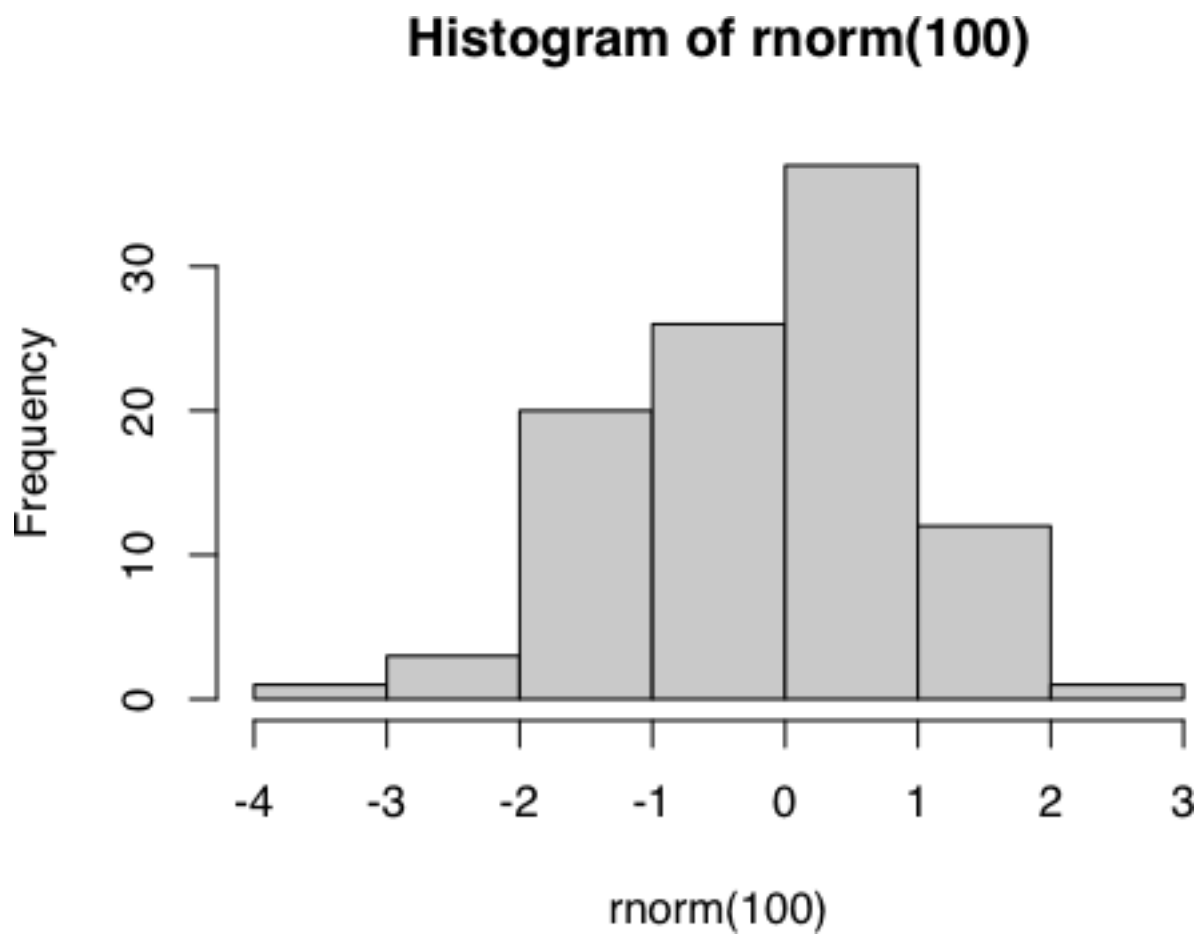


Figure 1: Histogram plot

4 Discussion

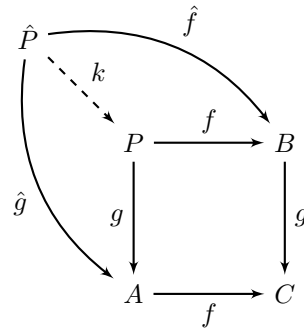


Figure 2: Tikz graph example

5 Conclusions

Note: it seems that tikz does not support both fig.cap and fig.scap at the same time. It may cause fig.cap cannot recognize the latex code.

We can also add the cross-reference inside the figure cation via `\ref{fig:}`.

References

- Jing, Yingqi, Damián E Blasi & Balthasar Bickel. 2022. Dependency-Length Minimization and Its Limits: A Possible Role for a Probabilistic Version of the Final-over-Final Condition. *Language* 98(3). 397–418. doi:[10.1353/lan.0.0267](https://doi.org/10.1353/lan.0.0267).
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Ng, Hans-Jörg Bibiko, Damián E. Blasi, Carlos A. Botero, Claire Bowern, Carol R. Ember,
et al. 2016. D-PLACE: A Global Database of Cultural, Linguistic and Environmental
Diversity. *PLOS ONE* 11(7). e0158391. doi:[10.1371/journal.pone.0158391](https://doi.org/10.1371/journal.pone.0158391).