SUMMARY STATISTICS

GGPLOT2 FUNDAMENTALS +

Use this cheat sheet to calculate statistical transformations on your data and display the results as geometric objects.

Use this for measures of center

```
stat_summary(geom     = <point, bar, area, line>,
             fun      = <mean, median, FUNCTION>,
             fun.args = list(<ARGS>),
             mapping  = aes(<MAPPINGS>),
             position = <POSITIONING>,
             ...)
```

Set any aesthetic of the geometric object as an argument (e.g., `color = "blue"`)

Use this for measures of center and/or spread by explicitly setting the center, minimum, and maximum values

```
stat_summary(geom     = <pointrange, linerange, errorbar, ribbon, crossbar>,
             fun      = <mean, median, FUNCTION>,
             fun.min  = <min, FUNCTION>,
             fun.max  = <max, FUNCTION>,
             fun.args = list(<ARGS>),
             mapping  = aes(<MAPPINGS>),
             position = <POSITIONING>,
             ...)
```

Use **`position_dodge()`** or **`position_dodge2()`** to dodge geometric objects if necessary.

Use this for measures of center and/or spread by setting the center, minimum, and maximum values with a function

```
stat_summary(geom     = <pointrange, linerange, errorbar, ribbon, crossbar>,
             fun.data = <mean_cl_normal, mean_sdl, mean_se, mean_cl_boot, FUNCTION>,
             fun.args = list(<ARGS>),
             mapping  = aes(<MAPPINGS>),
             position = <POSITIONING>,
             ...)
```

99% Confidence interval

```
stat_summary(fun.data = mean_cl_normal,
             fun.args = list(conf.int = .99),
             ...)
```

One standard deviation

```
stat_summary(fun.data = mean_sdl,
             fun.args = list(mult = 1),
             ...)
```

One standard error

```
stat_summary(fun.data = mean_se,
             fun.args = list(mult = 1),
             ...)
```

Boootstraped confidence interval with 2000 bootstraps

```
stat_summary(fun.data = mean_cl_boot,
             fun.args = list(B = 2000),
             ...)
```