

# Reporting using Rmarkdown

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## Basic illustrations

### 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>.

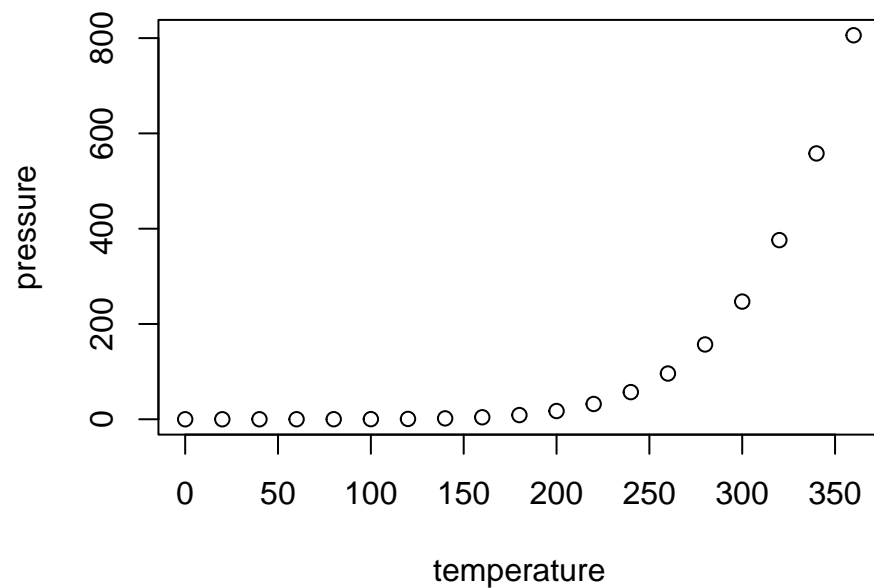
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed      dist
## 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
## Max.   :25.0    Max.   :120.00
```

## 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.

## Including a table

Table 1: A caption

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

## Inline r code

```
set.seed(2334)
yield <- 200 * runif(100)
mean_yield <- mean(yield)
```

The average yield is 103.4483146.

## Markdown basics (level 1 header)

### level 2 header

### level 3 header

See the source rmd file:

- list item 1
  - another list
- list item 2
- list item 3
- *italics*
- **bold**
- code (do not put r right after the first tick mark)
- inline math: I hate math. What does this  $\int_a^b f(x)dx$  even mean?
- math:

$$\sum_{i=1}^n x_i/n$$

- link: [Markdown basics](#)
- citationL: The best resource to learn how to use Rmarkdown is [xie2018r].

## Chunk options

### echo and eval

### R code and results

```
##      speed      dist
## 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
## Max.   :25.0    Max.   :120.00
```

### R code suppressed

```
##      speed      dist
## 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
## Max.   :25.0   Max.    :120.00
```

Only R code (R code was not evaluated)

Both R codes and results not shown

---

## messages and warnings

both messages and warnings

```
## -- Attaching packages ----- tidyverse 1.3.2 --
## v ggplot2 3.4.3      v purrr   1.0.1
## v tibble  3.1.8      v dplyr  1.0.10
## v tidyr   1.3.0      v stringr 1.5.0
## v readr   2.1.3      v forcats 0.5.2
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()     masks stats::lag()
```

messages suppressed

both messages and warnings suppressed

---

## results

No results are shown.

But, this shows the above code was evaluated and object `a` was created.

```
## [1] 0.442721578 0.274517669 0.832489557 0.496599494 0.222737525 0.713532158
## [7] 0.087589334 0.561854588 0.840218469 0.712486817 0.276695837 0.342732609
## [13] 0.040782033 0.206631539 0.661236504 0.560264982 0.132385486 0.275213450
## [19] 0.315067072 0.423239615 0.488549697 0.523500251 0.144676441 0.402919444
## [25] 0.078005459 0.513939508 0.243389158 0.118420537 0.558043503 0.880511739
## [31] 0.010506572 0.339365883 0.018768277 0.210161775 0.924343563 0.901447605
## [37] 0.447185481 0.247151799 0.748219973 0.538129915 0.030727680 0.410451712
## [43] 0.356162286 0.169928680 0.176799986 0.490199240 0.889828242 0.802454498
## [49] 0.129069953 0.694477625 0.701561396 0.082388175 0.079017293 0.114650592
## [55] 0.778099407 0.038132727 0.487081168 0.278149180 0.025802752 0.249283593
## [61] 0.846890552 0.223062190 0.210762547 0.376761291 0.082064051 0.233958469
## [67] 0.342962488 0.730572376 0.894250010 0.988800461 0.497710637 0.946655608
## [73] 0.144414078 0.251685329 0.346703513 0.335317247 0.892013595 0.130301862
```

```
## [79] 0.081560876 0.045353443 0.344891126 0.410071261 0.621566948 0.818836779
## [85] 0.329713708 0.293244870 0.089540284 0.132215122 0.496356317 0.359872945
## [91] 0.571551344 0.304231321 0.803927564 0.839980256 0.665425682 0.002669636
## [97] 0.537816064 0.728669597 0.252346275 0.724311874
```

---

**include = FALSE**

No results are shown.

But, this shows the above code was evaluated and object **a** was created.

```
## [1] 0.6512069055 0.6651519733 0.6681661860 0.4336436889 0.4142855881
## [6] 0.6184352725 0.4629165505 0.4269558790 0.8218558307 0.1010162444
## [11] 0.0123708961 0.0313172399 0.9946714859 0.2823574010 0.8826807365
## [16] 0.9619706806 0.6970768331 0.3793270397 0.4593482118 0.9015936744
## [21] 0.7884225431 0.8172776175 0.0025936761 0.0419812859 0.1375661893
## [26] 0.0807574349 0.0001389624 0.0964157293 0.1365731203 0.2667404707
## [31] 0.1942046226 0.7312312324 0.2722529070 0.9049718524 0.0646821384
## [36] 0.7556912473 0.9640818359 0.1830108573 0.4955519645 0.3714570620
## [41] 0.1313385291 0.4950157166 0.4644586414 0.4623787857 0.1028932761
## [46] 0.7315323201 0.9178925341 0.0023527150 0.2764258326 0.4405686152
## [51] 0.3944474871 0.9386764970 0.6078627864 0.7109344315 0.7814479736
## [56] 0.1052157704 0.0022772625 0.4846693375 0.0733176514 0.1580989382
## [61] 0.8278034444 0.1411051280 0.9072100250 0.0400990990 0.1020173531
## [66] 0.7970790255 0.0129714953 0.8611674064 0.9640595755 0.1485804692
## [71] 0.4508498593 0.0106433611 0.2158272723 0.0898387097 0.7344084904
## [76] 0.3068988514 0.9020985381 0.9966172257 0.2738207695 0.4925583762
## [81] 0.1939275623 0.0793949533 0.0870394167 0.1351574806 0.1819930521
## [86] 0.7270940391 0.2675342008 0.2667735845 0.2446220699 0.8374004695
## [91] 0.5338095035 0.6106576971 0.3987668650 0.3012215076 0.0457166785
## [96] 0.2340719013 0.1729808906 0.7637378986 0.3256172710 0.8985493686
```

---

## Caching

```
## [1] 1.499696
```

```
## [1] 1.499696
```