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.

# Chunk options

## echo and eval

**R code and results**

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

**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)**

summary(cars)

**Both R codes and results not shown**

## messages and warnings

### both messages and warnings

library(tidyverse)

## ── Attaching packages ──────────────────────────────── tidyverse 1.3.0 ──

## ✓ ggplot2 3.3.1 ✓ purrr 0.3.4  
## ✓ tibble 3.0.1 ✓ dplyr 1.0.0  
## ✓ tidyr 1.0.2 ✓ stringr 1.4.0  
## ✓ readr 1.3.1 ✓ forcats 0.5.0

## ── Conflicts ─────────────────────────────────── tidyverse\_conflicts() ──  
## x dplyr::filter() masks stats::filter()  
## x dplyr::lag() masks stats::lag()

detach("package:tidyverse", unload=TRUE)

### messages suppressed

library(tidyverse)  
detach("package:tidyverse", unload=TRUE)

### both messages and warnings suppressed

library(tidyverse)  
detach("package:tidyverse", unload=TRUE)

## results

No results are shown.

a <- runif(100)

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

a

## [1] 0.893283342 0.166290330 0.537287777 0.602310016 0.024044627 0.822435684  
## [7] 0.969167954 0.960900287 0.698412934 0.106200189 0.521150537 0.017795961  
## [13] 0.105449163 0.190687648 0.880611129 0.350201572 0.245736748 0.737462035  
## [19] 0.547975657 0.264280306 0.100034478 0.595002929 0.784561442 0.527623425  
## [25] 0.358961023 0.484187594 0.249573278 0.439444169 0.709357631 0.942849520  
## [31] 0.981766753 0.095026640 0.267037198 0.712239424 0.003290788 0.546858087  
## [37] 0.603085293 0.881280469 0.926766343 0.614387994 0.683090461 0.205990836  
## [43] 0.066312093 0.821990329 0.739923358 0.860990290 0.488602856 0.418356101  
## [49] 0.158993519 0.755365702 0.798801923 0.525139017 0.098467418 0.123604664  
## [55] 0.228333606 0.409653888 0.534366011 0.872706607 0.637097600 0.918527583  
## [61] 0.329231260 0.553892554 0.361645261 0.089059685 0.481669974 0.919687774  
## [67] 0.787490103 0.735567707 0.852957861 0.017094017 0.884429219 0.202875680  
## [73] 0.711119418 0.161473065 0.730929100 0.800806569 0.622726190 0.860086180  
## [79] 0.343403606 0.970411434 0.016187294 0.225042523 0.278132730 0.761680691  
## [85] 0.357567949 0.245860576 0.460088790 0.880003117 0.740526184 0.688875756  
## [91] 0.222911512 0.520798876 0.993815439 0.529061408 0.987684752 0.895954882  
## [97] 0.286699085 0.958298597 0.770286323 0.767204974

## include = FALSE

No results are shown.

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

a

## [1] 0.228502331 0.473442889 0.168711555 0.646250362 0.622588598 0.612091125  
## [7] 0.405121862 0.161770199 0.231151024 0.704248394 0.945268040 0.650111469  
## [13] 0.340634852 0.752682473 0.738834413 0.254191644 0.715660254 0.620546316  
## [19] 0.303479975 0.967668226 0.707128911 0.932909932 0.774459328 0.112894977  
## [25] 0.972886087 0.386796397 0.835550464 0.226161701 0.067379784 0.737526574  
## [31] 0.921167596 0.298912306 0.399316903 0.126469561 0.639552020 0.639482431  
## [37] 0.924633713 0.906368244 0.611564255 0.414022590 0.482132456 0.661697574  
## [43] 0.504055473 0.378902072 0.120452187 0.352655617 0.732566477 0.389292678  
## [49] 0.446311107 0.796326944 0.260946890 0.693312513 0.025517171 0.796402551  
## [55] 0.320390477 0.121603722 0.430505493 0.048620416 0.270327967 0.003682452  
## [61] 0.901406326 0.859946161 0.496215069 0.504497025 0.860456323 0.988216684  
## [67] 0.723076132 0.813545735 0.501217803 0.803585764 0.452077426 0.037535512  
## [73] 0.493386137 0.617161996 0.013410283 0.591817681 0.094012996 0.942701813  
## [79] 0.168918924 0.803106984 0.165881889 0.480520434 0.676628229 0.086532944  
## [85] 0.704631670 0.300005585 0.844844451 0.600918503 0.532191945 0.086809029  
## [91] 0.454536219 0.919828690 0.528473742 0.483927760 0.398482501 0.293800055  
## [97] 0.388720113 0.405575909 0.133813422 0.005133785

## cache

summary(cars)

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