Homework_Week07_Data_Visualization

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Order by P'Toy

1. Create Rmarkdown
2. Create 5 charts
3. 5 Questions

Main Functions

```
library(tidyverse)
library(ggthemes)
library(patchwork)
library(dplyr)
```

Data Base → mpg

Mention :

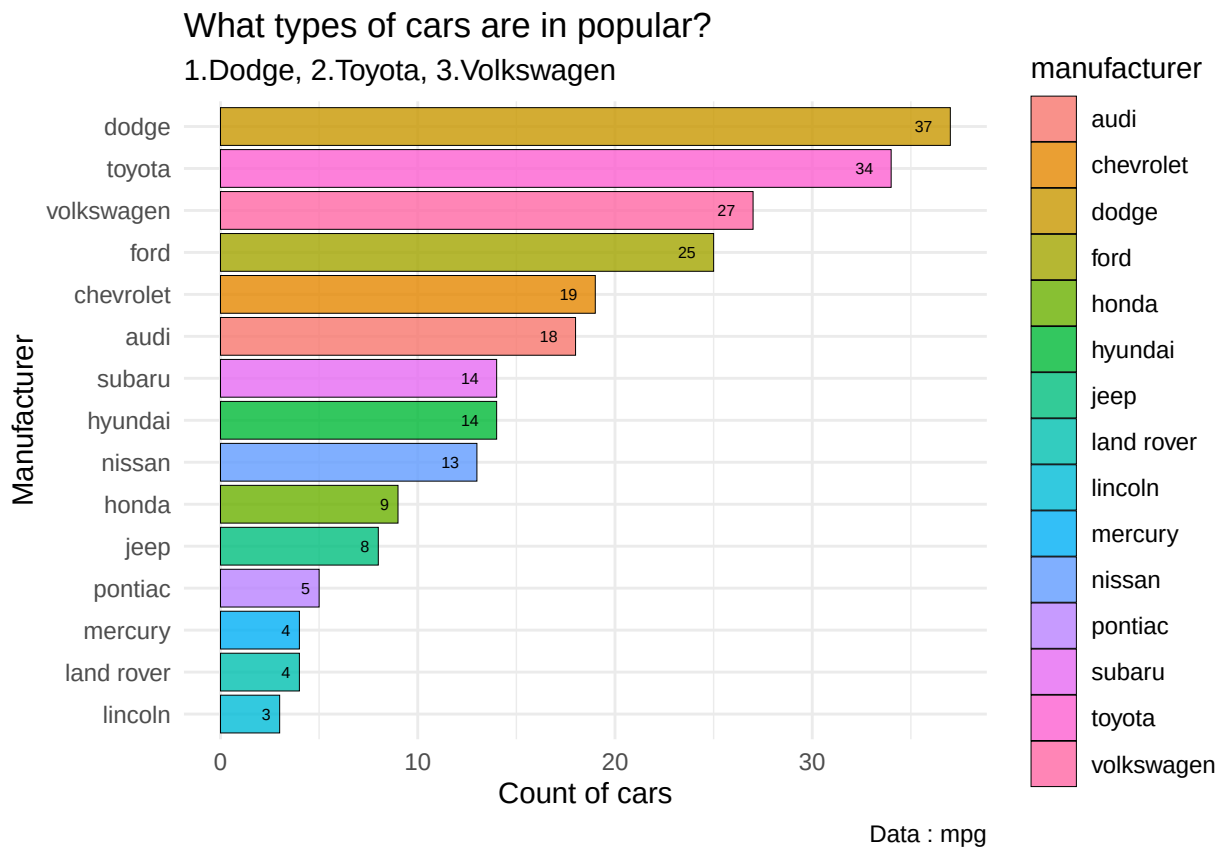
- displ = engine displacements in litre
- cyl = number of cylinders
- cty = city miles per gallon
- hwy = highway miles per gallon
- fl = fuel type

```
## # A tibble: 6 x 11
##   manufacturer model displ  year   cyl trans      drv     cty   hwy fl    class
##   <chr>        <chr> <dbl> <int> <int> <chr>      <chr> <int> <int> <chr> <chr>
## 1 audi         a4      1.8  1999     4 auto(l5)   f        18    29 p     compa~
## 2 audi         a4      1.8  1999     4 manual(m5) f        21    29 p     compa~
## 3 audi         a4      2    2008     4 manual(m6) f        20    31 p     compa~
## 4 audi         a4      2    2008     4 auto(av)   f        21    30 p     compa~
## 5 audi         a4      2.8  1999     6 auto(l5)   f        16    26 p     compa~
## 6 audi         a4      2.8  1999     6 manual(m5) f        18    26 p     compa~
```

1. What types of cars are in popular ?

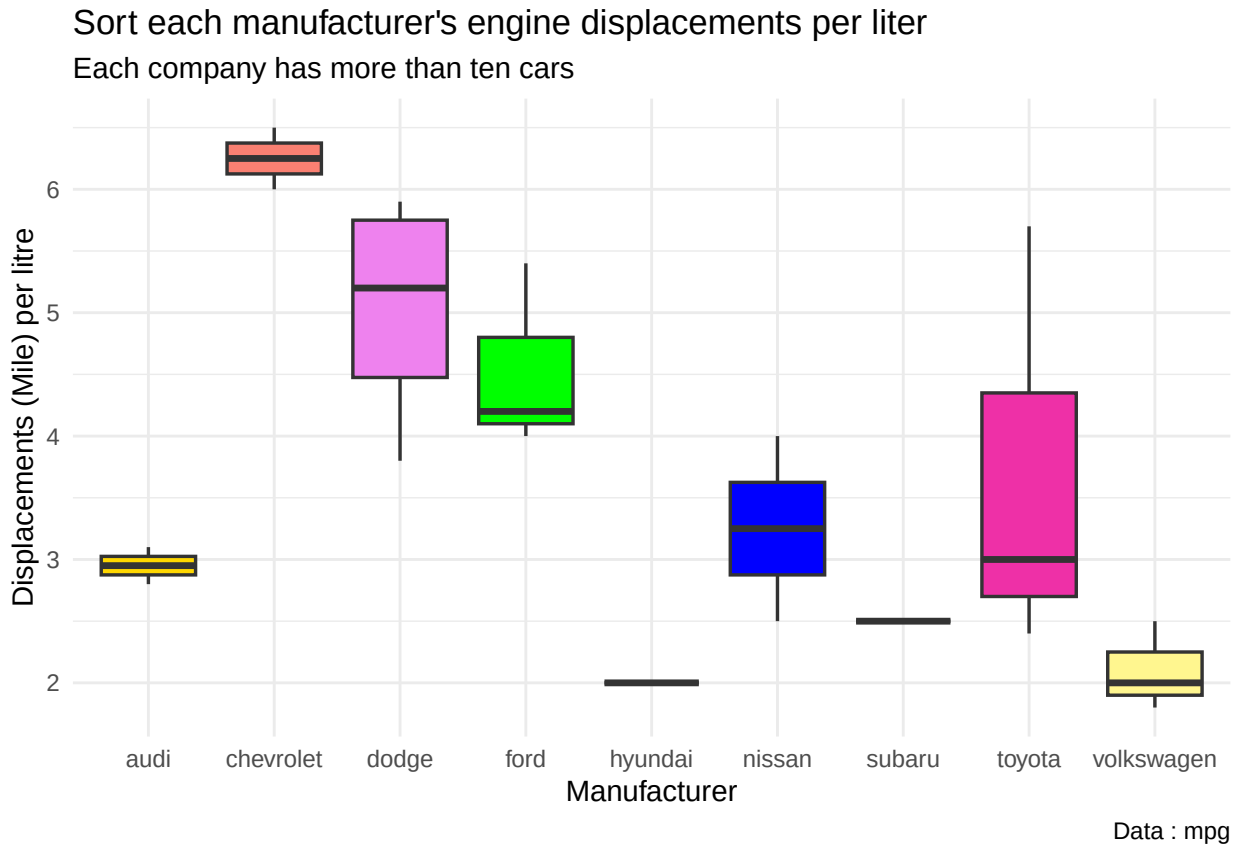
```
mpg %>%
  count(manufacturer) %>%
  ggplot( data=., aes(n, reorder(manufacturer,n), fill = manufacturer, label = sprintf("%d",round(n)))) +
  geom_col( alpha = 0.8, color = "black", size = 0.1) +
  labs(
    title = "What types of cars are in popular?",
    subtitle = "1.Dodge, 2.Toyota, 3.Volkswagen ",
    caption = "Data : mpg",
    x = "Count of cars",
    y = "Manufacturer"
  ) +
  geom_text( size = 2 , color = "black" , hjust = 2) +
  theme_minimal()
```

```
## Warning: Using 'size' aesthetic for lines was deprecated in ggplot2 3.4.0.
## i Please use 'linewidth' instead.
## This warning is displayed once every 8 hours.
## Call 'lifecycle::last_lifecycle_warnings()' to see where this warning was
## generated.
```



2. Sort each manufacturer's engine displacement by liters

```r
mpg %>%
  select(manufacturer,displ) %>%
  filter(manufacturer == c("dodge","toyota","volkswagen","ford","chevrolet","audi","subaru","hyundai","
  ggplot( data=., aes(manufacturer,displ)) +
  geom_boxplot(size = 0.6, fill = c("gold","salmon","violet","green","whitesmoke","blue","moccasin","ma
  labs(
    title = "Sort each manufacturer's engine displacements per liter",
    subtitle = "Each company has more than ten cars ",
    caption = "Data : mpg",
    x = "Manufacturer",
    y = "Displacements (Mile) per litre"
  ) +
  theme_minimal()
```

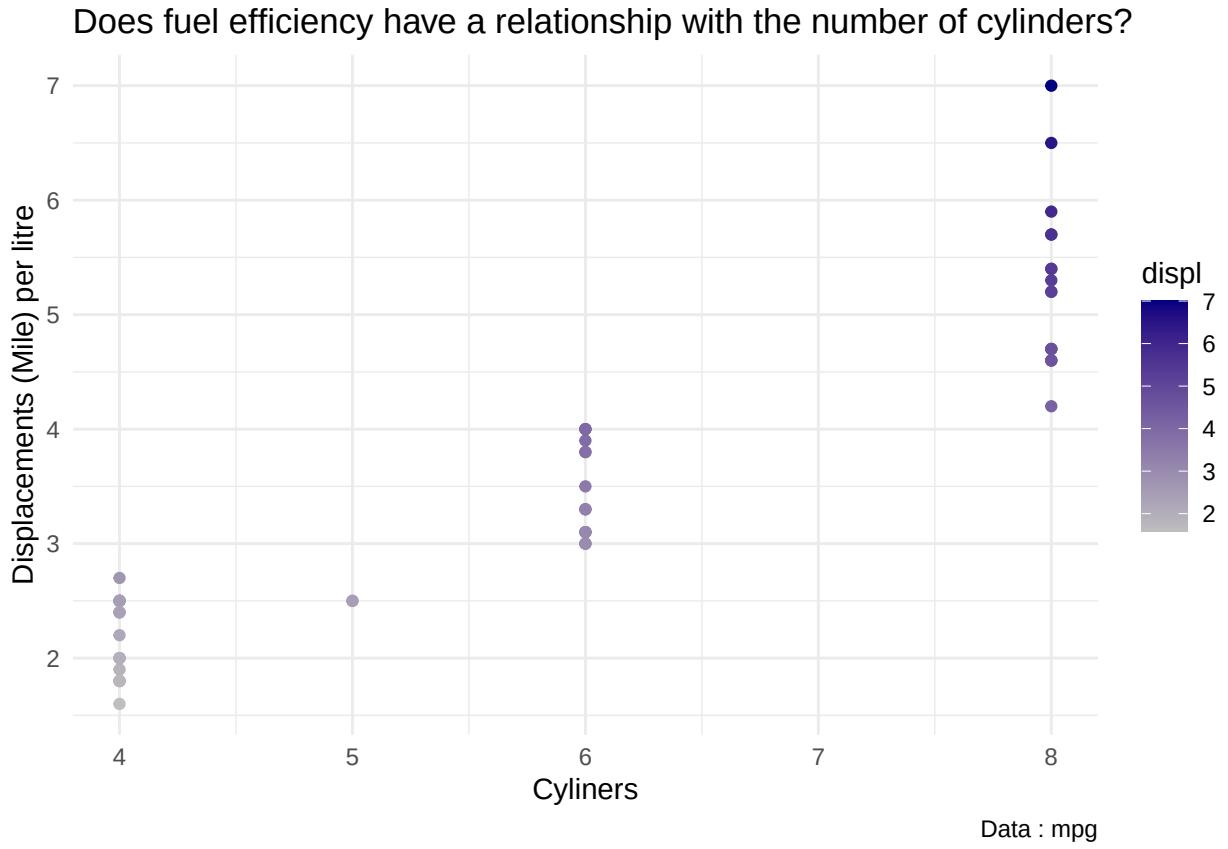


3. Does fuel efficiency have a relationship with the number of cylinders ?

```r
mpg %>%
  filter(cyl == c(4,5,6,8) ) %>%
  ggplot( data=., aes(cyl,displ,color=displ)) +
  geom_point() +
  scale_color_gradient( low = "gray", high =  "navy") +
  labs(
    title = "Does fuel efficiency have a relationship with the number of cylinders?",
```

```
    caption = "Data : mpg",
    x = "Cyliners",
    y = "Displacements (Mile) per litre"
  ) +
  theme_minimal()
```

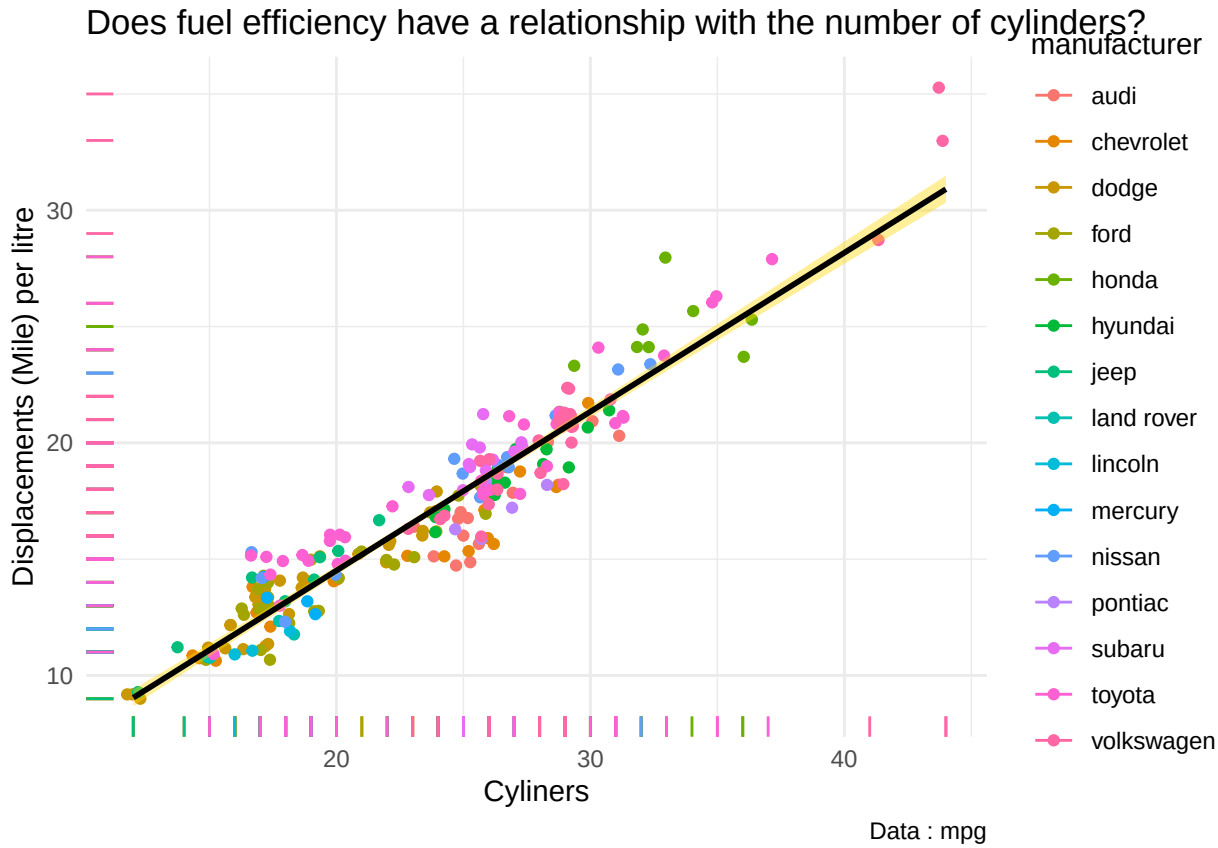
```
## Warning: There was 1 warning in `filter()`.
## i In argument: `cyl == c(4, 5, 6, 8)`.
## Caused by warning in `cyl == c(4, 5, 6, 8)`:
## ! longer object length is not a multiple of shorter object length
```



4. Does highway miles per gallon have a relationship with city miles per gallon ?

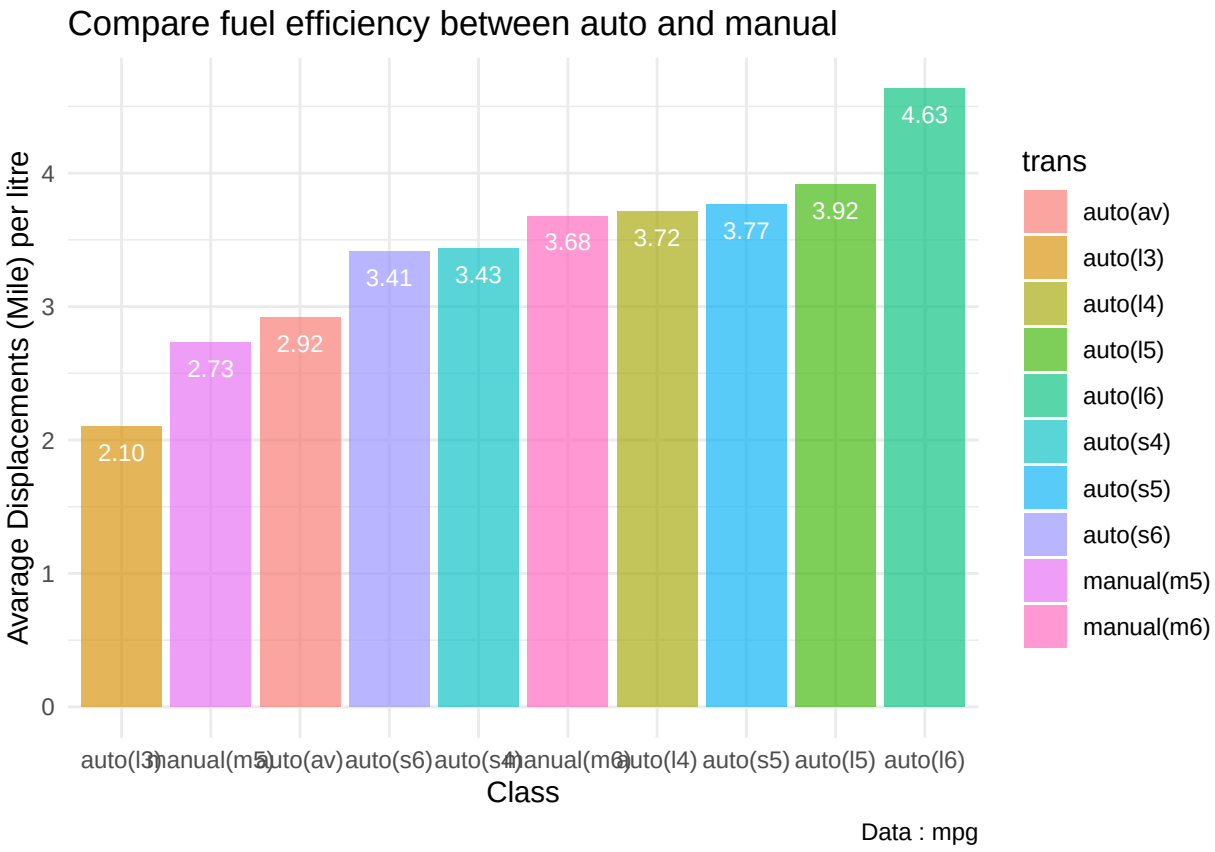
```
ggplot(mpg, aes(hwy, cty, color= manufacturer)) +
  geom_point( position = "jitter") +
  geom_smooth( method = "lm",se = TRUE, fill = "gold",
               color = "black") +
  geom_rug() +
  labs(
    title = "Does fuel efficiency have a relationship with the number of cylinders?",
    caption = "Data : mpg",
    x = "Cyliners",
    y = "Displacements (Mile) per litre"
```

```
  ) +
  theme_minimal()
```



5. Compare fuel efficiency between auto and manual

```
mpg %>%
  select(trans,displ) %>%
  group_by(trans) %>%
  summarise(avg_displ = mean(displ)) %>%
  ggplot( data=., aes(reorder(trans,avg_displ), avg_displ, fill = trans, label=sprintf("%0.2f", round(av
  geom_col( alpha = 0.65) +
  labs(
    title = "Compare fuel efficiency between auto and manual",
    caption = "Data : mpg",
    x = "Class",
    y = "Avarage Displacements (Mile) per litre"
  ) +
  geom_text(size = 3, vjust = 2, colour = "white") +
  theme_minimal()
```


Compare fuel efficiency between auto and manual
Avarage Displacements (Mile) per litre
0
1
2
3
4
2.10
2.73
2.92
3.41
3.43
3.68
3.72
3.77
3.92
4.63
auto(l3)
manual(m5)
auto(av)
auto(s6)
auto(s4)
manual(m6)
auto(l4)
auto(s5)
auto(l5)
auto(l6)
Class
Data : mpg
trans
auto(av)
auto(l3)
auto(l4)
auto(l5)
auto(l6)
auto(s4)
auto(s5)
auto(s6)
manual(m5)
manual(m6)