STAT1378 SGTA Week 11 R Markdown Example

1 Images

Let's include a preview of the cheatsheet we mentioned before (you can find it here).

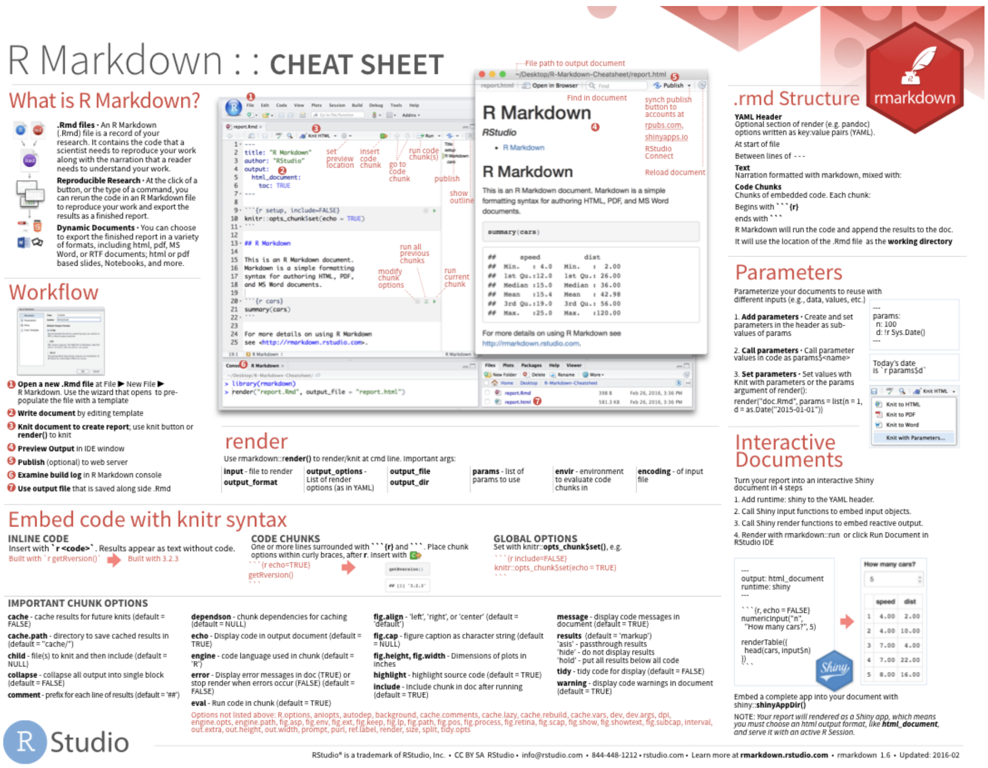

Figure 1: RMarkdown cheatsheet

2 Tables

Tables could be generated using `kable()` or `kbl()`. Short table can also be created within `R` by using `tibble::tribble`.

Table 1: kable example

First Header	Second Header
Content Cell 1	Content Cell 2
Content Cell 3	Content Cell 4

	Group 1		Group 2		Group 3	
	mpg	cyl	disp	hp	drat	wt
Mazda RX4	21.0	6	160	110	3.90	2.620
Mazda RX4 Wag	21.0	6	160	110	3.90	2.875
Datsun 710	22.8	4	108	93	3.85	2.320
Hornet 4 Drive	21.4	6	258	110	3.08	3.215
Hornet Sportabout	18.7	8	360	175	3.15	3.440

And see Table 1

```
##                    mpg cyl disp  hp drat    wt
## Mazda RX4         21.0   6  160 110 3.90 2.620
## Mazda RX4 Wag     21.0   6  160 110 3.90 2.875
## Datsun 710        22.8   4  108  93 3.85 2.320
## Hornet 4 Drive    21.4   6  258 110 3.08 3.215
## Hornet Sportabout 18.7   8  360 175 3.15 3.440
```

	mpg	cyl	disp	hp
Mazda RX4	21.0	6	160.0	110
Mazda RX4 Wag	21.0	6	160.0	110
Datsun 710	22.8	4	108.0	93
Hornet 4 Drive	21.4	6	258.0	110
Hornet Sportabout	18.7	8	360.0	175
Valiant	18.1	6	225.0	105
Duster 360	14.3	8	360.0	245
Merc 240D	24.4	4	146.7	62

3 Cross-referencing

We are going to typeset the following as an example. Most cross-referencing are obtained with `\@ref()`.

Let $\mu_t = \hat{y}_t = l_{t-1} + b_{t-1}$ denote the one-step forecast of y_t assuming we know the values of all parameters. Also let $\epsilon_t = y_t - \mu_t$ denote the one-step forecast error at time t. Then

$$y_t = l_{t-1} + b_{t-1} + \epsilon_t, \tag{1}$$

and so we can write

$$\begin{align} l_t &= l_{t-1} + b_{t-1} + \alpha\epsilon_t \tag{2} \\ b_t &= b_{t-1} + \beta^* \left(l_t - l_{t-1} - b_{t-1}\right) = b_{t-1} + \alpha\beta^*\epsilon_t. \tag{3} \end{align}$$

We simplify the last expression by setting $\beta = \alpha\beta^*$. The three equations above, i.e. Equations (1)–(3), constitute a state space model underlying Holt's method. The model is fully specified once we state the distribution of the error term ϵ_t. Usually we assume that these are independent and identically distributed, following a Gaussian distribution with mean 0 and variance σ^2, which we write as $\epsilon_t \sim NID(0, \sigma^2)$.

On a completely unrelated note, you can cross-reference to figures and tables as Figure 1 and Table 1.

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```
@article{cox1972regression,
  title={Regression models and life-tables},
  author={Cox, David R},
  journal={Journal of the Royal Statistical Society: Series B (Methodological)},
  volume={34},
  number={2},
  pages={187--202},
  year={1972},
  publisher={Wiley Online Library}
}
```

Now Google Scholar has produced
the BibTeX details for you.

You will normally need to edit it
slightly for consistency across all references.

Figure 2: This