An R Markdown Document

Li Lei
Han Meimei

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A bit *introduction* here. We no longer need to start an article by writing this:

```
\documentclass{article}
\begin{document}
\end{document}
```

Start with a cool section

You can use traditional **Markdown** syntax, such as links and `code`. Here is a quote:

> A girl phoned me the other day and said "Come on over, there's nobody home." I went over. Nobody was home. – Rodney Dangerfield

Followed by another section

Of course you can write lists:

- apple
- pear
- banana

Or ordered lists:

1. items
2. will
3. be
4. ordered
   - nested
   - items

Okay, some R code

```r
fit = lm(dist ~ speed + I(speed^2), data = cars)
b = coef(fit)  # coefficients
summary(fit)
```

```
## 
## Call:
## lm(formula = dist ~ speed + I(speed^2), data = cars)
## 
## Residuals:
##     Min      1Q  Median      3Q     Max
## -28.720  -9.184  -3.188   4.628  45.152
## 
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  2.47014   14.81716   0.167    0.868
## speed        0.91329    2.03422   0.449    0.656
## I(speed^2)   0.09996    0.06597   1.515    0.136
## 
## Residual standard error: 15.18 on 47 degrees of freedom
## Multiple R-squared:  0.6673, Adjusted R-squared:  0.6532
## F-statistic: 47.14 on 2 and 47 DF,  p-value: 5.852e-12
```

The code will be highlighted in all output formats.

And some pictures

```r
par(mfrow = c(2, 2), pch = 20, mar = c(4, 4, 2, .1), bg = 'white')
plot(fit)
```

A little bit math

Our regression equation is $Y = 2.4701378 + 0.9132876x$, and the model is:

$$Y = \beta_0 + \beta_1 x + \epsilon$$

Pandoc extension: definition lists

Programmer A programmer is the one who turns coffee into code.
LaTeX A simple tool that is nothing but a couple of backslashes.

Pandoc extension: examples

We have some examples.

(1) Think what is `0.3 + 0.4 - 0.7`. Zero. Easy.
(2) Now think what is `0.3 - 0.7 + 0.4`. Still zero?
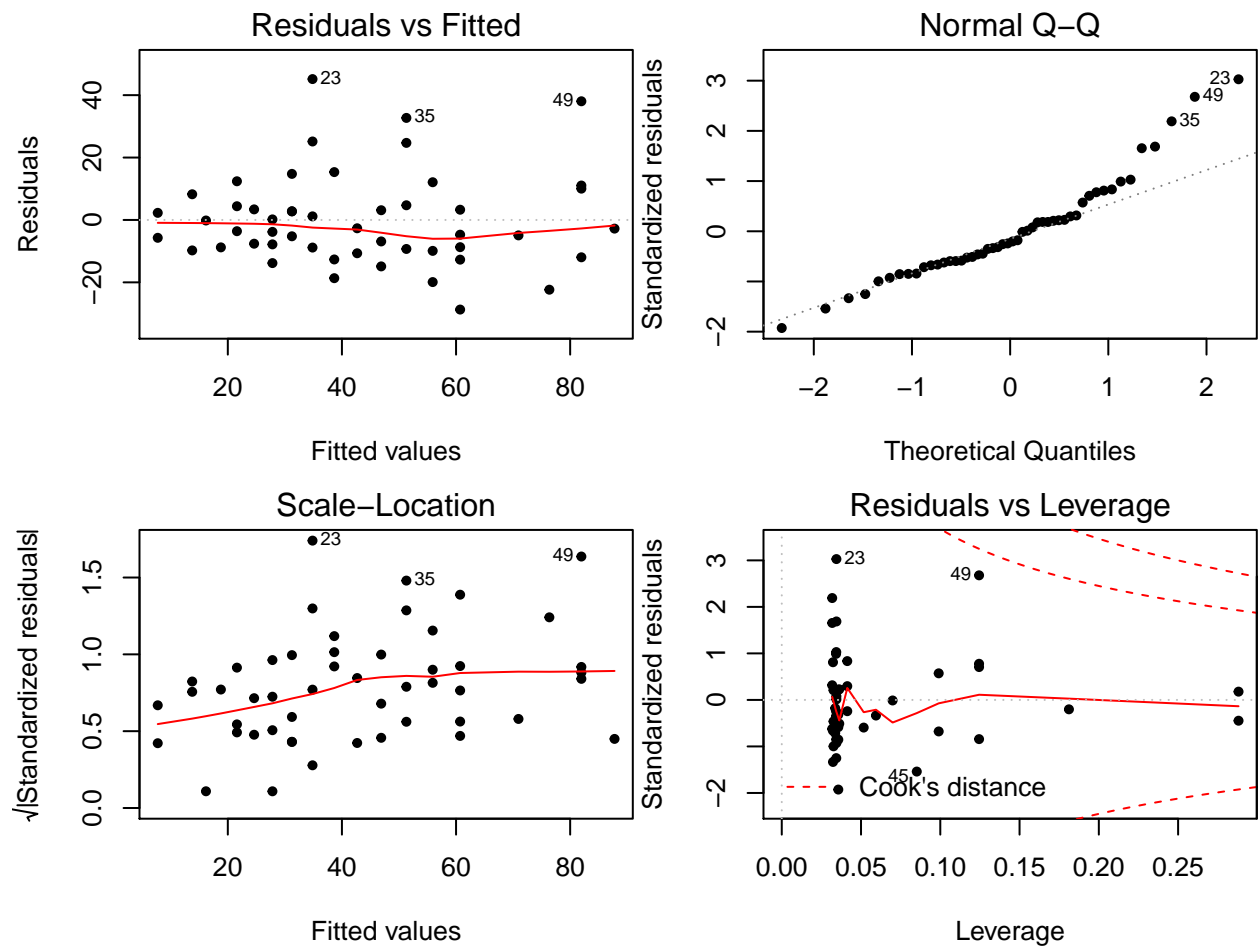
People are often surprised by (2).

Figure 1: Regression diagnostics

Pandoc extension: tables

A table here.

Table 1: Demonstration of simple table syntax.

Right	Left	Center	Default
12	12	12	12
123	123	123	123
1	1	1	1

You can also generate tables easily using `knitr::kable()` or the **pander** package.

```
knitr::kable(head(iris))
```

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
5.4	3.9	1.7	0.4	setosa

Pandoc extension: footnotes

We can also write footnotes[1].

Or write some inline footnotes[2].

Pandoc extension: citations

We compile the R Markdown file to Markdown through **knitr** (Xie 2015) in R (R Core Team 2016). For more about Xie (2015), see http://yihui.name/knitr.

References

R Core Team. 2016. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.

Xie, Yihui. 2015. *Dynamic Documents with R and Knitr*. 2nd ed. Boca Raton, Florida: Chapman; Hall/CRC. http://yihui.name/knitr.

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[1] hi, I'm a footnote

[2] as you can see here