MA615 Assignment 1 carviz

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call built-in data mtcars.

```
library(tidyverse)
```

```
## Warning: package 'tidyverse' was built under R version 3.6.2
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --
```

```
## v ggplot2 3.3.5     v purrr   0.3.4
## v tibble  3.1.4     v dplyr   1.0.7
## v tidyr   1.1.3     v stringr 1.4.0
## v readr   2.0.1     v forcats 0.5.1
```

```
## Warning: package 'ggplot2' was built under R version 3.6.2
```

```
## Warning: package 'tibble' was built under R version 3.6.2
```

```
## Warning: package 'tidyr' was built under R version 3.6.2
```

```
## Warning: package 'readr' was built under R version 3.6.2
```

```
## Warning: package 'purrr' was built under R version 3.6.2
```

```
## Warning: package 'dplyr' was built under R version 3.6.2
```

```
## Warning: package 'forcats' was built under R version 3.6.2
```

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

```
data(mtcars)
```

Select only car models where mpg<20.

```
mtcars_mpg2 <- mtcars[mtcars$mpg < 20,]
```

Reduce the variables to mpg, cyl, disp, hp, gears

```
mtcars_mpg2 <- mtcars_mpg2[, c(1,2,3,4,10)]
```

read the R file hand_functions.R so that it can be used notice that with echo = TRUE

```
source(file = "hand_functions.R", echo = TRUE)
```

```
##
## > sum_special <- function(df_x) {
## +     try(if (!is.data.frame(df_x))
## +         stop("Input data must be a data frame."))
## +     sp_means <- apply(df_ .... [TRUNCATED]
```

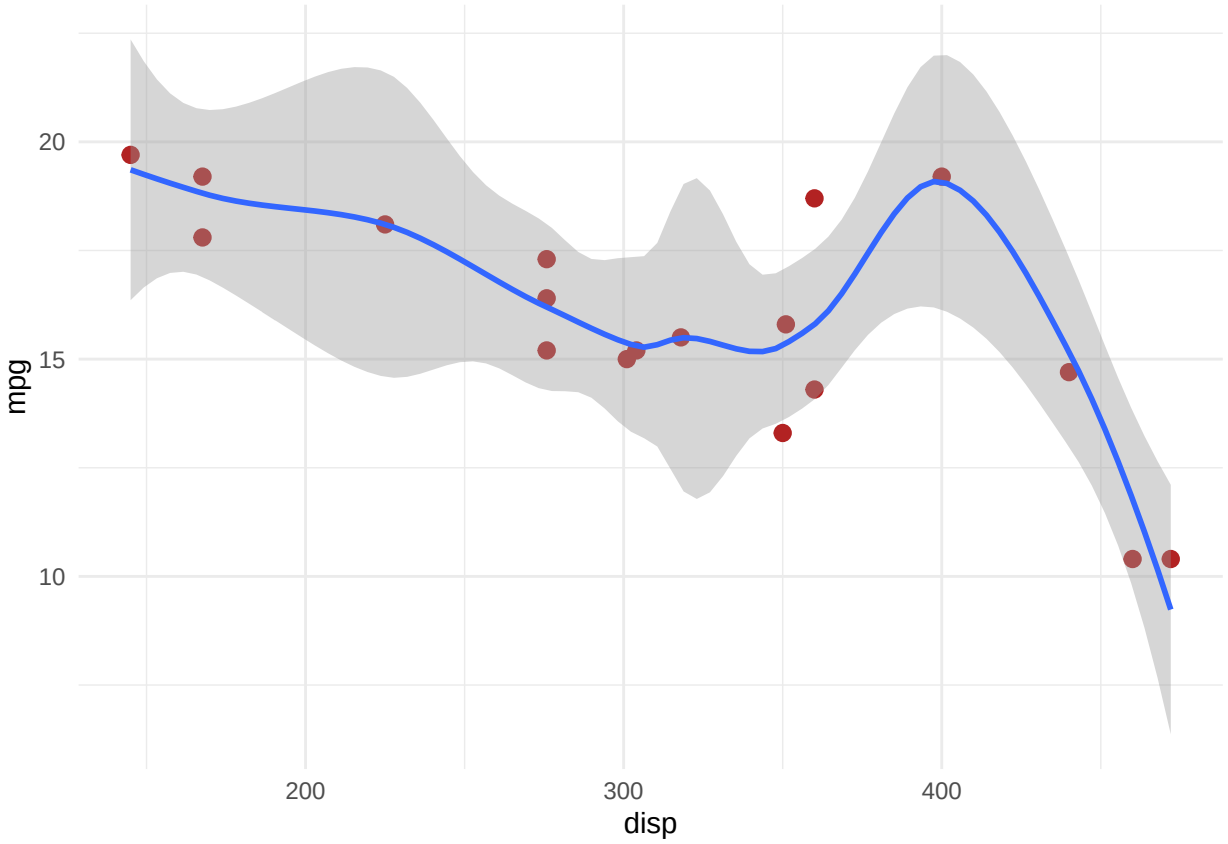
Now use the function from hand_functions.R

```
sp_out <- sum_special(mtcars_mpg2)
```

```
#library(esquisse)
#esquisser(data = mtcars_mpg2, viewer = "dialog")
```

```
ggplot(mtcars_mpg2) +
  aes(x = disp, y = mpg) +
  geom_point(shape = "bullet", size = 4L, colour = "#B22222") +
  geom_smooth(span = 0.5) +
  theme_minimal()
```

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



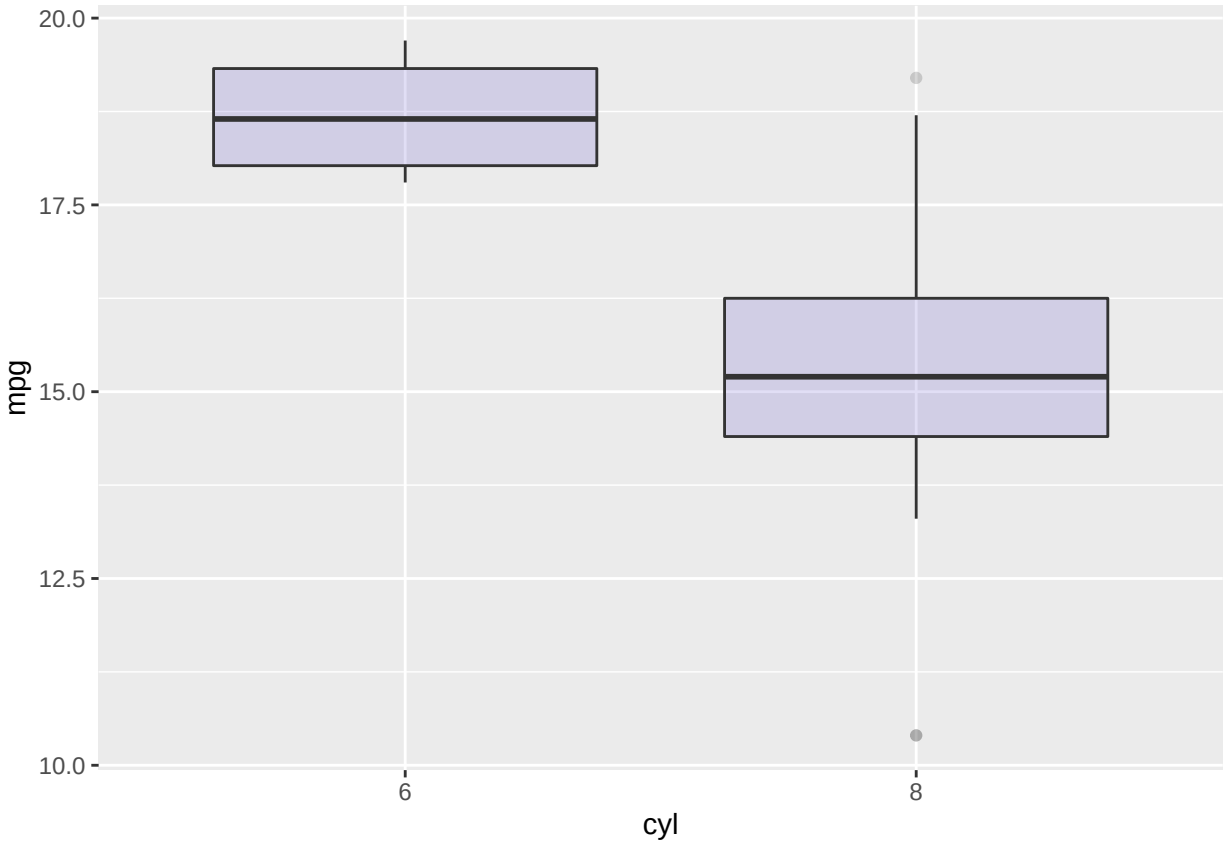
note that this boxplot cannot be made with esquisser() unless the data is adjusted. What adjustment is needed?

We can adjust the cyl to factors so that we can use esquisser() to make boxpolot.

```
mtcars_mpg3 <- mtcars_mpg2
mtcars_mpg3$cyl <- as.factor(mtcars_mpg3$cyl)
#esquisser(data = mtcars_mpg3, viewer = "dialog")
```

```
ggplot(mtcars_mpg2, aes(x=as.factor(cyl), y=mpg)) +
  geom_boxplot(fill="slateblue", alpha=0.2) +
```

```
xlab("cyl")
```



What I learn from this exploration is how to use github create organization and repositery to back up my works. Besides, I learn a function called esquisser(). We can use this addin to interactively explore the data by visualizing it with the ggplot2 package. It allows us to draw bar plots, curves, scatter plots, histograms, boxplot and sf objects, then export the graph or retrieve the code to reproduce the graph. And we have to make variables to be all factors in order to use esquisser() draw boxplot.