Stat450hw2

```
library(tidyverse)
```

```
## -- 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
```

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

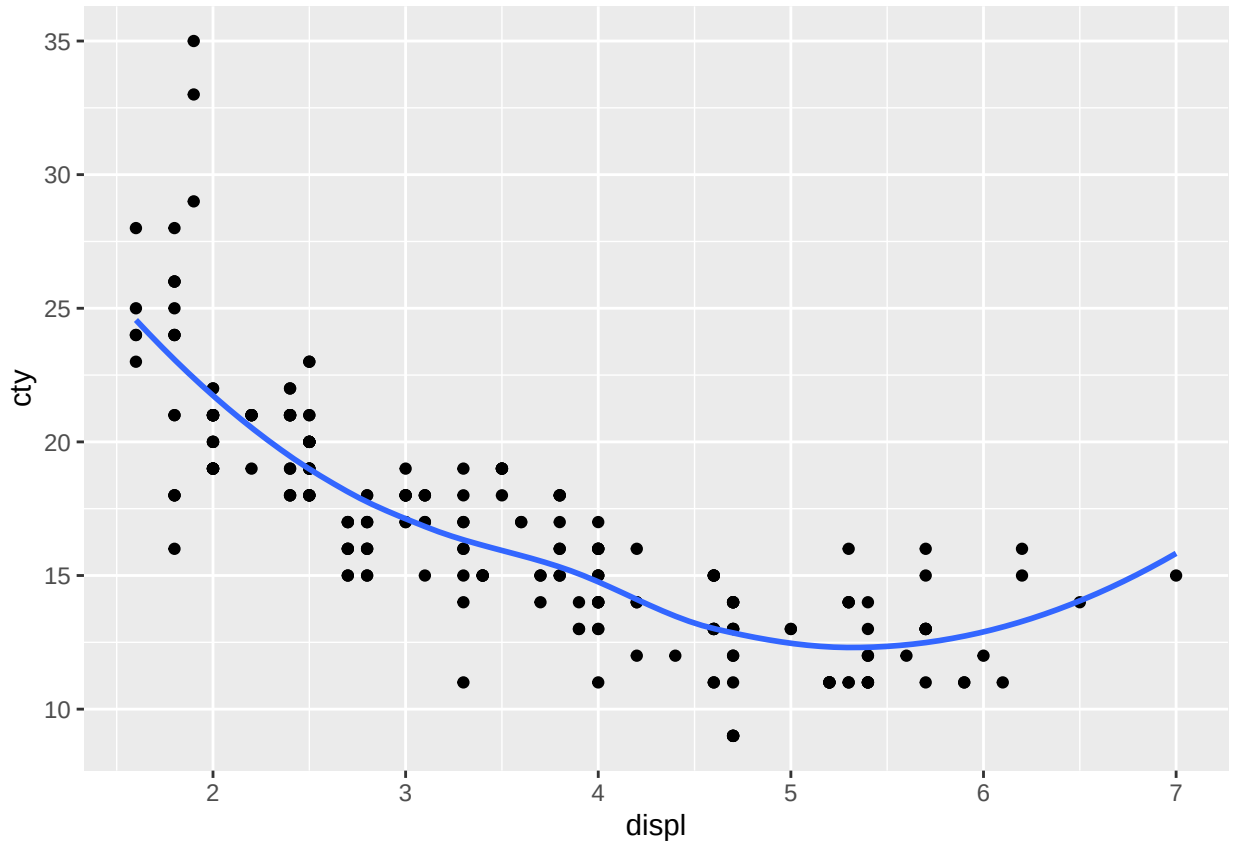
```
library(ggplot2)
mpg
```

```
## # A tibble: 234 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~ f        18    29 p     comp~
##  2 audi         a4           1.8  1999     4 manu~ f        21    29 p     comp~
##  3 audi         a4           2    2008     4 manu~ f        20    31 p     comp~
##  4 audi         a4           2    2008     4 auto~ f        21    30 p     comp~
##  5 audi         a4           2.8  1999     6 auto~ f        16    26 p     comp~
##  6 audi         a4           2.8  1999     6 manu~ f        18    26 p     comp~
##  7 audi         a4           3.1  2008     6 auto~ f        18    27 p     comp~
##  8 audi         a4 quattro   1.8  1999     4 manu~ 4        18    26 p     comp~
##  9 audi         a4 quattro   1.8  1999     4 auto~ 4        16    25 p     comp~
## 10 audi         a4 quattro   2    2008     4 manu~ 4        20    28 p     comp~
## # ... with 224 more rows
```

Exercise 1

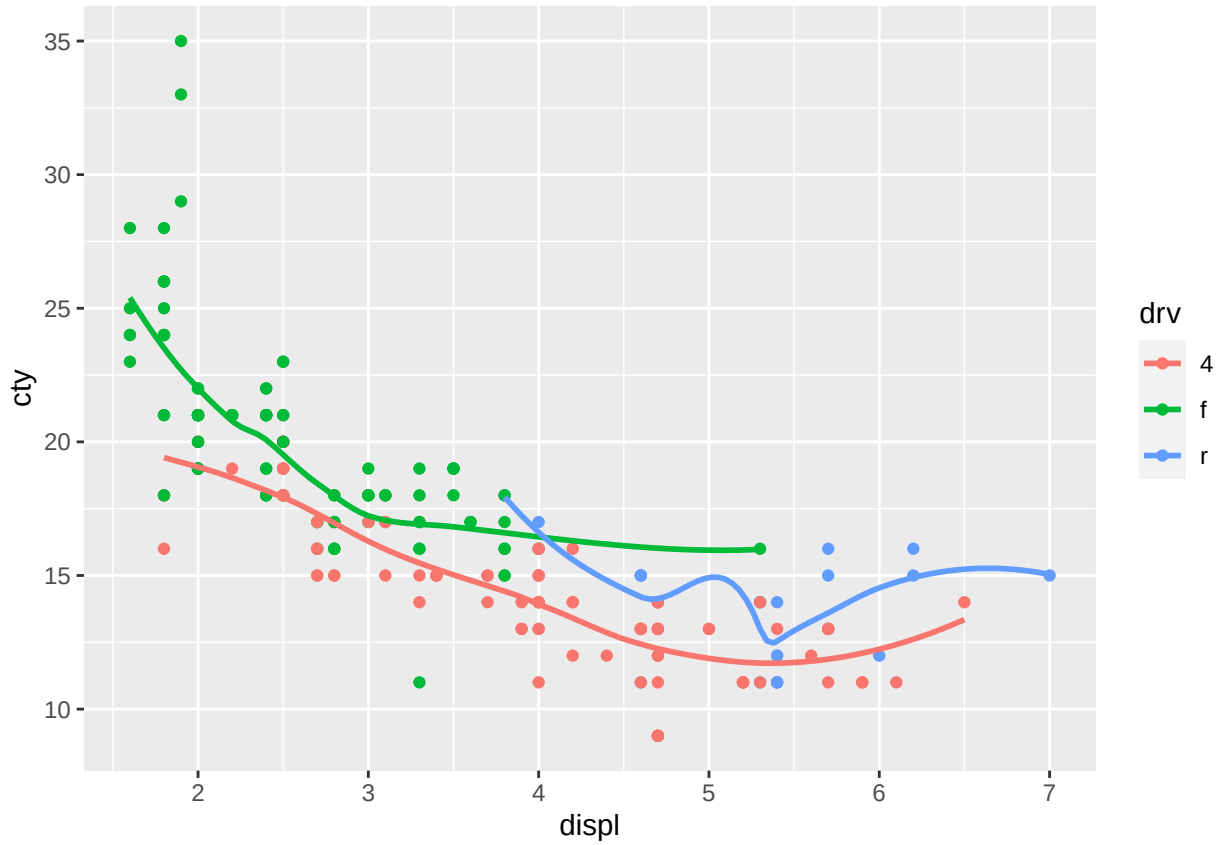
```
ggplot(data = mpg, aes(x = displ, y = cty)) +
geom_point() + geom_smooth(se = FALSE)
```

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



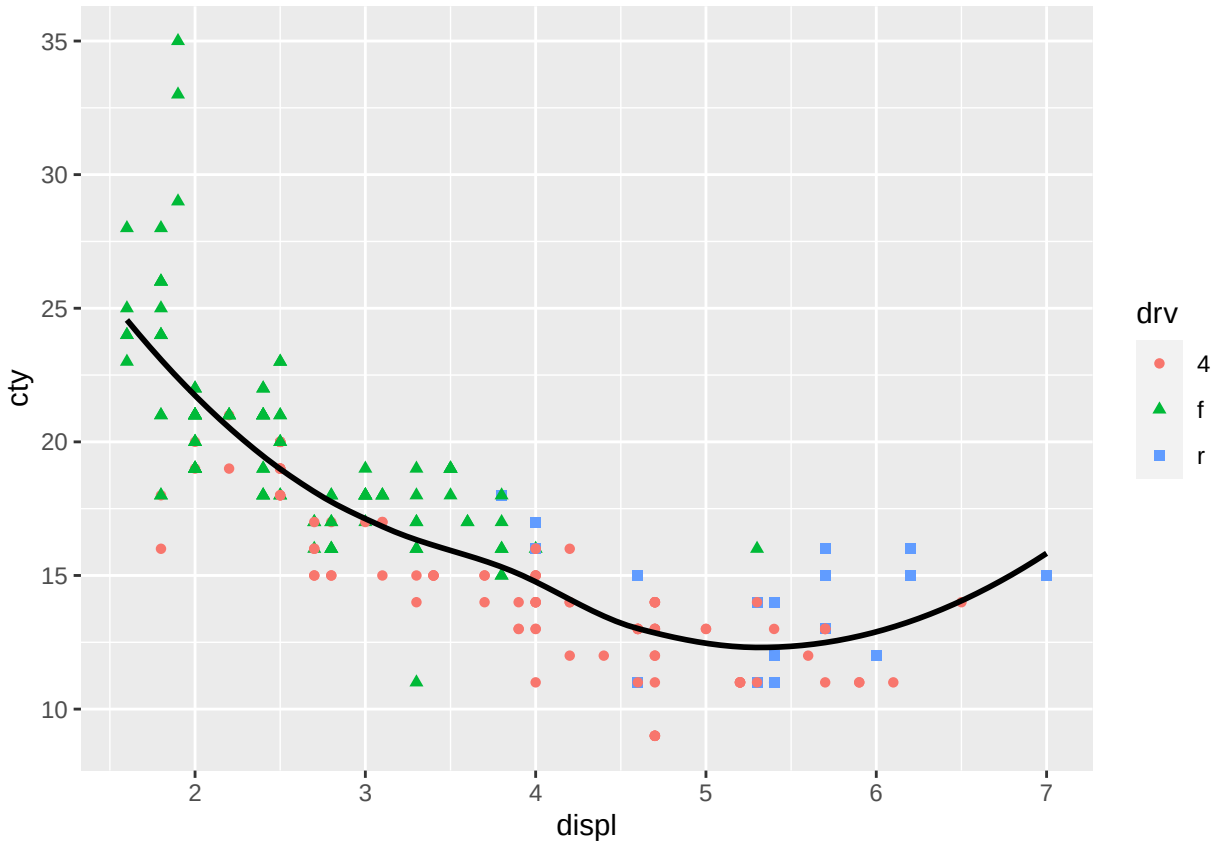

```
ggplot(data = mpg, aes(x = displ, y = cty, color = drv)) +
geom_point() +
geom_smooth(se = FALSE)
```

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



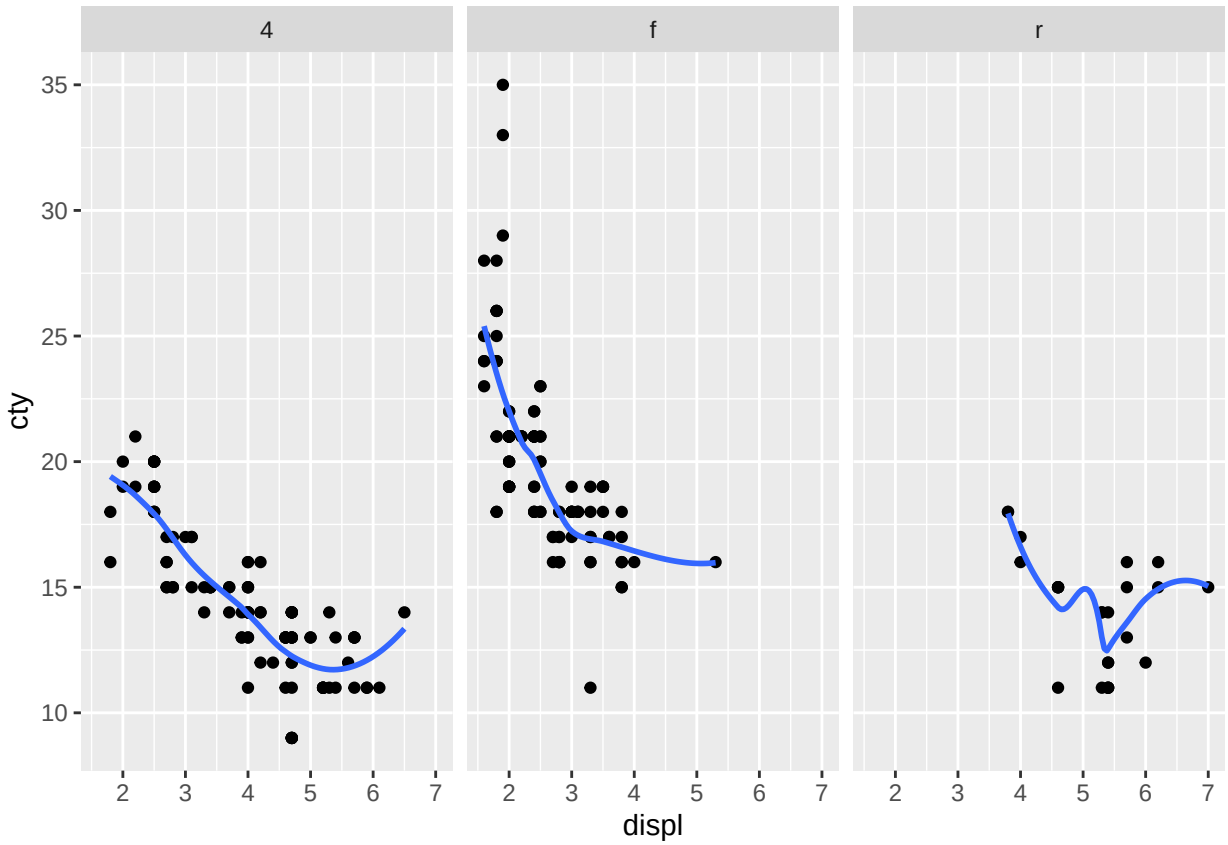

```
ggplot(mpg,aes(x=displ,y=cty))+
          geom_point(data = mpg, mapping = aes(x = displ, y = cty, shape = drv, color = drv))+
         geom_smooth(se=FALSE,color="black")
```

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



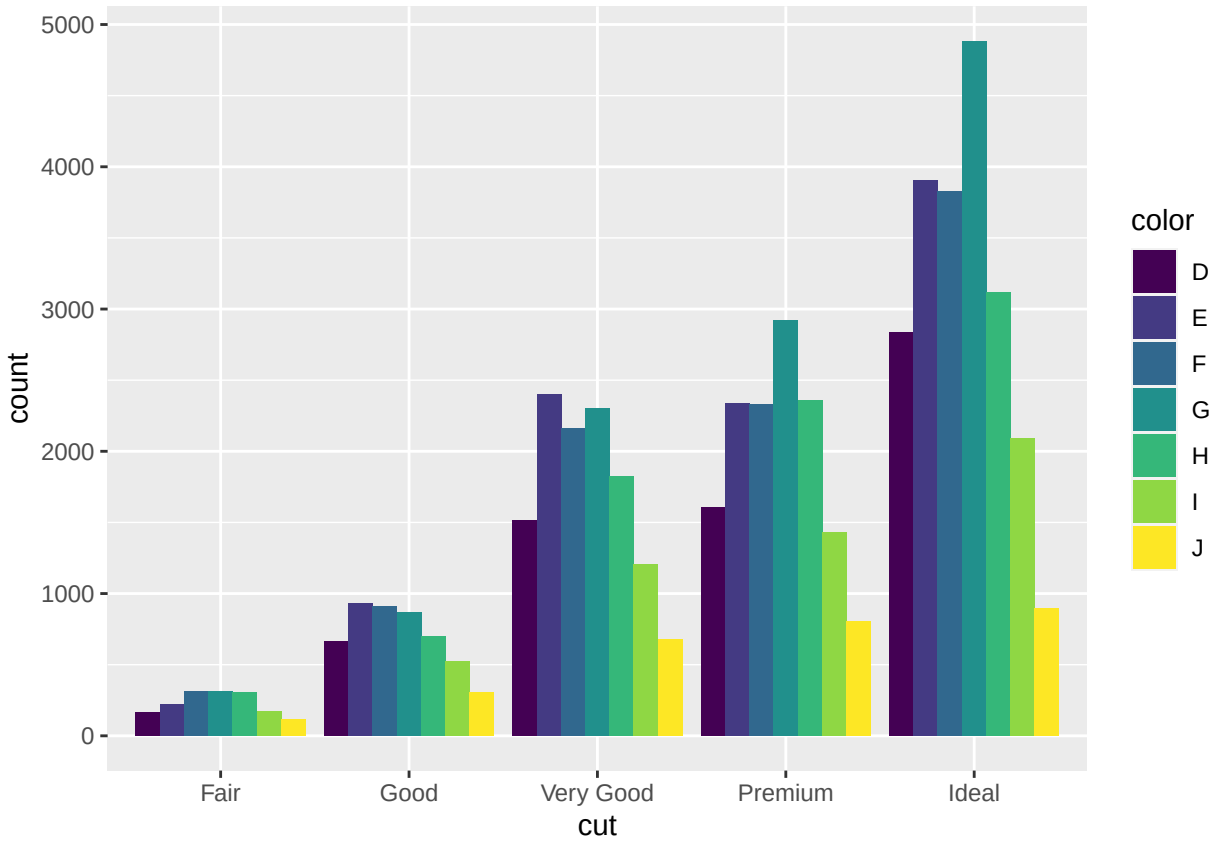

```
ggplot(data = mpg, aes(x = displ, y = cty)) +
geom_point() +
geom_smooth(se = FALSE) +
facet_wrap(~ drv)
```

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

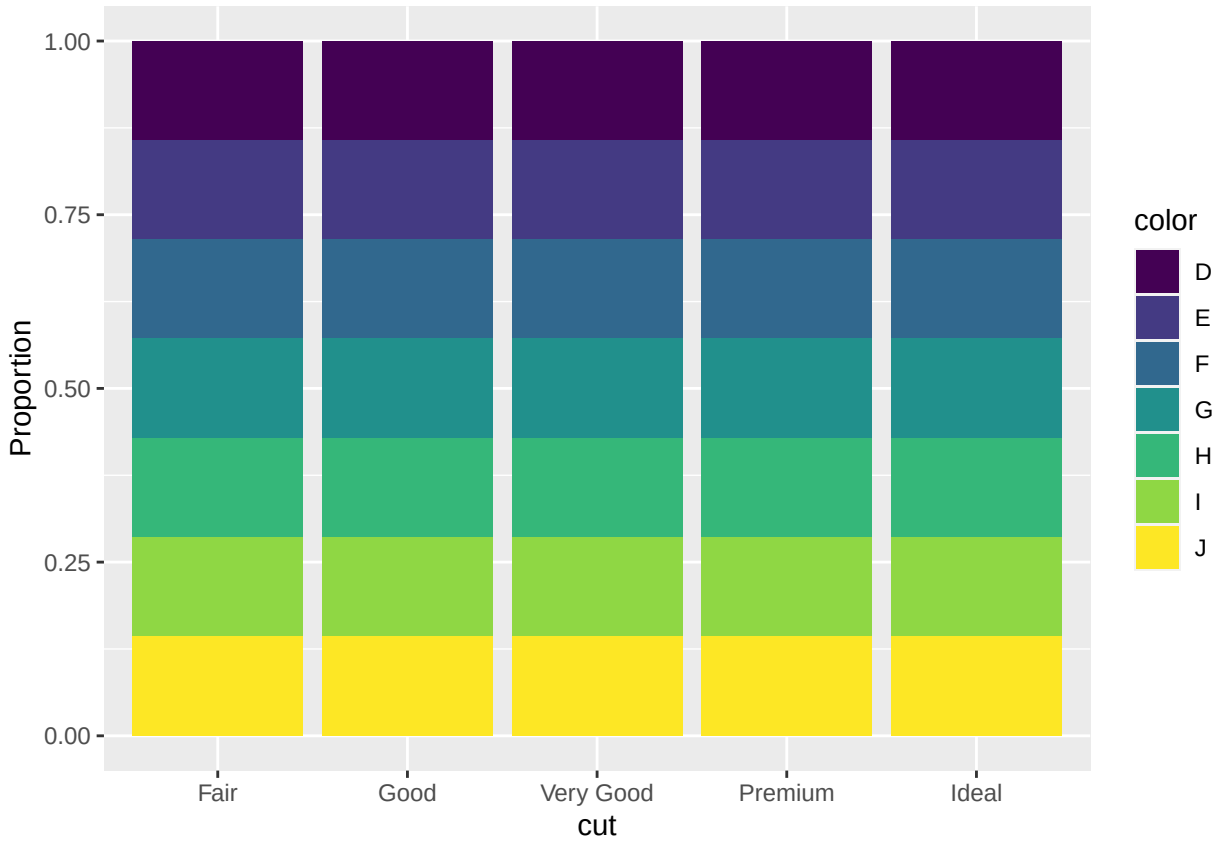


Exercise 2

```
ggplot(data = diamonds)+
  geom_bar(mapping = aes(x=cut, fill = color), position = "dodge")
```




```
ggplot(data = diamonds)+
  geom_bar(mapping = aes(x=cut, y=stat(prop), fill = color), position = "fill") + ylab("Proportion")
```



Exercise 3

```
library(maps)
```

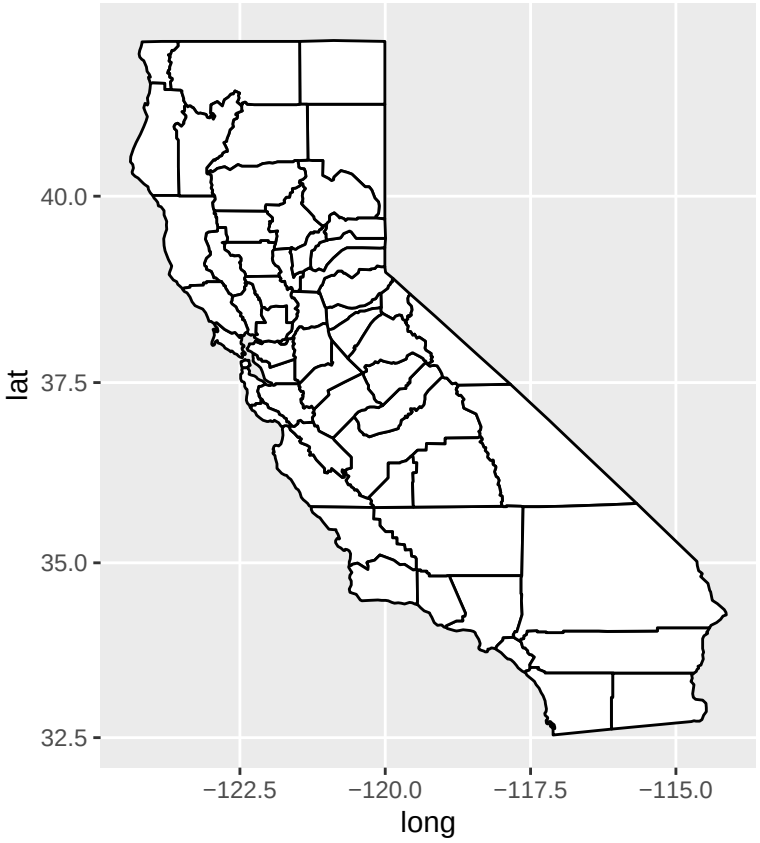
```
##
## Attaching package: 'maps'
```

```
## The following object is masked from 'package:purrr':
##
##     map
```

```
library(mapproj)
```

A

```
ca <- map_data("county", "ca")
ggplot(ca, aes(long, lat, group = group)) +
geom_polygon(fill = "white", color = "black") +
coord_map()
```



B

```
unique(ca$subregion)
```

```
##  [1] "alameda"         "alpine"          "amador"          "butte"
##  [5] "calaveras"       "colusa"          "contra costa"    "del norte"
##  [9] "el dorado"       "fresno"          "glenn"           "humboldt"
## [13] "imperial"        "inyo"            "kern"            "kings"
## [17] "lake"            "lassen"          "los angeles"     "madera"
## [21] "marin"           "mariposa"        "mendocino"       "merced"
## [25] "modoc"           "mono"            "monterey"        "napa"
## [29] "nevada"          "orange"          "placer"          "plumas"
## [33] "riverside"       "sacramento"      "san benito"      "san bernardino"
## [37] "san diego"       "san francisco"   "san joaquin"     "san luis obispo"
## [41] "san mateo"       "santa barbara"   "santa clara"     "santa cruz"
## [45] "shasta"          "sierra"          "siskiyou"        "solano"
## [49] "sonoma"          "stanislaus"      "sutter"          "tehama"
## [53] "trinity"         "tulare"          "tuolumne"        "ventura"
## [57] "yolo"            "yuba"
```

```
length(unique(ca$subregion))
```

```
## [1] 58
```

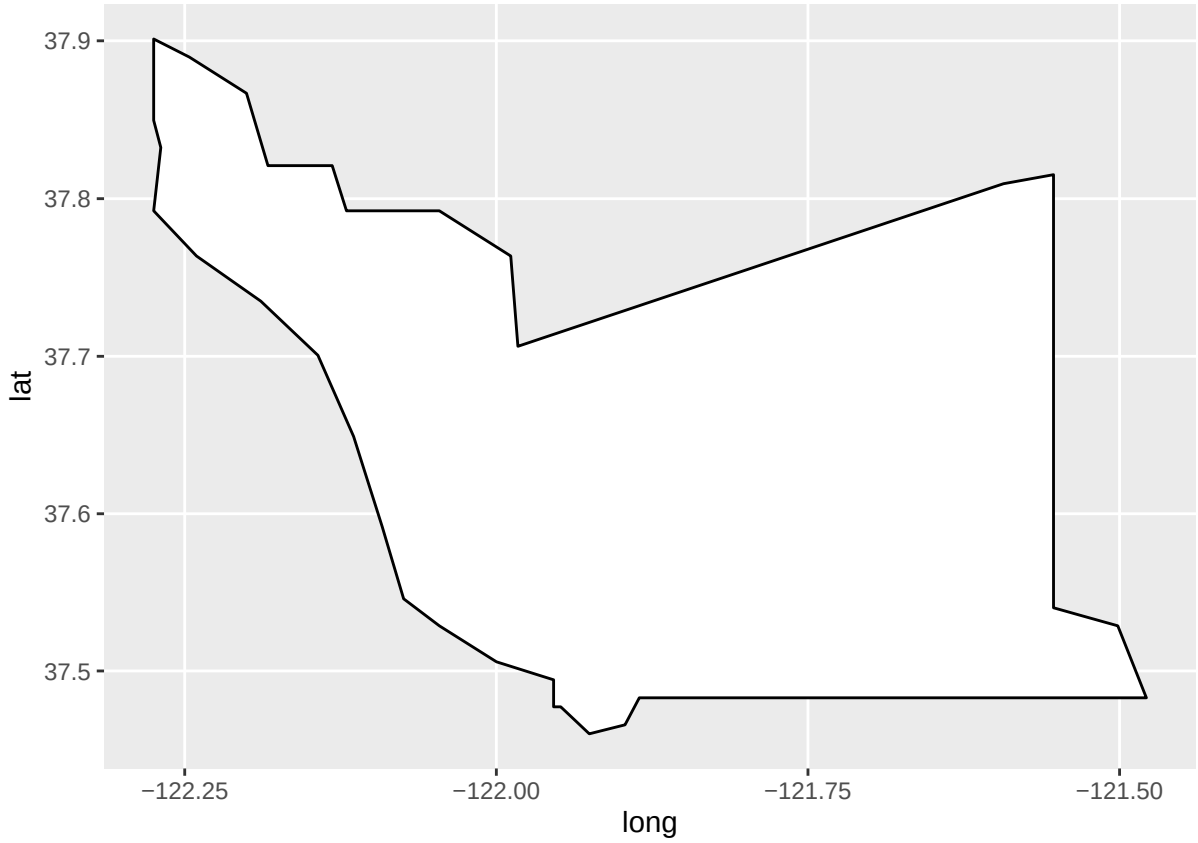
Its putting counties of California in alphabetic order and giving the total number of counties which is 58.

C

```
alameda_ca <- filter(ca, subregion == "alameda")
```

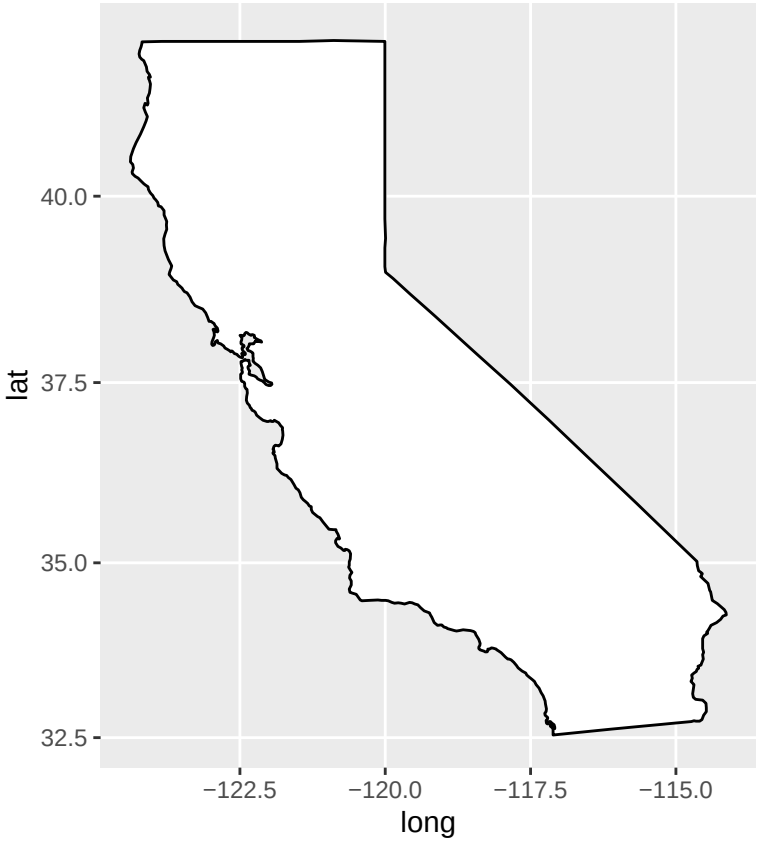
D

```
ggplot(alameda_ca, aes(x=long, y=lat))+
  geom_polygon(fill = "white", color = "black")+
  coord_map()
```




```
alameda_ca <- map_data("state", "california")
ggplot(alameda_ca, aes(long, lat, group, order, region, subregion)) +
geom_polygon(fill = "white", color = "black") +
coord_map()
```

```
## Warning: Duplicated aesthetics after name standardisation:
```


40.0
37.5
35.0
32.5
lat
−122.5
−120.0
−117.5
−115.0
long