RMarkdown

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3/10/2017

Installation

```
install.packages("rmarkdown")
```

Syntax

Headers

Header 1

```
# Header 1
```

Header 2

```
## Header 2
```

Header 3

```
### Header 3
```

Header 4

```
#### Header 4
```

Header 5

```
##### Header 5
```

Header 6

```
###### Header 6
```

Text Styles

> block quote

```
> block quote
```

Bold

```
**Bold**
```

Italic

```
*Italic*
```

endash: –

```
endash: --
```

emdash: —

```
emdash: ---
```

inline equation (using $LaTeX$): $A = \pi * r^2$

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```

Subscripts $_{\text{Hello!}}$ and superscripts $^{\text{Hello!}}$ are easy.

```
Subscripts ~Hello!~ and superscripts ^Hello!^ are easy.
```

Here’s a link

```
[Here's a link](https://www.google.com)
```

Images

image:

```
image: ![](https://s-media-cache-ak0.pinimg.com/originals/1d/96/13/1d96138537ae93c28554fa623f56a527.gif
```

Lists

- unordered list
- number 2
    - sub-item (four spaces)

```
* unordered list
* number 2
  + sub-item (four spaces)
```

1. ordered list
2. item 2
    - sub-item (four spaces)

```
1. ordered list
2. item 2
    + sub-item (four spaces)
```

Tables

The default rendering is as you would see in the R terminal:

```r
head(mtcars)
```

```
##                    mpg cyl disp  hp drat    wt  qsec vs am gear carb
## Mazda RX4         21.0   6  160 110 3.90 2.620 16.46  0  1    4    4
## Mazda RX4 Wag     21.0   6  160 110 3.90 2.875 17.02  0  1    4    4
## Datsun 710        22.8   4  108  93 3.85 2.320 18.61  1  1    4    1
## Hornet 4 Drive    21.4   6  258 110 3.08 3.215 19.44  1  0    3    1
## Hornet Sportabout 18.7   8  360 175 3.15 3.440 17.02  0  0    3    2
## Valiant           18.1   6  225 105 2.76 3.460 20.22  1  0    3    1
```

You can use other styles, including interactive tables when knitting to HTML. Here's one using a knitr kable:

```r
knitr::kable(head(mtcars))
```

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21.0	6	160	110	3.90	2.620	16.46	0	1	4	4
Mazda RX4 Wag	21.0	6	160	110	3.90	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108	93	3.85	2.320	18.61	1	1	4	1
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1
Hornet Sportabout	18.7	8	360	175	3.15	3.440	17.02	0	0	3	2
Valiant	18.1	6	225	105	2.76	3.460	20.22	1	0	3	1

Code

Here's a piece of `inline code` to look at.

```
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```

Here is a piece of inline R code: 10

```
Here is a piece of inline R code: `r sum(3, 7)`
```

~~~
```
Code chunks are delineated by three backticks
```
~~~

```r
# R Code goes here!!
```

```r
# This will generate output
summary(cars)
```

```
##      speed           dist
```

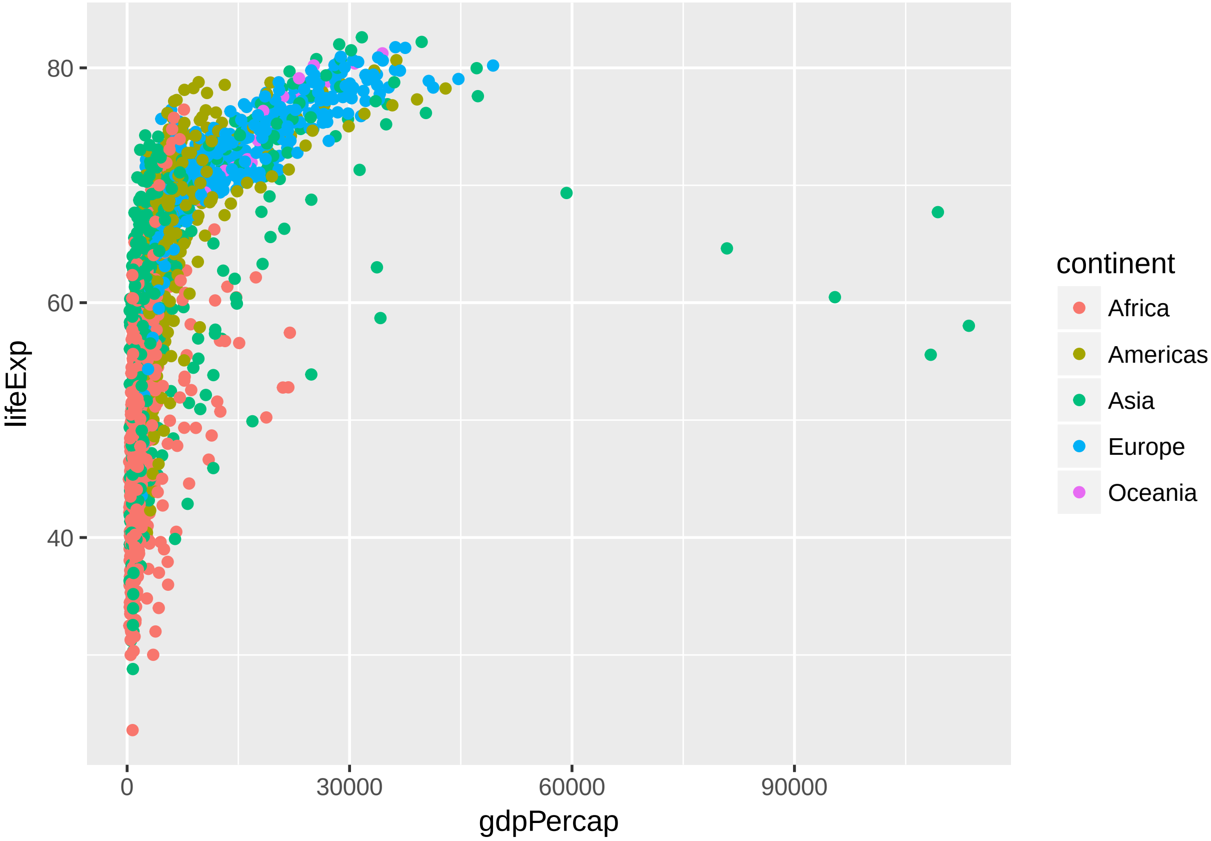
```
##  Min.   : 4.0   Min.   :  2.00
##  1st Qu.:12.0   1st Qu.: 26.00
##  Median :15.0   Median : 36.00
##  Mean   :15.4   Mean   : 42.98
##  3rd Qu.:19.0   3rd Qu.: 56.00
##  Max.   :25.0   Max.   :120.00
```

```
# Including "eval = FALSE" means this code will not run
summary(cars)
```

Plots

```
# Throw some plots in:
library(ggplot2)
library(gapminder)

ggplot(gapminder, aes(x = gdpPercap, y = lifeExp)) +
  geom_point(aes(color = continent))
```



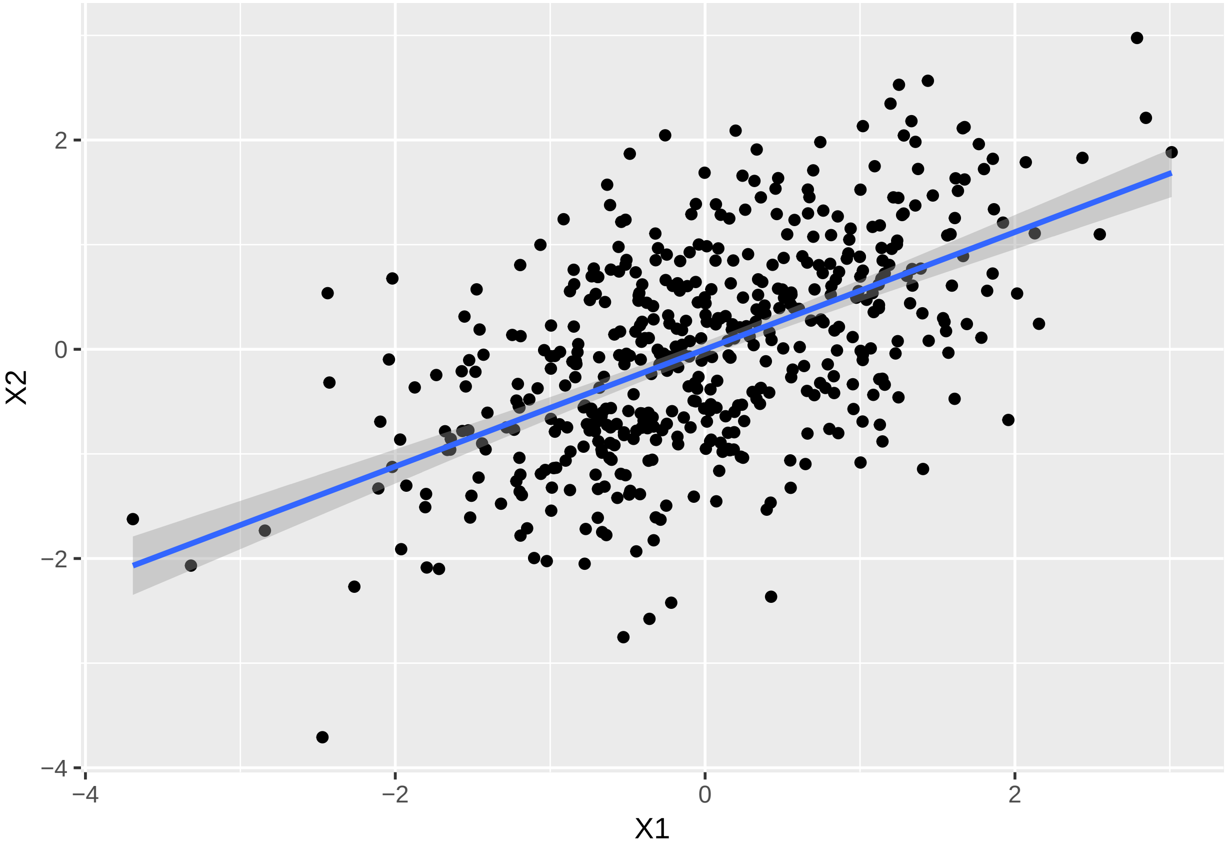
```
# Reproducible reports for when your data changes:
library(MASS)
library(ggplot2)
set.seed(42)

df <- data.frame(mvrnorm(500, mu = c(0,0), Sigma = matrix(c(1,0.56,0.56,1), ncol = 2),
               empirical = TRUE))
```

```
head(df)
```

```
##           X1         X2
## 1 -1.5229629 -0.1039770
## 2 -0.6037383 -1.0562666
## 3 -0.1830964  0.1967777
## 4 -0.4197538  0.2290691
## 5  0.4354155  0.8071503
## 6  0.1885482  0.1035446
```

```
ggplot(df, aes(x = X1, y = X2)) +
  geom_point() +
  geom_smooth(method = "lm")
```



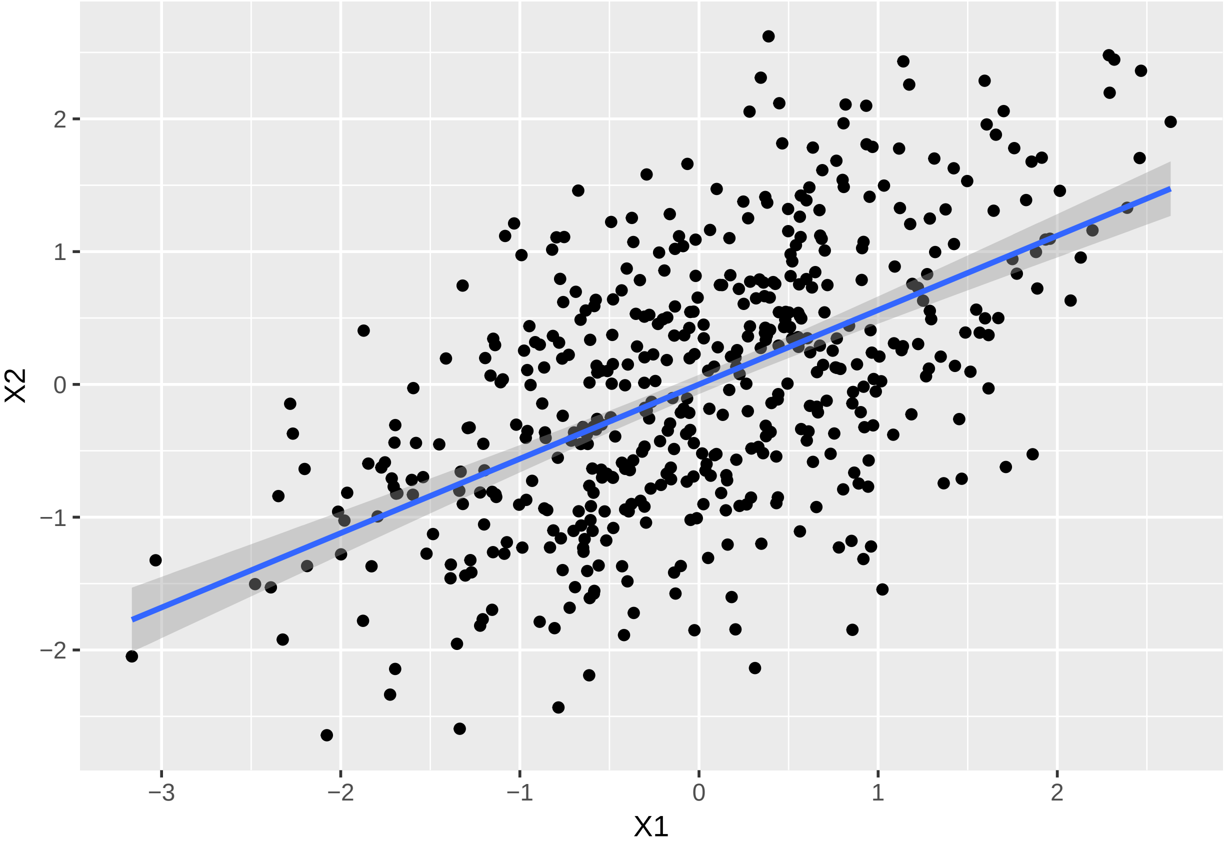
```
set.seed(500)

df <- data.frame(mvrnorm(500, mu = c(0,0), Sigma = matrix(c(1,0.56,0.56,1), ncol = 2),
               empirical = TRUE))

head(df)
```

```
##           X1         X2
## 1 -2.2014050 -0.6368717
## 2 -1.3510351 -1.9537550
## 3  0.7808272 -1.2277939
## 4  0.9720240 -0.3084019
## 5  0.3479552 -1.1997703
## 6  0.4815081  0.4875031
```

```
ggplot(df, aes(x = X1, y = X2)) +
  geom_point() +
  geom_smooth(method = "lm")
```



Other Languages

Code chunks can be in other languages including:

- Python
- SQL
- Bash
- Rcpp
- Stan
- JavaScript
- CSS

Python

```
x = 'hello, world!'
print(x.split(' '))
```

```
## ['hello,', 'world!']
```

Bash

```
pwd
```

```
## /Users/jamesadams/projects/workshops/20170313_rmarkdown
```

Footnotes

Here's a footnote,[1] and a second one. [2]

```
Here's a footnote,[^1] and a second one. [^longnamednote]

[^1]: Here's the first footnote.

[^longnamednote]: Here's the other.
```

[1] Here's the first footnote.

[2] Here's the other.