# Example

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### 1 R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

#### summary(cars)

```
##
                          dist
         speed
    {\tt Min.}
##
            : 4.0
                     Min.
                             :
                                2.00
    1st Qu.:12.0
                     1st Qu.: 26.00
##
##
    Median:15.0
                     Median : 36.00
##
    Mean
            :15.4
                     Mean
                             : 42.98
    3rd Qu.:19.0
                     3rd Qu.: 56.00
##
            :25.0
                             :120.00
##
    Max.
                     Max.
```

## 2 Including Plots

You can also embed plots, for example:



Note that the echo = FALSE parameter was added to the code chunk to prevent printing of the R code that generated the plot.

## 3 Caching

The GHA workflow maintains cached *knitr* results between subsequent runs to reduce runtime. Caching can be enabled by specifying cache=TRUE in the code chunk header.

Note that this should be used with caution, as caches may become invalid when code is changed, potentially leading to unsuspected results.

```
## Run with caching enabled
Sys.time()
```

## [1] "2021-11-09 08:36:41 UTC"

## Session info

Session info

## [1] "2021-12-12 12:41:00 UTC"

```
## - Session info -----
##
   setting value
   version R version 4.1.2 (2021-11-01)
## os
            macOS Big Sur 10.16
## system
           x86_64, darwin17.0
## ui
           X11
  language (EN)
##
   collate en_US.UTF-8
##
   ctype
            en_US.UTF-8
## tz
            UTC
## date
            2021-12-12
##
           2.7.3 @ /usr/local/bin/ (via rmarkdown)
   pandoc
! package
                * version date (UTC) lib source
## P cli
                  3.1.0
                          2021-10-27 [?] CRAN (R 4.1.0)
## P colorspace
                  2.0-2
                          2021-06-24 [?] CRAN (R 4.1.0)
## P crayon
                  1.4.1
                          2021-02-08 [?] CRAN (R 4.1.0)
                  0.6.27 2020-10-24 [?] CRAN (R 4.1.0)
## P digest
## P ellipsis
                  0.3.2 2021-04-29 [?] CRAN (R 4.1.0)
## P evaluate
                  0.14
                         2019-05-28 [?] CRAN (R 4.1.0)
## P fansi
                  0.5.0 2021-05-25 [?] CRAN (R 4.1.0)
                  2.1.0
                         2021-02-28 [?] CRAN (R 4.1.0)
## P farver
                         2021-01-25 [?] CRAN (R 4.1.0)
## P fastmap
                  1.1.0
## P ggplot2
                * 3.3.5
                         2021-06-25 [?] CRAN (R 4.1.0)
## P glue
                  1.4.2
                          2020-08-27 [?] CRAN (R 4.1.0)
## P gtable
                  0.3.0
                         2019-03-25 [?] CRAN (R 4.1.0)
                         2021-04-16 [?] CRAN (R 4.1.0)
## P highr
                  0.9
## P htmltools
                  0.5.2 2021-08-25 [?] CRAN (R 4.1.0)
## P knitr
                  1.33
                         2021-04-24 [?] CRAN (R 4.1.0)
## P labeling
                  0.4.2 2020-10-20 [?] CRAN (R 4.1.0)
## P lifecycle
                  1.0.0
                         2021-02-15 [?] CRAN (R 4.1.0)
## P magrittr
                  2.0.1
                          2020-11-17 [?] CRAN (R 4.1.0)
## P munsell
                  0.5.0
                         2018-06-12 [?] CRAN (R 4.1.0)
## P pillar
                  1.6.2
                        2021-07-29 [?] CRAN (R 4.1.0)
## P pkgconfig
                  2.0.3 2021-12-06 [?] Github (r-lib/pkgconfig@b81ae03)
## P R6
                  2.5.1
                          2021-08-19 [?] CRAN (R 4.1.0)
##
                  0.14.0 2021-07-21 [1] CRAN (R 4.1.0)
     renv
                  0.4.11 2021-04-30 [?] CRAN (R 4.1.0)
   P rlang
## P rmarkdown
                  2.10
                         2021-08-06 [?] CRAN (R 4.1.0)
                  1.1.1 2020-05-11 [?] CRAN (R 4.1.0)
## P scales
## P sessioninfo
                  1.2.2 2021-12-06 [?] CRAN (R 4.1.2)
## P stringi
                  1.7.4
                        2021-08-25 [?] CRAN (R 4.1.0)
## P stringr
                  1.4.0
                        2019-02-10 [?] CRAN (R 4.1.0)
## P tibble
                  3.1.4
                         2021-08-25 [?] CRAN (R 4.1.0)
## P utf8
                  1.2.2
                          2021-07-24 [?] CRAN (R 4.1.0)
## P vctrs
                  0.3.8
                         2021-04-29 [?] CRAN (R 4.1.0)
## P withr
                          2021-04-18 [?] CRAN (R 4.1.0)
                  2.4.2
  P xfun
                  0.25
                          2021-08-06 [?] CRAN (R 4.1.0)
## P yaml
                  2.2.1
                          2020-02-01 [?] CRAN (R 4.1.0)
##
## [1] /Users/runner/work/singleCellCourse/singleCellCourse/renv/library/R-4.1/x86_64-apple-darwin17.0
## [2] /private/var/folders/24/8k48j16d249_n_qfxws16xvm0000gn/T/RtmpxGzNBg/renv-system-library
##
```

## P -- Loaded and on-disk path mismatch.
##
## ------