# Example of an Article with Sweave

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This is a brief example of a Latex document with Sweave (Leisch and R Core Team, 2022). We will include some plots, a table, and a reference. The document can be compiled in R (R Core Team, 2022) via the following commands.

```
R> knitr::Sweave2knitr("article.Rnw")
R> knitr::knit2pdf("article-knitr.Rnw")
```

These require the `knitr` package to be installed. If successful, the resulting PDF should be named `article-knitr.pdf`. More information can be found at `https://yihui.org/knitr/demo/sweave/`.

Let $X_i \sim \mathrm{N}(0, 1)$ for $i = 1, \ldots, 200$.

```
R> x = rnorm(200)
R> head(x, n = 20)

##  [1]  0.269877450 -0.004275902  1.937977109  0.151677597 -1.076669056
##  [6] -0.079379825  1.846456324  1.134302514 -1.098363390 -0.947909533
## [11] -0.256627764 -0.634969815  0.069900518  0.760646614 -0.985892008
## [16]  0.688573771 -1.186257161  0.132767821  1.147349003  1.119350244
```

A histogram and Q-Q plot are given in Figure 1. Table 1 renders some rows of the `mtcars` dataset as a Latex table using `booktabs`. Center the table and remove line separators.

```
R> mtcars %>%
+         head(n = 20) %>%
+         kable(format = "latex", booktabs = TRUE, linesep = "",
+                 label = "mtcars",
+                 caption = "A few rows of the mtcars dataset.") %>%
+         kable_styling(position = "center")
```

## References

Friedrich Leisch and R Core Team. *Sweave User Manual*, June 2022. URL `https://stat.ethz.ch/R-manual/R-devel/library/utils/doc/Sweave.pdf`.

R Core Team. *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing, Vienna, Austria, 2022. URL `https://www.R-project.org/`.

Figure 1: A figure with two plots.

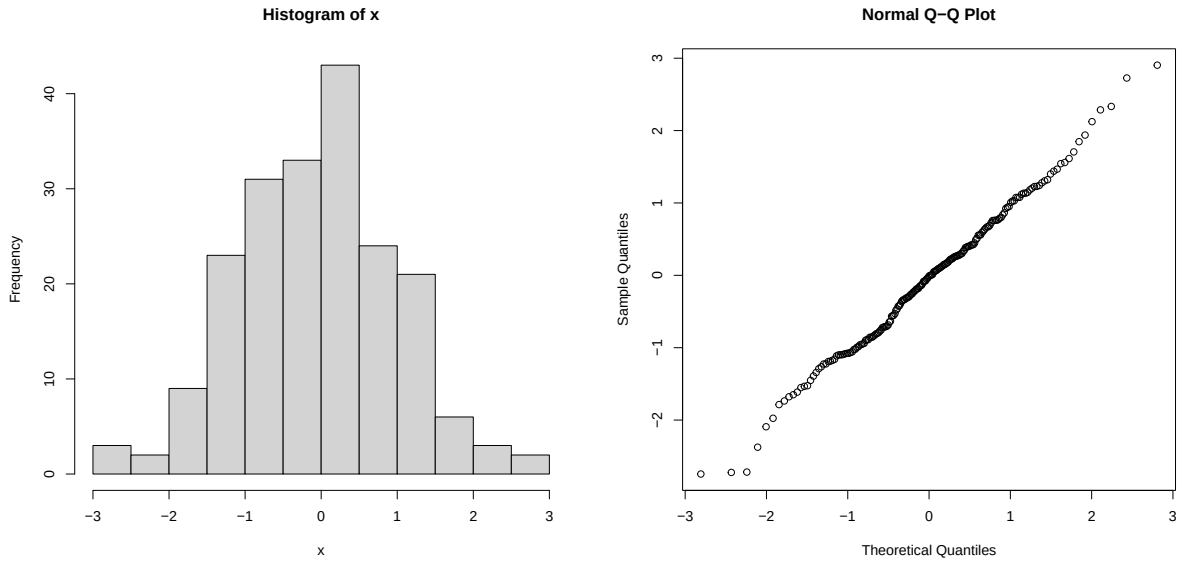


Table 1: A few rows of the mtcars dataset.

| | mpg | cyl | disp | hp | drat | wt | qsec | vs | am | gear | carb |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mazda RX4 | 21.0 | 6 | 160.0 | 110 | 3.90 | 2.620 | 16.46 | 0 | 1 | 4 | 4 |
| Mazda RX4 Wag | 21.0 | 6 | 160.0 | 110 | 3.90 | 2.875 | 17.02 | 0 | 1 | 4 | 4 |
| Datsun 710 | 22.8 | 4 | 108.0 | 93 | 3.85 | 2.320 | 18.61 | 1 | 1 | 4 | 1 |
| Hornet 4 Drive | 21.4 | 6 | 258.0 | 110 | 3.08 | 3.215 | 19.44 | 1 | 0 | 3 | 1 |
| Hornet Sportabout | 18.7 | 8 | 360.0 | 175 | 3.15 | 3.440 | 17.02 | 0 | 0 | 3 | 2 |
| Valiant | 18.1 | 6 | 225.0 | 105 | 2.76 | 3.460 | 20.22 | 1 | 0 | 3 | 1 |
| Duster 360 | 14.3 | 8 | 360.0 | 245 | 3.21 | 3.570 | 15.84 | 0 | 0 | 3 | 4 |
| Merc 240D | 24.4 | 4 | 146.7 | 62 | 3.69 | 3.190 | 20.00 | 1 | 0 | 4 | 2 |
| Merc 230 | 22.8 | 4 | 140.8 | 95 | 3.92 | 3.150 | 22.90 | 1 | 0 | 4 | 2 |
| Merc 280 | 19.2 | 6 | 167.6 | 123 | 3.92 | 3.440 | 18.30 | 1 | 0 | 4 | 4 |
| Merc 280C | 17.8 | 6 | 167.6 | 123 | 3.92 | 3.440 | 18.90 | 1 | 0 | 4 | 4 |
| Merc 450SE | 16.4 | 8 | 275.8 | 180 | 3.07 | 4.070 | 17.40 | 0 | 0 | 3 | 3 |
| Merc 450SL | 17.3 | 8 | 275.8 | 180 | 3.07 | 3.730 | 17.60 | 0 | 0 | 3 | 3 |
| Merc 450SLC | 15.2 | 8 | 275.8 | 180 | 3.07 | 3.780 | 18.00 | 0 | 0 | 3 | 3 |
| Cadillac Fleetwood | 10.4 | 8 | 472.0 | 205 | 2.93 | 5.250 | 17.98 | 0 | 0 | 3 | 4 |
| Lincoln Continental | 10.4 | 8 | 460.0 | 215 | 3.00 | 5.424 | 17.82 | 0 | 0 | 3 | 4 |
| Chrysler Imperial | 14.7 | 8 | 440.0 | 230 | 3.23 | 5.345 | 17.42 | 0 | 0 | 3 | 4 |
| Fiat 128 | 32.4 | 4 | 78.7 | 66 | 4.08 | 2.200 | 19.47 | 1 | 1 | 4 | 1 |
| Honda Civic | 30.4 | 4 | 75.7 | 52 | 4.93 | 1.615 | 18.52 | 1 | 1 | 4 | 2 |
| Toyota Corolla | 33.9 | 4 | 71.1 | 65 | 4.22 | 1.835 | 19.90 | 1 | 1 | 4 | 1 |