Making Tables Easy with Tabyl and kableExtra

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Load libraries:

```
# load libraries as needed:


library(tidyverse)


## -- Attaching packages --------------------------------------------- tidyverse 1.3.0 --


## v ggplot2 3.3.0      v purrr   0.3.3
## v tibble  2.1.3      v dplyr   0.8.4
## v tidyr   1.0.2      v stringr 1.4.0
## v readr   1.3.1      v forcats 0.4.0


## Warning: package 'ggplot2' was built under R version 3.6.3


## -- Conflicts ------------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()


library(janitor)


##
## Attaching package: 'janitor'
```

This will use the 'mtcars' data set built into base R, and a subset (first 5 rows / first 4 columns) which will be called 'dt':

```
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
```

dt:

```
dt <- mtcars[1:5, 1:4]
print(dt)
```

```
##                    mpg cyl disp  hp
## Mazda RX4         21.0   6  160 110
## Mazda RX4 Wag     21.0   6  160 110
## Datsun 710        22.8   4  108  93
## Hornet 4 Drive    21.4   6  258 110
## Hornet Sportabout 18.7   8  360 175
```

The janitor package

The janitor does 'clean up' tasks:

- Perfectly format data frame column names;

- Isolate partially-duplicate records; and

- Provide quick tabulations (i.e., frequency tables and crosstabs).

For now, just look at the tabulations, which are done with 'tabyl()'

Basic Table:

```
mtcars %>%
   tabyl(gear, cyl, show_NA = TRUE)


##  gear 4 6  8
##      3 1 2 12
##      4 8 4  0
##      5 2 1  2
```

Adding to the Basic Tables, using 'Adorn':

```
mtcars %>%
  tabyl(gear, cyl, show_NA = TRUE) %>%
  adorn_totals(where="row")


##    gear  4 6  8
##       3  1 2 12
##       4  8 4  0
##       5  2 1  2
##   Total 11 7 14
```

Using 'Adorn' with multiple options:

```
mtcars %>%
  tabyl(gear, cyl, show_NA = TRUE) %>%
  adorn_totals(where=c("row","col"))
```

```
##   gear  4 6  8 Total
##      3  1 2 12    15
##      4  8 4  0    12
##      5  2 1  2     5
##  Total 11 7 14    32
```

The use of Adorn can be extended:

```
mtcars %>%
  tabyl(gear, cyl, show_NA = TRUE)          %>%
  adorn_totals(where=c("row","col"))        %>%
  adorn_percentages(denominator = "col")    %>%
  adorn_pct_formatting(digits = 0)


##   gear     4     6     8 Total
##      3    9%   29%   86%   47%
##      4   73%   57%    0%   38%
##      5   18%   14%   14%   16%
##   Total 100%  100%  100%  100%
```

Mixing in Percentages, and Formatting Them:

```
mtcars %>%
   tabyl(gear, cyl, show_NA = TRUE)        %>%
   adorn_totals(where=c("row","col"))      %>%
   adorn_percentages(denominator = "col") %>%
   adorn_pct_formatting(digits = 0) %>%
   adorn_ns(position = "front")


##   gear         4        6         8      Total
##      3  1   (9%)  2  (29%) 12   (86%) 15   (47%)
##      4  8  (73%)  4  (57%)  0    (0%) 12   (38%)
##      5  2  (18%)  1  (14%)  2   (14%)  5   (16%)
##  Total 11 (100%)  7 (100%) 14  (100%) 32  (100%)
```

The kableExtra package

This package allows easy html tables - here is the simplest:

```
dt %>%
  kable()
```

	mpg	cyl	disp	hp
Mazda RX4	21.0	6	160	110
Mazda RX4 Wag	21.0	6	160	110
Datsun 710	22.8	4	108	93
Hornet 4 Drive	21.4	6	258	110
Hornet Sportabout	18.7	8	360	175

The easiest improvement is to use the styling command:

```
dt                    %>%
  kable()             %>%
  kable_styling()
```

	mpg	cyl	disp	hp
Mazda RX4	21.0	6	160	110
Mazda RX4 Wag	21.0	6	160	110
Datsun 710	22.8	4	108	93
Hornet 4 Drive	21.4	6	258	110
Hornet Sportabout	18.7	8	360	175

Options for the styling() commands:

- The 'responsive' command will allow horizontal scrolling on small screens.

- The 'full_width = F' will not take up the whole page width if not neeeded.

- The position = 'center' command centers it ('left', 'right')

- (not shown) "float_right" would allow text to be put to the left of the table.

Code:

```
dt                          %>%
  kable()                   %>%
  kable_styling(bootstrap_options =
            c("striped", "hover", "condensed", "responsive",
              full_width = F, position = "center")
        )
```

	mpg	cyl	disp	hp
Mazda RX4	21.0	6	160	110
Mazda RX4 Wag	21.0	6	160	110
Datsun 710	22.8	4	108	93
Hornet 4 Drive	21.4	6	258	110
Hornet Sportabout	18.7	8	360	175

Other things:

- Locking the header row.
- Setting up scrolling.
- Controlling the cells (e.g., conditional highlighting).
- Linking to other locations.

…many, many other things.

Questions?

References:

- The janitor package vignette: https://garthtarr.github.io/meatR/janitor.html

- The kableExtra package: https://cran.r-project.org/web/packages/kableExtra/vignettes/awesome_table_in_html.html#html_only_features