Project - MPG Data Visualization

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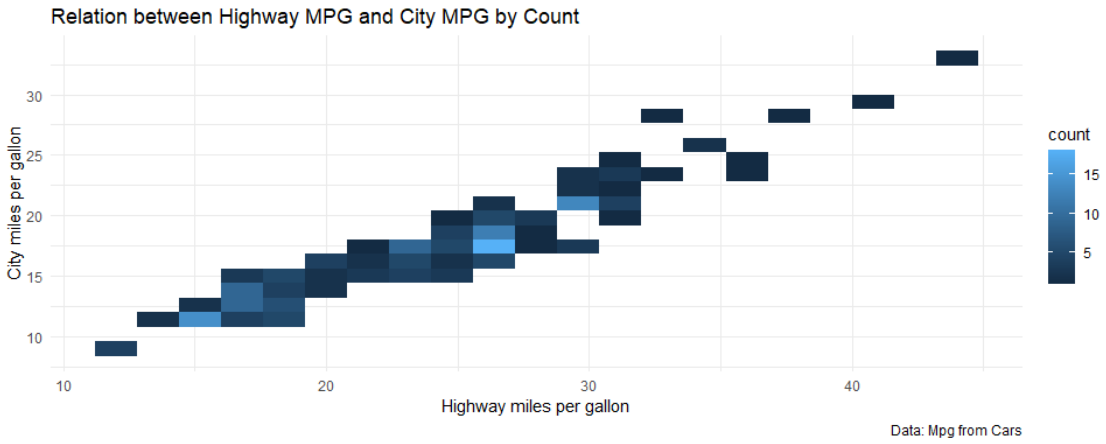
Explore data

```
## # A tibble: 6 × 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…
```

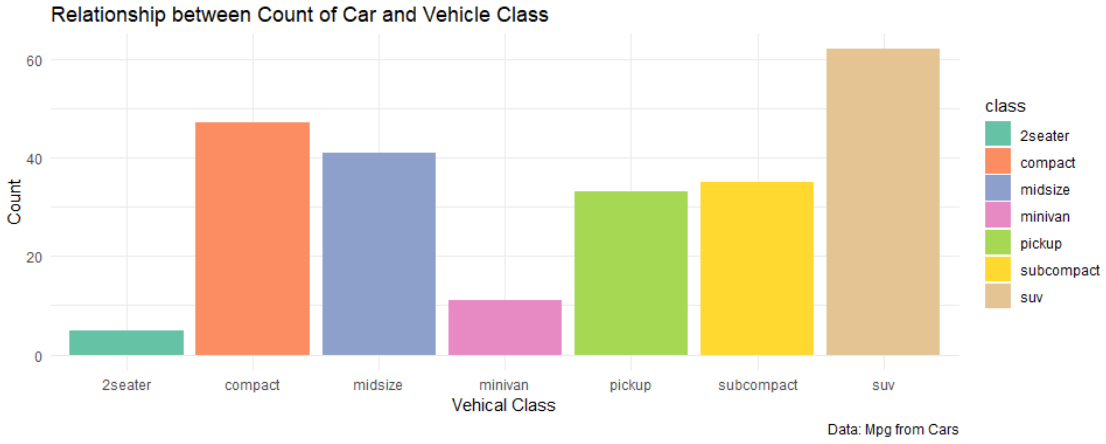
Relation between Highway MPG and City MPG by Count

```
set.seed(42)
ggplot(sample_n(mpg,200), aes(hwy, cty)) +
  geom_bin2d(bins=20) +
  theme_minimal() +
  labs(
    title = "Relation between Highway MPG and City MPG by Count",
    caption = "Data: Mpg from Cars",
    y = "City miles per gallon",
    x = "Highway miles per gallon"
  )
```



Relationship between Count of Car and Vehicle Class

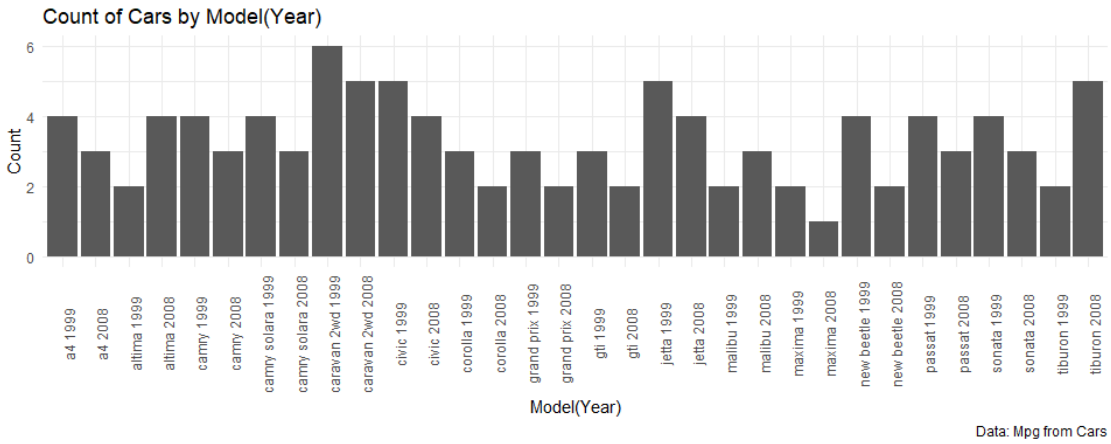
```
ggplot(mpg, aes(x = class, fill = class)) +
  geom_bar() +
  theme_minimal() +
  scale_fill_brewer(palette = "Set2") +
  labs(
    title = "Relationship between Count of Car and Vehicle Class",
    x = "Vehical Class",
    y = "Count",
    caption = "Data: Mpg from Cars"
  )
```



Count of Cars by Model(Year)

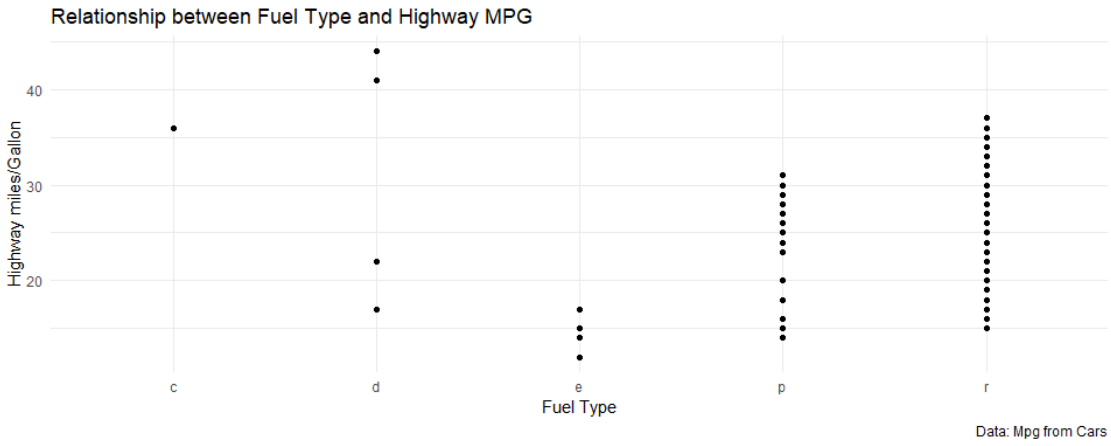
```
car1 <- mpg %>%
  filter(drv == "f") %>%
  mutate(model = paste(model,year))

ggplot(car1, aes(model)) +
  geom_bar() +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 90)) +
```

```
  labs(
    title = "Count of Cars by Model(Year)",
    x = "Model(Year)",
    y = "Count",
    caption = "Data: Mpg from Cars"
  )
```



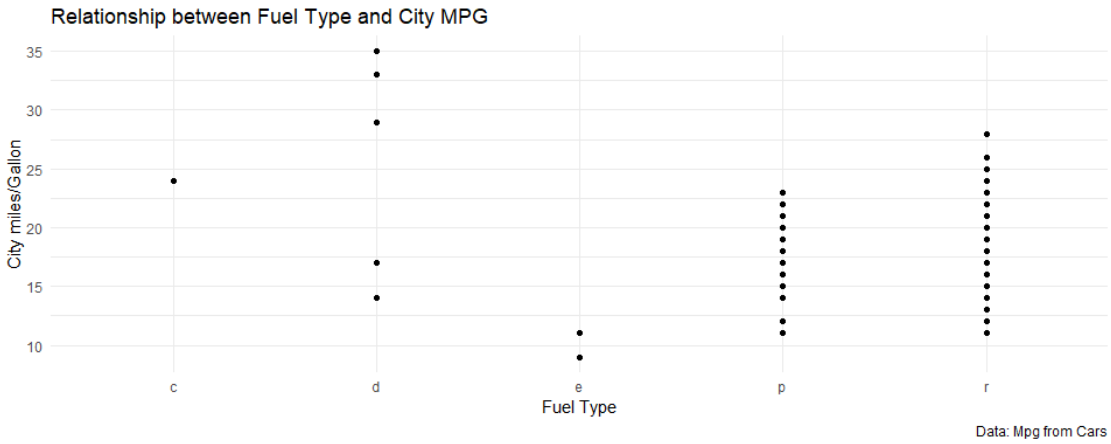
Relationship between Fuel Type and MPG by City MPG and Highway MPG

```
ggplot(mpg, aes(fl, hwy)) +
  geom_point() +
  theme_minimal() +
  labs(
    title = "Relationship between Fuel Type and Highway MPG",
    x = "Fuel Type",
    y = "Highway miles/Gallon",
    caption = "Data: Mpg from Cars"
  )
```



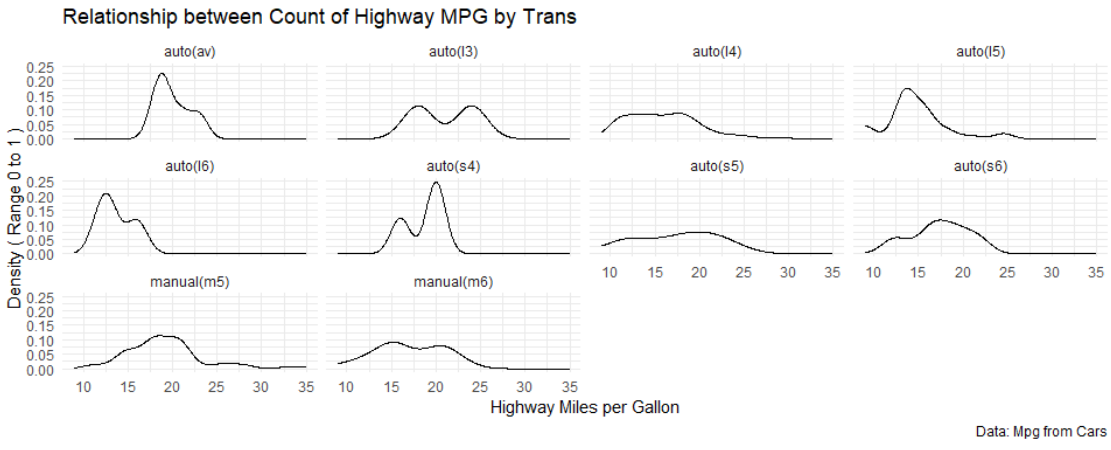

```
ggplot(mpg, aes(fl, cty)) +
  geom_point() +
  theme_minimal() +
  labs(
```

```
    title = "Relationship between Fuel Type and City MPG",
    x = "Fuel Type",
    y = "City miles/Gallon",
    caption = "Data: Mpg from Cars"
  )
```



Relationship between Count of Highway MPG by Trans

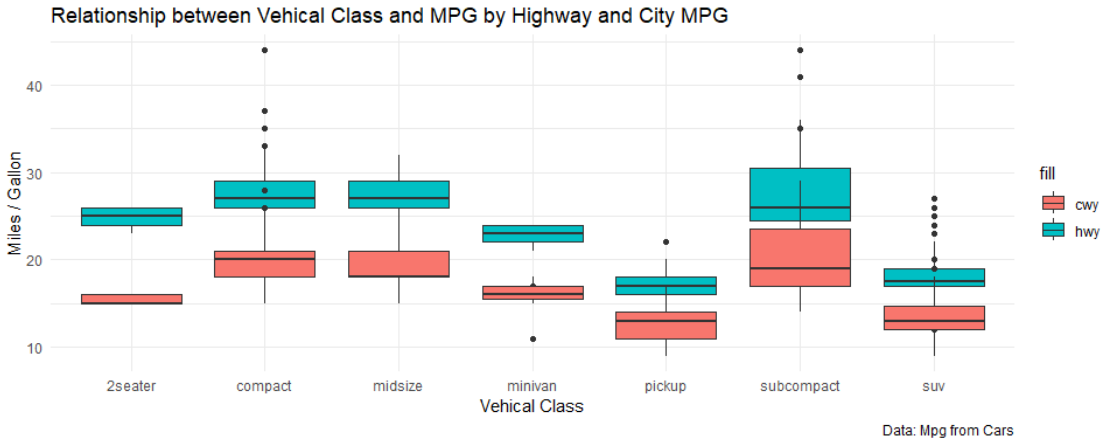
```
ggplot(mpg, aes(cty)) +
  geom_density() +
  theme_minimal() +
  facet_wrap(~trans, ncol = 4) +
  labs(
    title = "Relationship between Count of Highway MPG by Trans",
    x = "Highway Miles per Gallon",
    y = "Density ( Range 0 to 1 )",
    caption = "Data: Mpg from Cars"
  )
```



Relationship between Vehical Class and MPG by Highway and City MPG

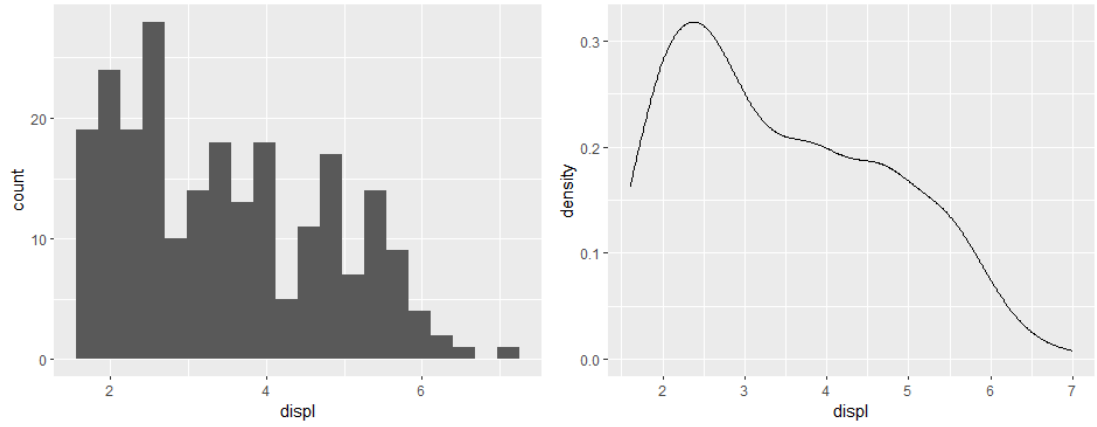
```
ggplot(mpg, aes(class, hwy)) +
  geom_boxplot(aes(fill = "hwy")) +
```

```r
  geom_boxplot(aes(class, cty, fill = "cwy")) +
  theme_minimal() +
  labs(
    title = "Relationship between Vehical Class and MPG by Highway and City MPG",
    x = "Vehical Class",
    y = "Miles / Gallon",
    caption = "Data: Mpg from Cars"
  )
```



Count of Displ

```r
p1 <- ggplot(mpg, aes(displ)) +
  geom_histogram(bins = 20)
p2 <- ggplot(mpg, aes(displ)) +
  geom_density()

(p1 + p2)
```



Average City MPG by Car Type

```r
# relevel คือ มาก -> น้อย
# geom_col ใช้กับ data ที่ผ่าน agg
```

```r
mpg %>%
  group_by(class) %>%
  summarise(avg_cty = mean(cty)) %>%
  ggplot(aes(x=reorder(class, avg_cty), y=avg_cty, label=sprintf("%0.2f",
round(avg_cty, digits = 2)))) +
  geom_col() +
  labs(title = "Average City MPG by Car Type",
  y = "Average City MPG",
  x = "Car Type") +
  geom_text(size = 3, vjust = 1.5, colour = "white") +
  theme_minimal()
```