Homework_data_visualization

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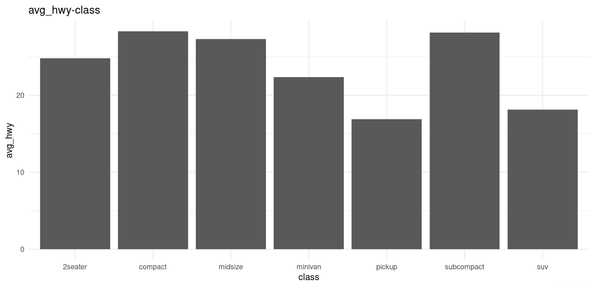
```
library(tidyverse)
```

NO.1 Which car class is most fuel-efficient on the highway?

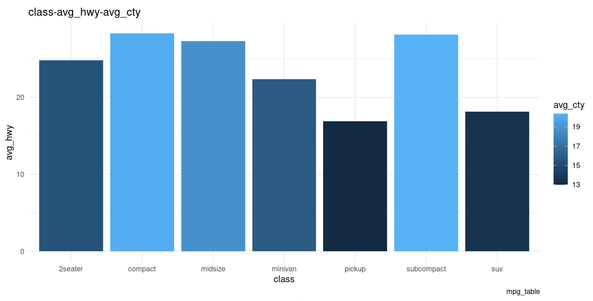
```
ggplot(mpg %>%
         select(class,hwy)%>%
         group_by(class)%>%
          summarise(avg_hwy = mean(hwy)),
       aes(x = class , y = avg_hwy))+
  geom_col()+
  theme_minimal()+
  labs(
    title = "avg_hwy-class",
    caption = "mpg_table"
  )
```



From this bar chart ; compact car and subcompact car are the most fuel efficient compared to other types of vehicles and pickup car are the least fuel efficient

NO.2 Compare cty and hwy of each class of car

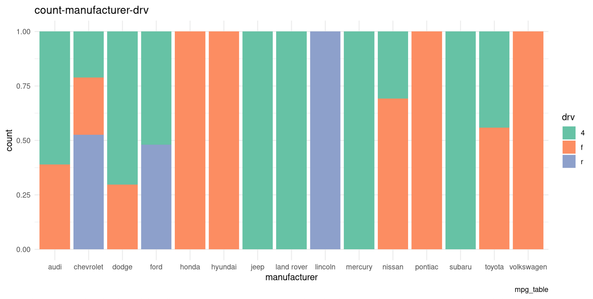
```
ggplot(mpg %>%
         select(class,cty,hwy)%>%
         group_by(class)%>%
         summarise(avg_hwy = mean(hwy),
                   avg_cty = mean(cty)),
       aes(x = class , y = avg_hwy , fill = avg_cty))+
  geom_col()+
  theme_minimal()+
  labs(
    title = "class-avg_hwy-avg_cty",
    caption = "mpg_table"
  )
```



From this bar chart ; All class of cars that used in highway are more fuel efficient than all class of cars that used in the city

NO.3 What manufacturer of cars are not there 4wd ?

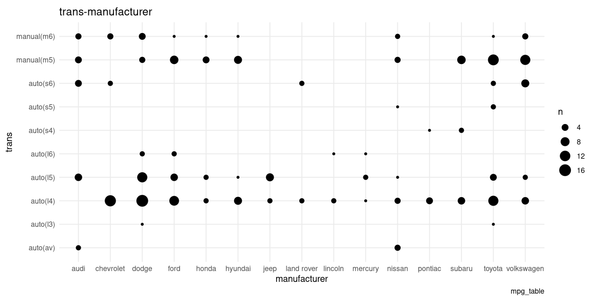
```
ggplot(mpg,
       aes(manufacturer , fill = drv))+
  geom_bar(position = "fill")+
  theme_minimal()+
  scale_fill_brewer(palette = "Set2")+
  labs(
    title = "count-manufacturer-drv",
    caption = "mpg_table"
  )
```



From this bar chart ; honda , hyundai , volkswagen , pontiac don't have 4wd car but jeep , land rover , mercury , subaru only has 4wd car

NO.4 Relationship between manufacturer and trans

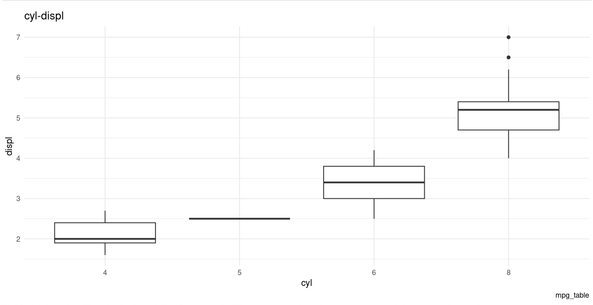
```
ggplot(mpg,
       aes(manufacturer,trans))+
  geom_count()+
  theme_minimal()+
  labs(
    title = "trans-manufacturer",
    caption = "mpg_table"
  )
```



FROM this Count overlapping points ; auto(l4) - auto(l5) and manual(m5) - manual(m6) is range that almost all cars of manufacturer are produced.

NO.5 displ distribution

```
mpg$cyl <- as.character(mpg$cyl)
ggplot(mpg,
       aes(x = cyl,y = displ))+
  geom_boxplot()+
  theme_minimal()+
  labs(
    title = "cyl-displ",
    caption = "mpg_table"
  )
```



FROM this boxplot ; The distribution of displ is not much different when divided by the cyl.At cyl = 8 there are a few outlier