Homework

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Today I will use R to manipulate data and generate different kinds of graph with `dplyr` and `ggplot2` package.

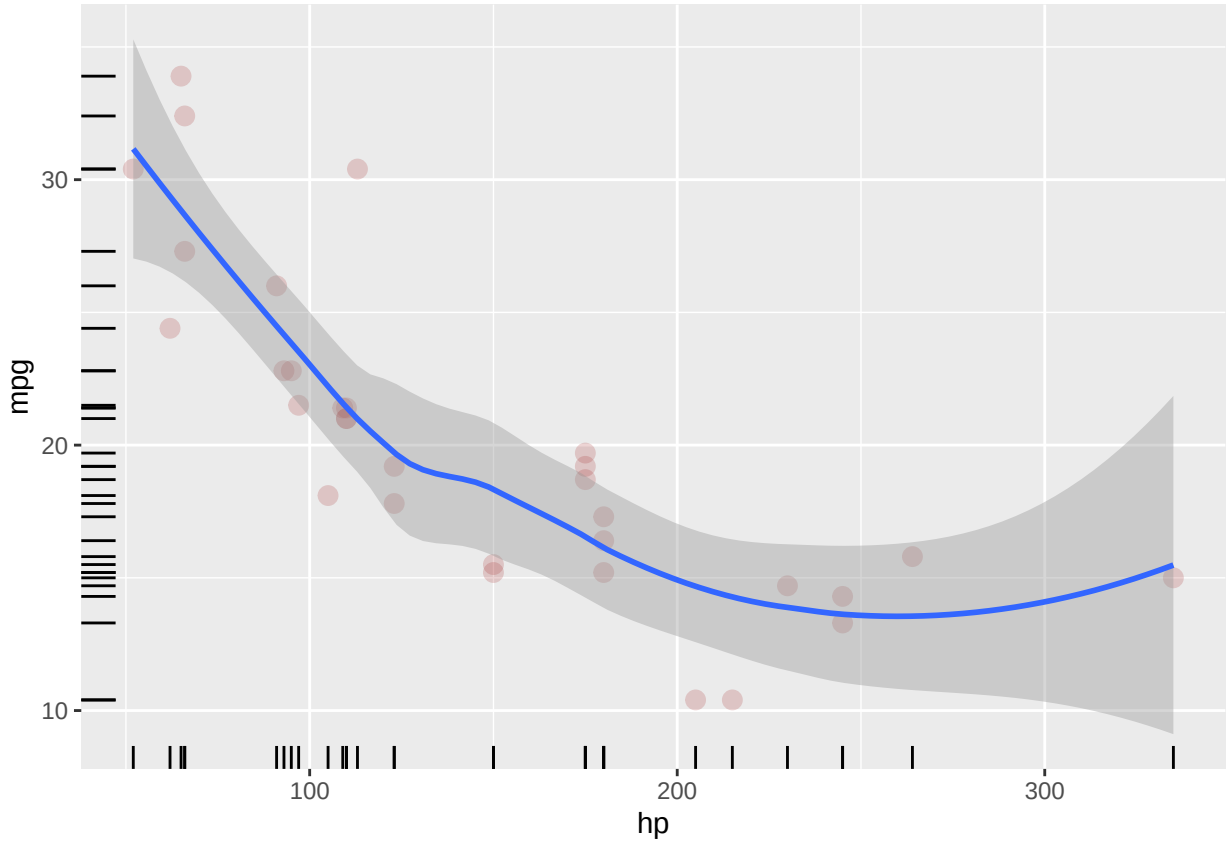
The dataset which is used in this homework is 'mtcars'

To begin with, both libraries need to be called.

```
library(dplyr)
library(ggplot2)
```

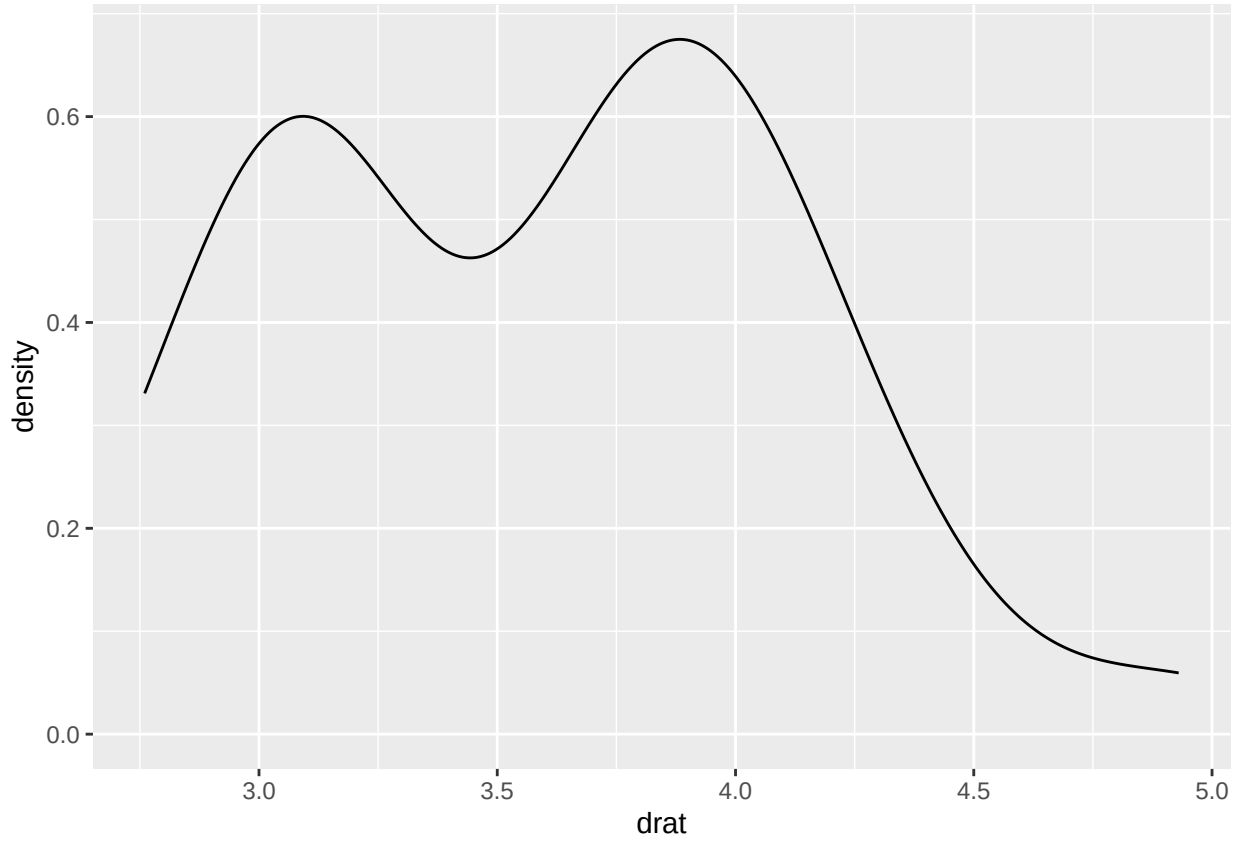
First, I am going to create a scatter plot with a smooth trend line and rug plot for two specific parameters; Horse Power and Miles per Gallon. As the below image illustrated, higher horse power reduces mile per gallon significantly.

```
ggplot(data = mtcars, mapping = aes(x = hp, y = mpg)) +
  geom_point(size = 3, col = "brown", alpha = 0.2) +
  geom_smooth() +
  geom_rug()
```



Second, I am going to create a Density Chart for Rear Axle Ratio which abbreviates as drat. As the below image illustrated, the Rear Axle Ratio is fluctuated in density.

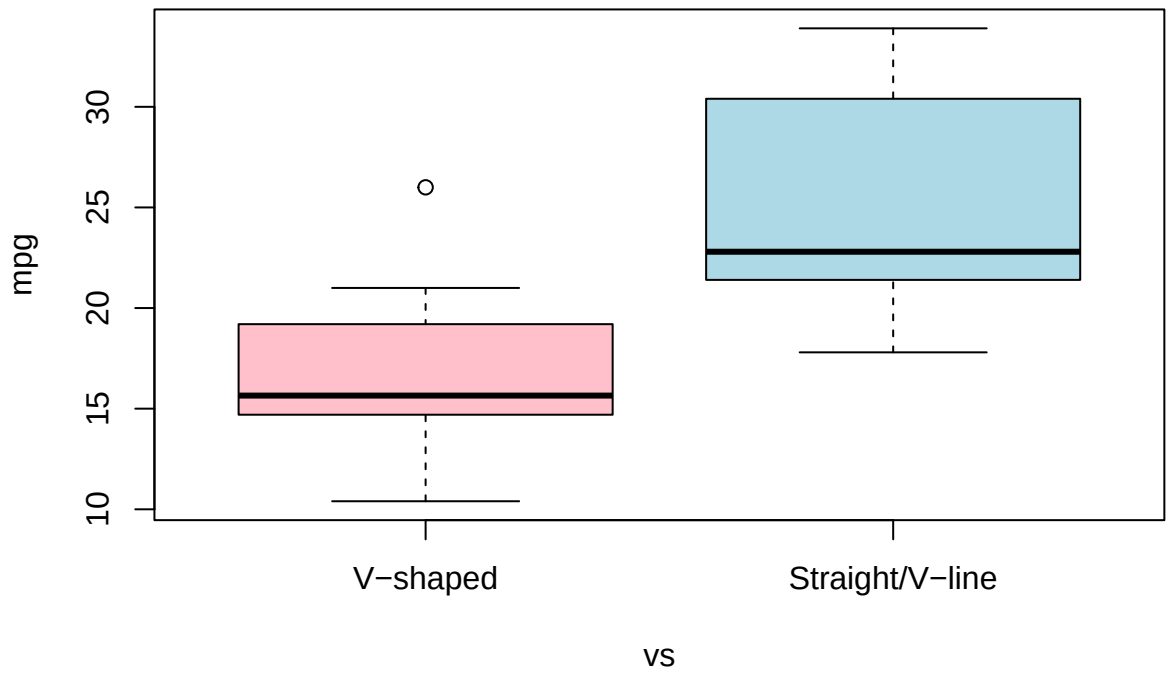
```
p <- ggplot(mtcars, aes(drat))
p + geom_density()
```



Lastly, I am going to create a boxplot for two variables; Engine and Miles per Gallon. The Engine has two kinds which are V-shaped (binary as 0) and Straight/V-line (binary as 1). As the below image illustrated, both types of engine have different values for miles per gallon.

```
mtcars$vs <- factor(mtcars$vs,
                    levels = c(0,1),
                    labels = c("V-shaped", "Straight/V-line"))

boxplot(mpg ~ vs, data = mtcars,
        col = c("pink", "lightblue"))
```



Thank you for reading, this is the end of the homework.