A Template to Create Reproducible Document Using Rmarkdown and Knitr

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This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. Notice the source file extension is `.Rmd`. You can `Knit` this file from `RStudio` and produce the output in either HTML or PDF or MS Word format. Viewing the actual markdown syntax in `.Rmd` file will help you understand how this file is created.

Basic functions

We use asterisk mark to emphasize the words such as single `*` for *italics* and double `**` for **bolds**.

We use dash mark to create a list.

- item 1
- item 2
- item 3

We can also create ordered list by numbering them as follows

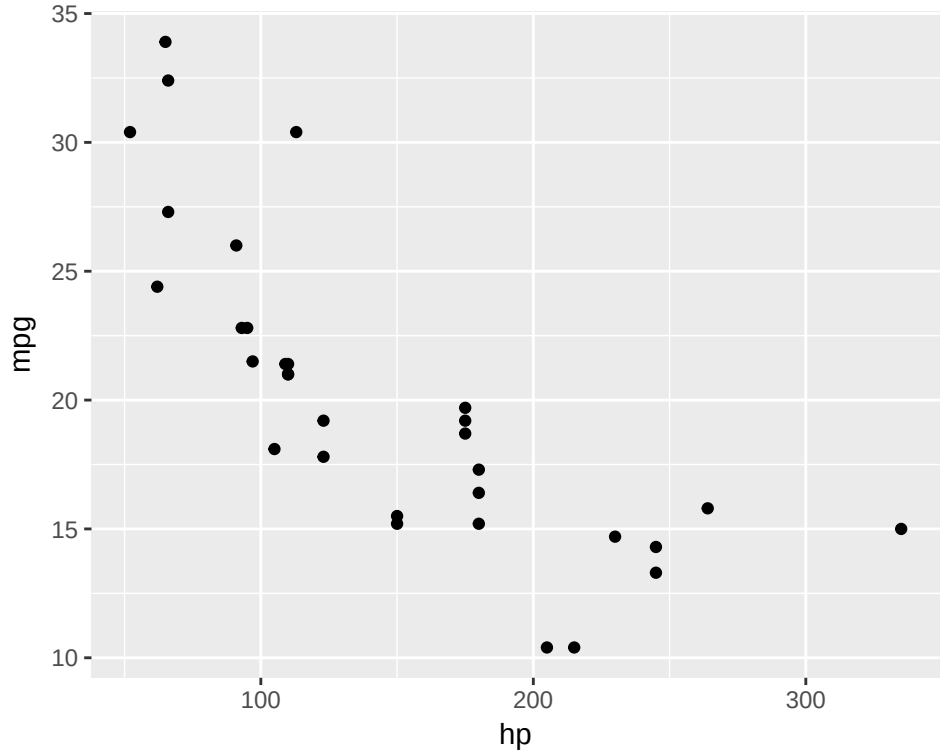
1. list 1
2. list 2
3. list 3

```
We use back ticks to create
a block of codes
```

Embedding `R` codes

If we want to embed some `R` codes we can do it as below. This is one of the powers `R` package `kintr` brought for us. We can control the size of the figure in knitr code chunk option.

```
library(ggplot2)
ggplot(mtcars, aes(hp, mpg)) +
  geom_point()
```



We can embed inline `R` codes to display results in a line. Such as the number of records in dataframe women is 15.

We use function `kable()` to display a table of data

```
knitr::kable(head(mtcars, 10))
```

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21.0	6	160.0	110	3.90	2.620	16.46	0	1	4	4
Mazda RX4 Wag	21.0	6	160.0	110	3.90	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108.0	93	3.85	2.320	18.61	1	1	4	1
Hornet 4 Drive	21.4	6	258.0	110	3.08	3.215	19.44	1	0	3	1
Hornet Sportabout	18.7	8	360.0	175	3.15	3.440	17.02	0	0	3	2
Valiant	18.1	6	225.0	105	2.76	3.460	20.22	1	0	3	1
Duster 360	14.3	8	360.0	245	3.21	3.570	15.84	0	0	3	4
Merc 240D	24.4	4	146.7	62	3.69	3.190	20.00	1	0	4	2
Merc 230	22.8	4	140.8	95	3.92	3.150	22.90	1	0	4	2
Merc 280	19.2	6	167.6	123	3.92	3.440	18.30	1	0	4	4

Math Equation

We can embed mathematical equations. For inline equation we use single `$` sign such as $var(\bar{y}) = \sigma^2/n$. For standalone equation we use double `$$` as below

$$f(x) = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{1}{2\sigma^2}(x-\mu)^2}$$

Adding Bibliography

We can add bibliography and cite it. For example if we want to cite `knitr` we just do it as this [1]. If we want to cite other references we can do it as this[2].

[1] Dynamic Documents with R and knitr by Yihui Xie.
[2] knitr showcase, examples from other users http://yihui.name/knitr/demo/showcase/