NZSSN Courses: Introduction to R

Session 8 – R markdown

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SCIENCE
DEPARTMENT OF STATISTICS

R Markdown

- Report
- Reproducibility

R Markdown

Types of output:

- HTML
- Word document (MS Word to view)
- PDF (require LaTex to be installed)

Markdown

A simple way to write HTML. Almost like a plain English.

Input:

```
Markdown is
- *easy* to use
- **simple**
- fun?
```

Output:

Markdown is

- *easy* to use
- **simple**
- fun?

Header

Use # to create headers.
Multiple #'s create lower level headers.

```
# Header
## Header
### Header
#### Header
```

Text

Text is rendered as plain text. Use undersores (_) or asterisk * to make italics, two undersores (__) or asterisk ** to make bold.

Input:

```
*italic*   **bold**

_italic_   __bold__
```

Output:

italic **bold**
italic **bold**

Lists

Use asterisks (*), hyphen (-) or plus (+) to make bullet points.
Use numbers to make numbeered lists.

Input:

```
* Item 1
* Item 2
    + Item 2a
    + Item 2b
```

Output:

- Item 1
- Item 2
    - Item 2a
    - Item 2b

Lists

Use numbers to make numbeered lists.

Input:

```
1. Item 1
2. Item 2
3. Item 3
    (a) Item 3a
    (b) Item 3b
```

Output:

1. Item 1
2. Item 2
3. Item 3
    1. Item 3a
    2. Item 3b

Hyperlinks

Use square brackets to denote a link. Place the URL in the parentheses.

Input:

```
This is a [link](https://cran.r-project.org/)
```

Output:

This is a link

Equations

Equations can be presented using latex command and surround them in $'s

Input:

```
Accoring to Einstein, $E = mc^2$
```

Output:

Accoring to Einstein, $E = mc^2$

Equation blocks

Use two $'s to make a centered equation block.

Input:

```
Accoring to Einstein, $$E = mc^2$$
```

Output:

Accoring to Einstein,

$$E = mc^2$$

External Images

Same format as Hyperlinks, with ! in the front. You can also use URL of the image, provding that you have internet connection.

Input:

```
![](https://www.r-project.org/Rlogo.png)
```

Output:

Code

Insert a chunk of R code with

```
```{r  wrapper=TRUE}
#some code
```
```

Ignore the `wrapper = TRUE` option.

When you compile, R markdown will run the code and include its results.

inline code

Place code in a sentence with `` `r #code` ``. R markdown will replace the code with its results.

Input:

Today is `` `r Sys.Date()` ``

Output

Today is 2017-07-17

Chuck options

By default, R markdown includes both the code and its results

Input (Ignore the `wrapper = TRUE` option):

````
```{r  wrapper=TRUE}

dim(iris)

```
````

Output

```
dim(iris)
```

echo

Add `echo = FALSE` to hide the code.

Input (Ignore the `wrapper = TRUE` option):

````
```{r  wrapper=TRUE}

dim(iris)

```
````

Output

eval

Add `eval = FALSE` to prevent the code to run.

Input (Ignore the `wrapper = TRUE` option):

````
```{r  eval = FALSE, wrapper=TRUE}

dim(iris)

```
````

Output

```
dim(iris)
```

fig.height, fig.width

To sepcify the dimentsion of plots (in inches) with `fig.height` and `fig.width`.

Input (Ignore the `wrapper = TRUE` option):

```
```{r  echo = FALSE, fig.width = 3, fig.height = 5, wrapper=TR
```
```

Output

kable()

`kable()` in `knitr` R package allows you to present tables.

Input (Ignore the `wrapper = TRUE` option):

````
```{r  wrapper=TRUE}

knitr::kable(head(iris))

```
````

Output

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

Knitr R package

- The working directory is the where the document is placed.
- For each document, Knitr complie the R code as a new R session. Thus, you need to load the required libraries for that document.
- Any object made in one code chunk will be availbale to code in the later code chunk.

YAML

A section of key:value pairs seperated by dash lines ---

```
---
title: "title"
author: "You"
date: "20 July, 2017"
output: html_document
---
```

output temp

Slide with R Output

```
summary(cars)
```

Slide with Plot

```
plot(pressure)
```