Veri Gorselleştirme

```
library(tibble)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(ggplot2)
```

1.Tek Degiskenli Gorsellestirme

1.1. Kesikli degisken

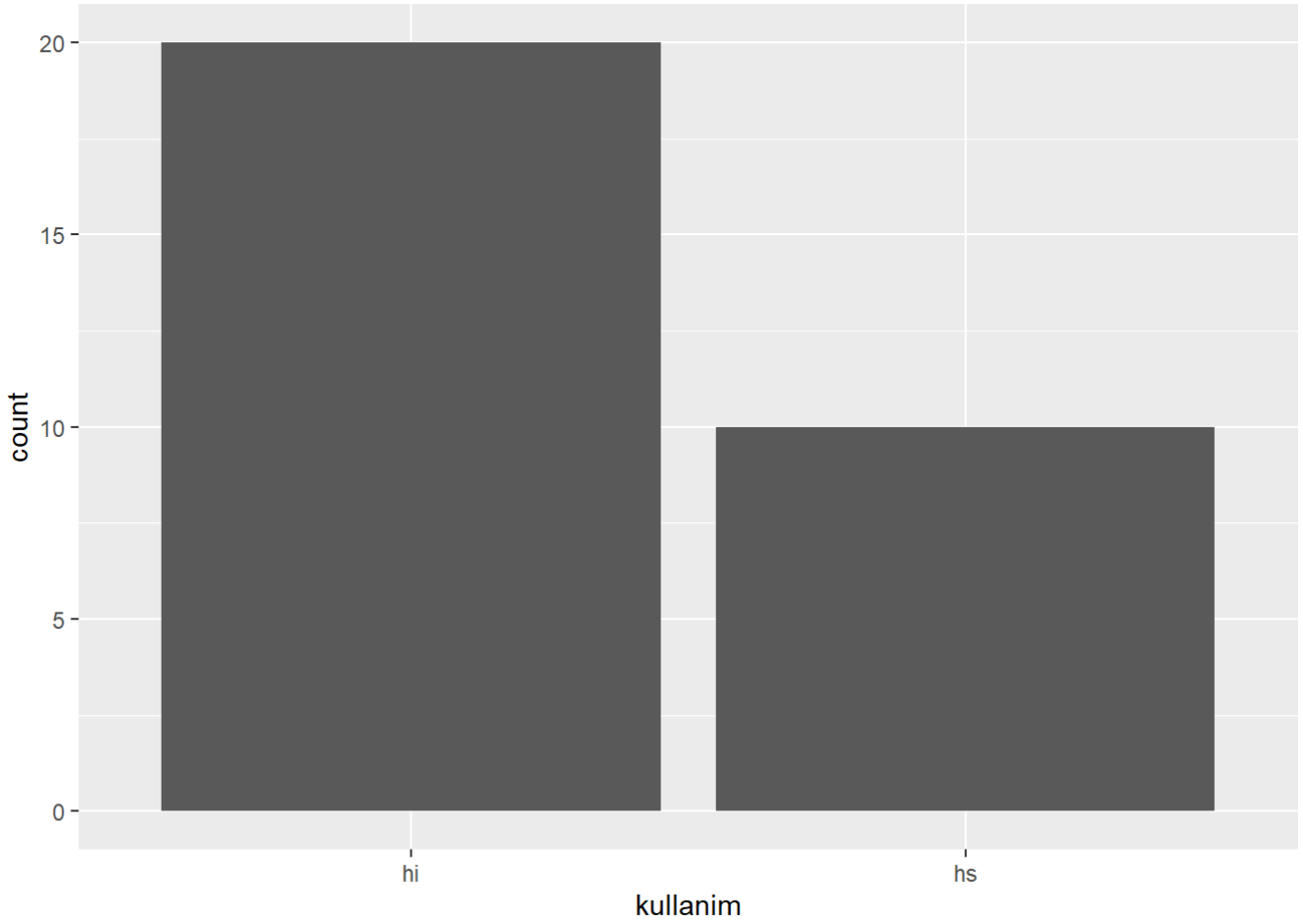
Eger kesiklibir degisken gorsellestirelecek is iki turlu yapilabilir. Brincisi frekansa gore ikincisi mutlak degerine gore.

```
df <- tibble(
  kullanim = c(rep("hi", 20), rep("hs", 10)))


df2 <- tibble(
```

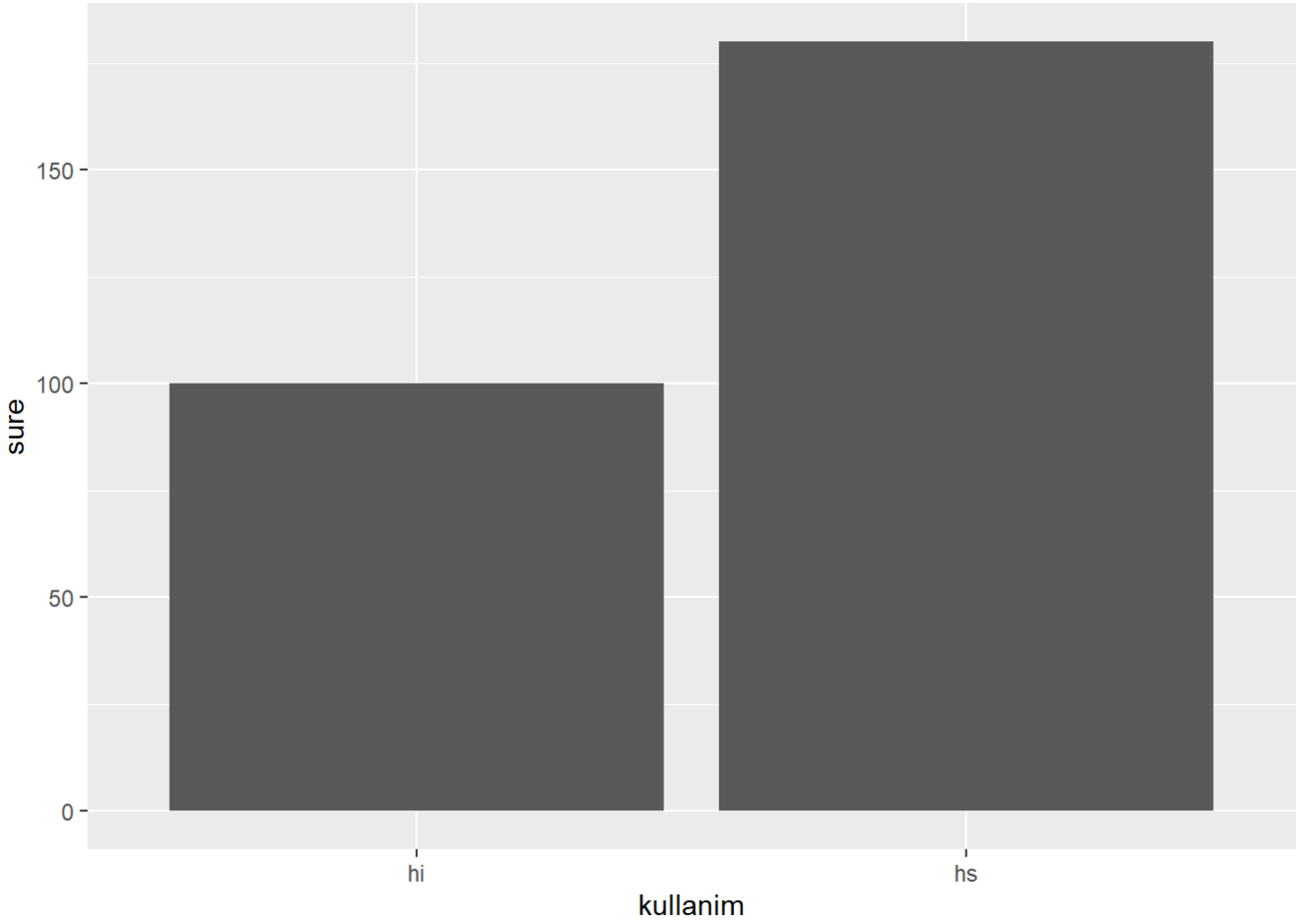
```
  kullanim = factor(c("hi", "hs"),
  levels = c("hi","hs")),
  sure = c(100, 180))
```

1.1.1. Sutun grafigi

```
# aes fonksiyonu estetik ozelliklerini belirtir


# sutun grafigi frekansa gore

ggplot(df, aes(x = kullanim)) +
  geom_bar()
```

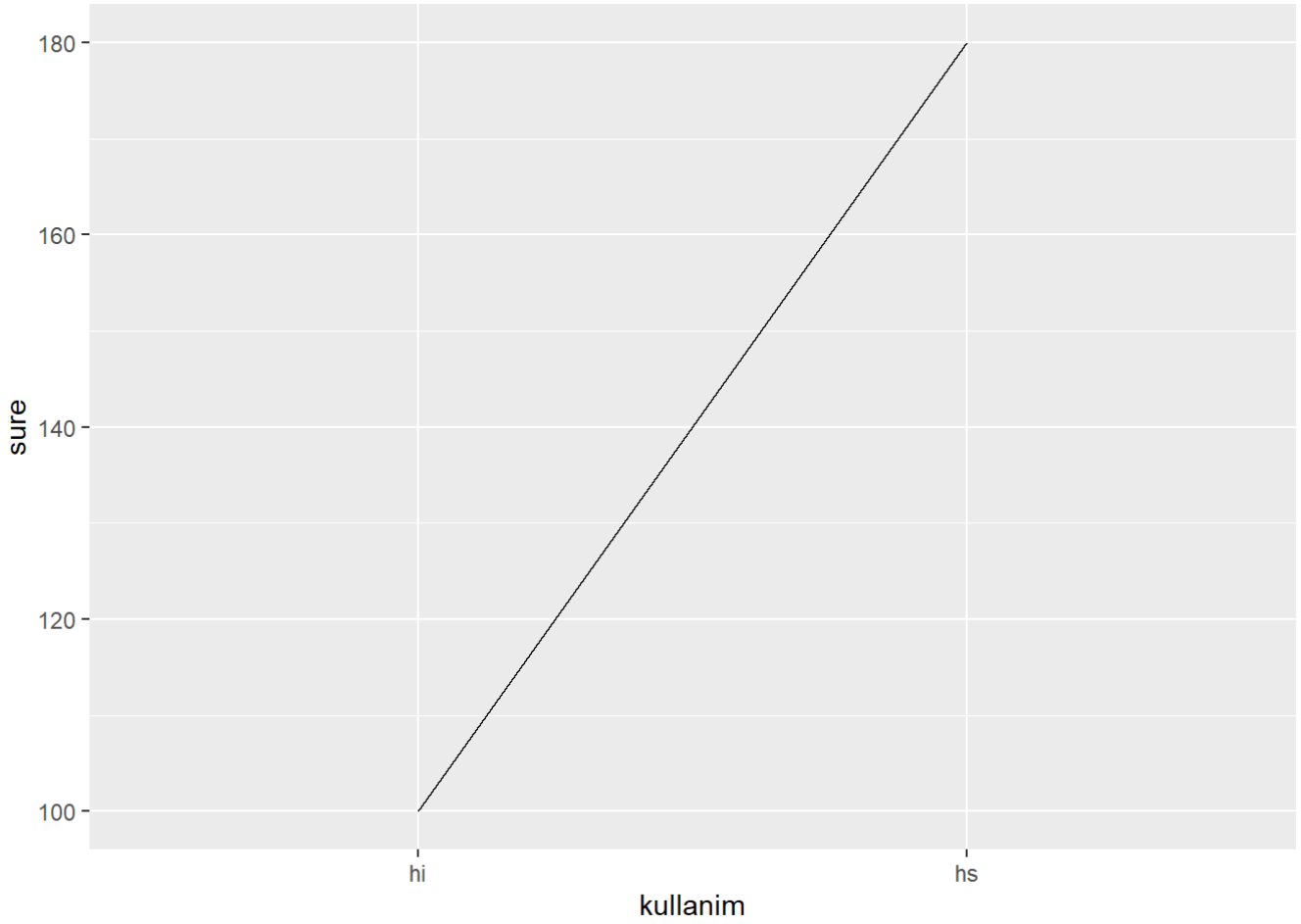



```
# sutun grafigi mutlak degere gore

ggplot(df2, aes(x = kullanim, y = sure)) +
  geom_bar(stat = "identity")
```

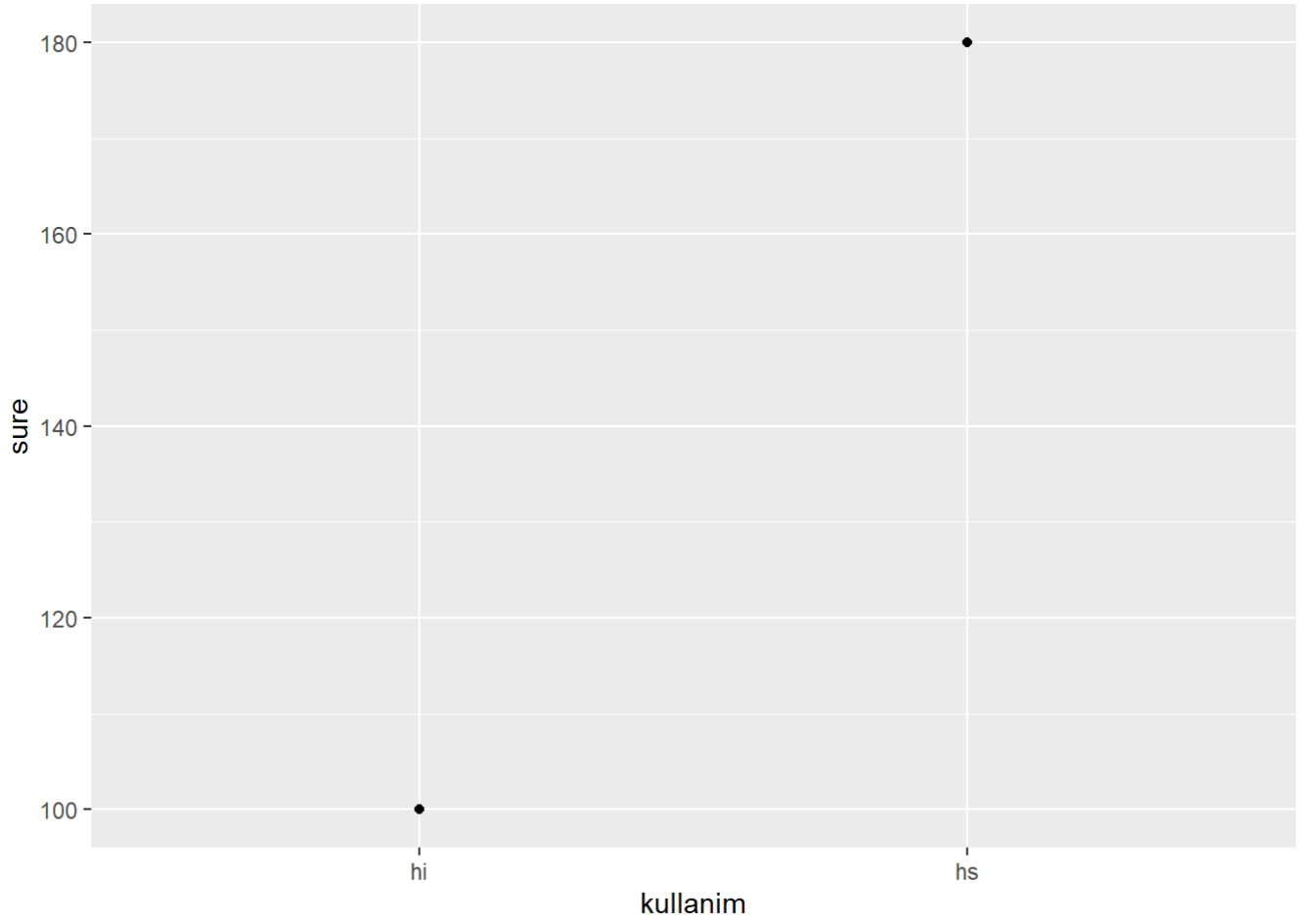


1.1.2. Cizgi grafigi

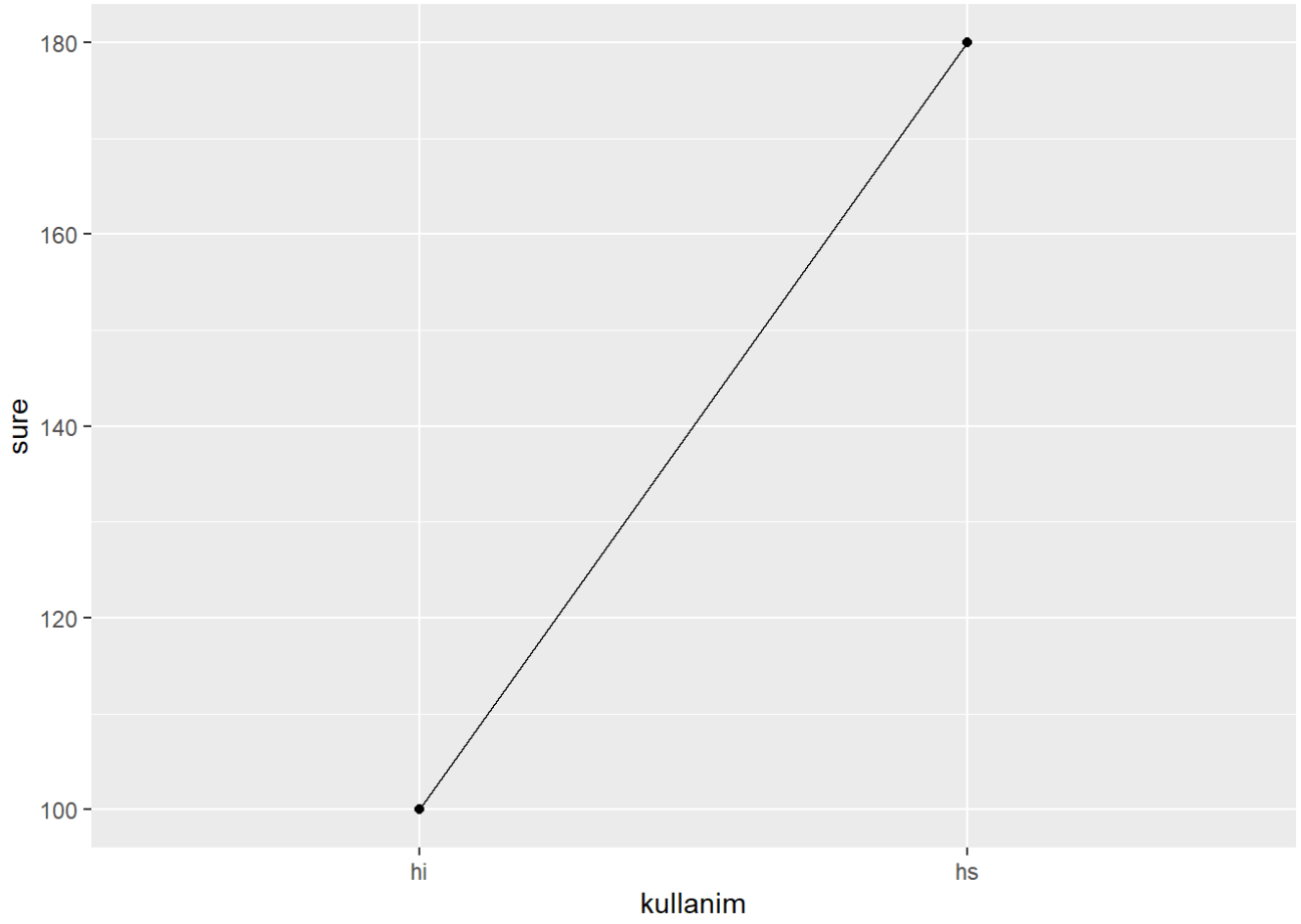
```
# cizgi grafik

ggplot(df2, aes(x = kullanim, y = sure, group = 1)) +
  geom_line()
```



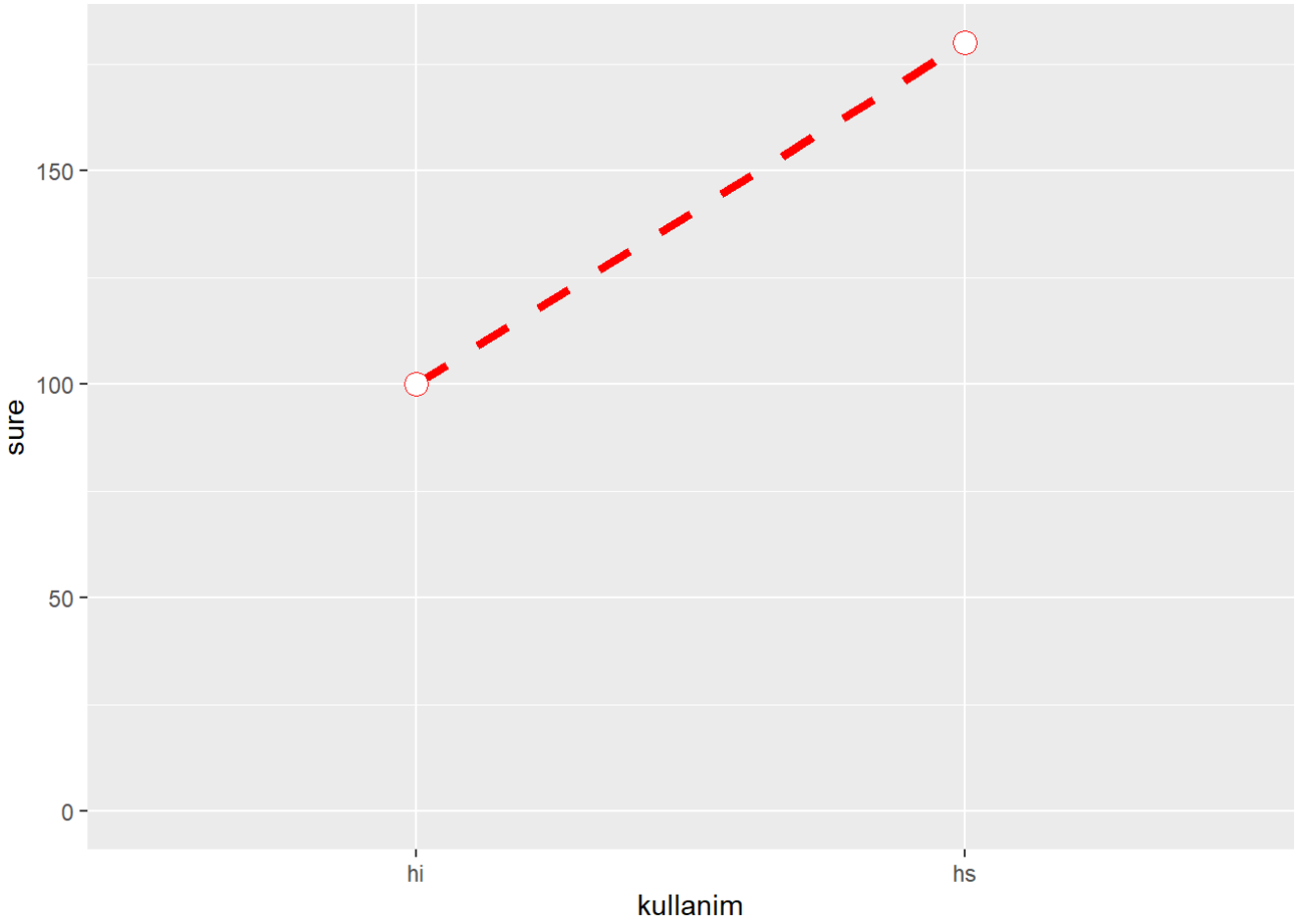

```
# nokta grafik
ggplot(df2, aes(x = kullanim, y = sure, group = 1)) +
  geom_point()
```




```
# nokta ve cizgi bir arada grafik
ggplot(df2, aes(x = kullanim, y = sure, group = 1)) +
  geom_line() + geom_point()
```




```
# nokta ve cizgi bir arada grafik geometrik sekilleri ozellestirilmis sekilde ve y argumani 0  dan baslamaktadir
ggplot(df2, aes(x = kullanim, y = sure, group = 1)) +
  geom_line(colour = "red", linetype = "dashed", size = 1.6) +
  geom_point(colour = "red", size = 4, shape = 21, fill = "white" ) + expand_limits(y = 0)
```



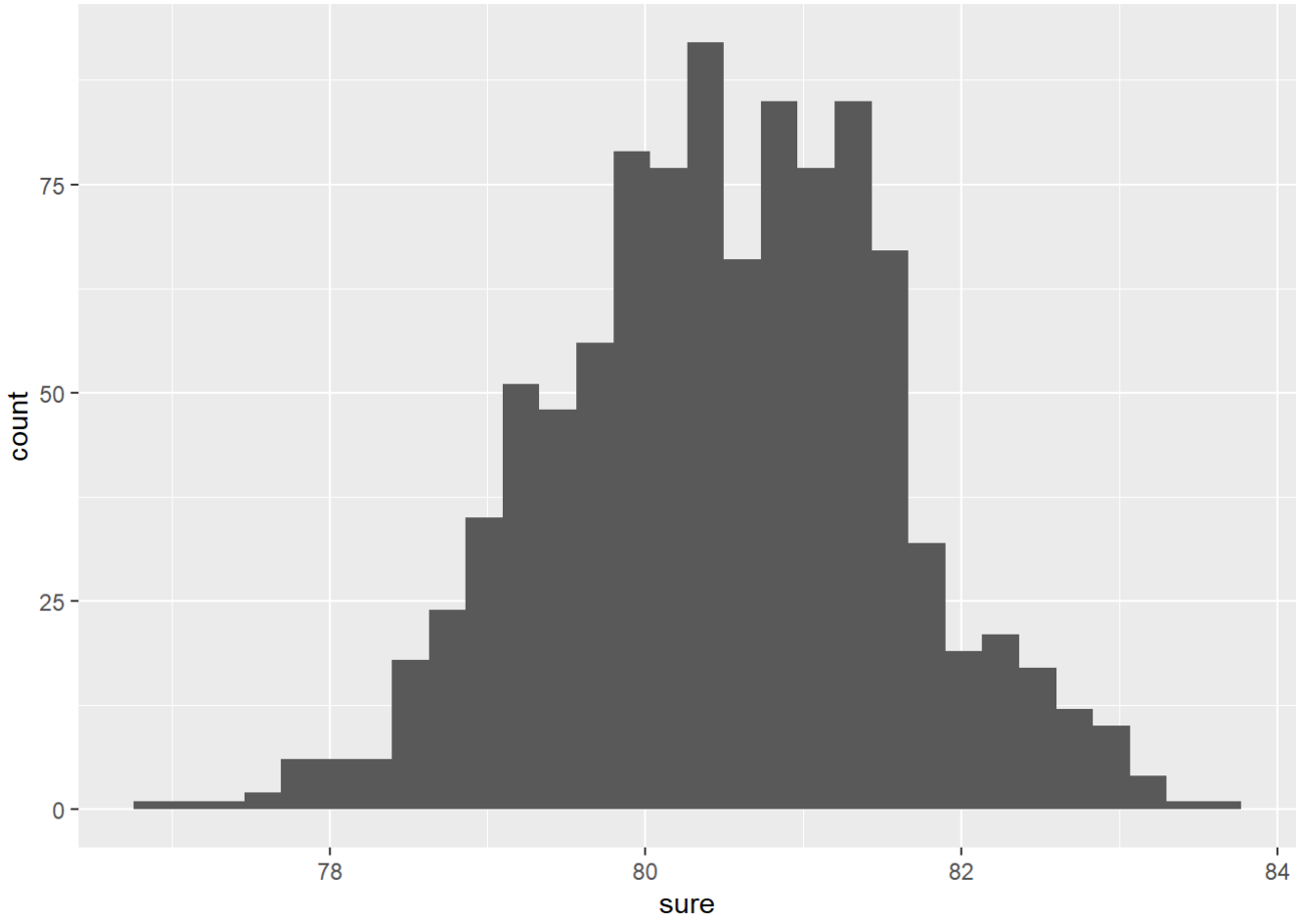
1.2. Surekli Degisken

```
df <- tibble(
  cinsiyet = factor(rep(c("E", "K"), each = 500)),
  sure = c(rnorm(500, mean = 80), rnorm(500, mean = 81)))
```

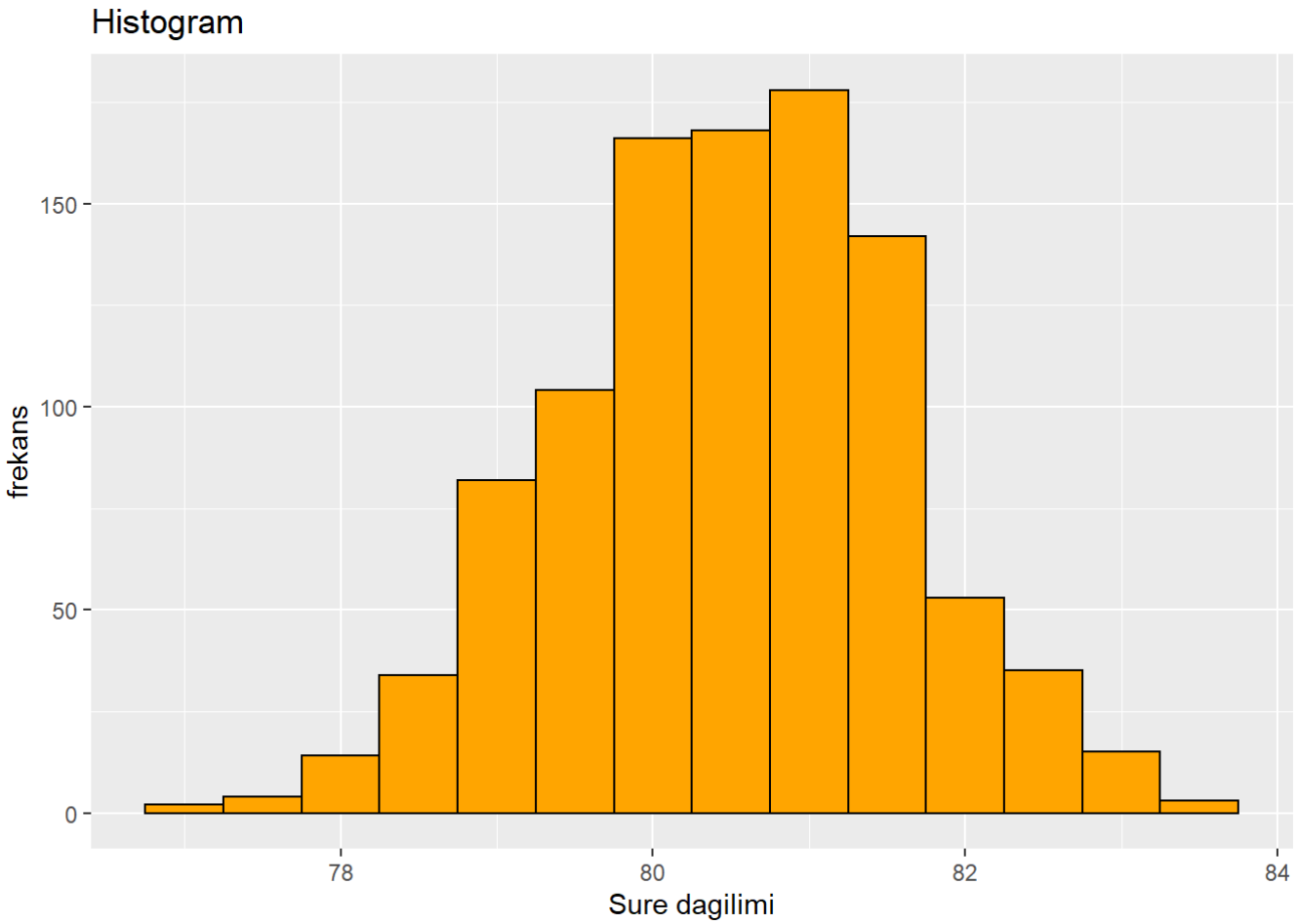
1.2.1. Histogram (geom_histogram)

```
#histogram olusturmak icin 2 parametre gereklidir. Biri grup sayisi digeri grup aralıgı.

ggplot(df, aes(sure)) +
  geom_histogram()
```

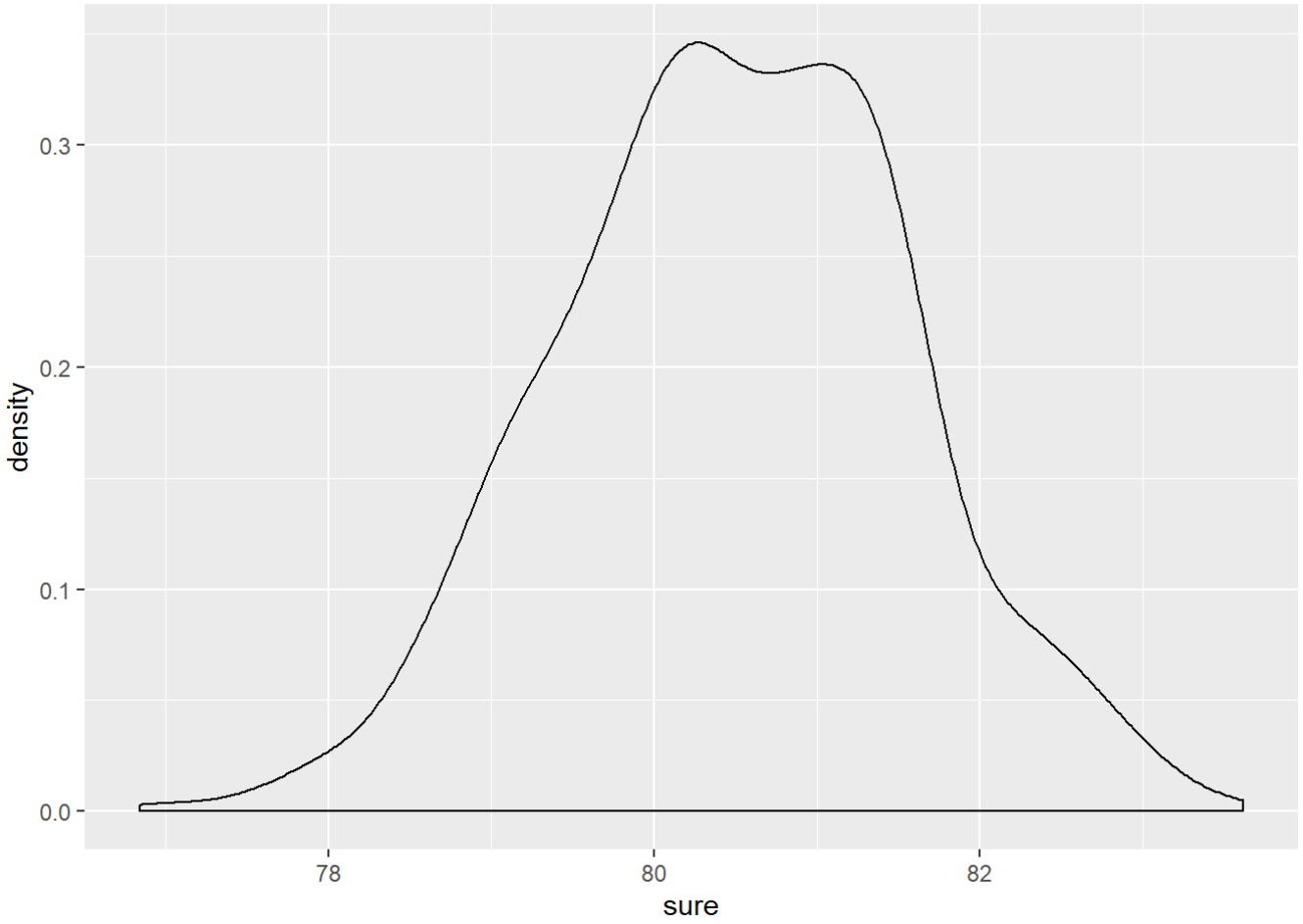
```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



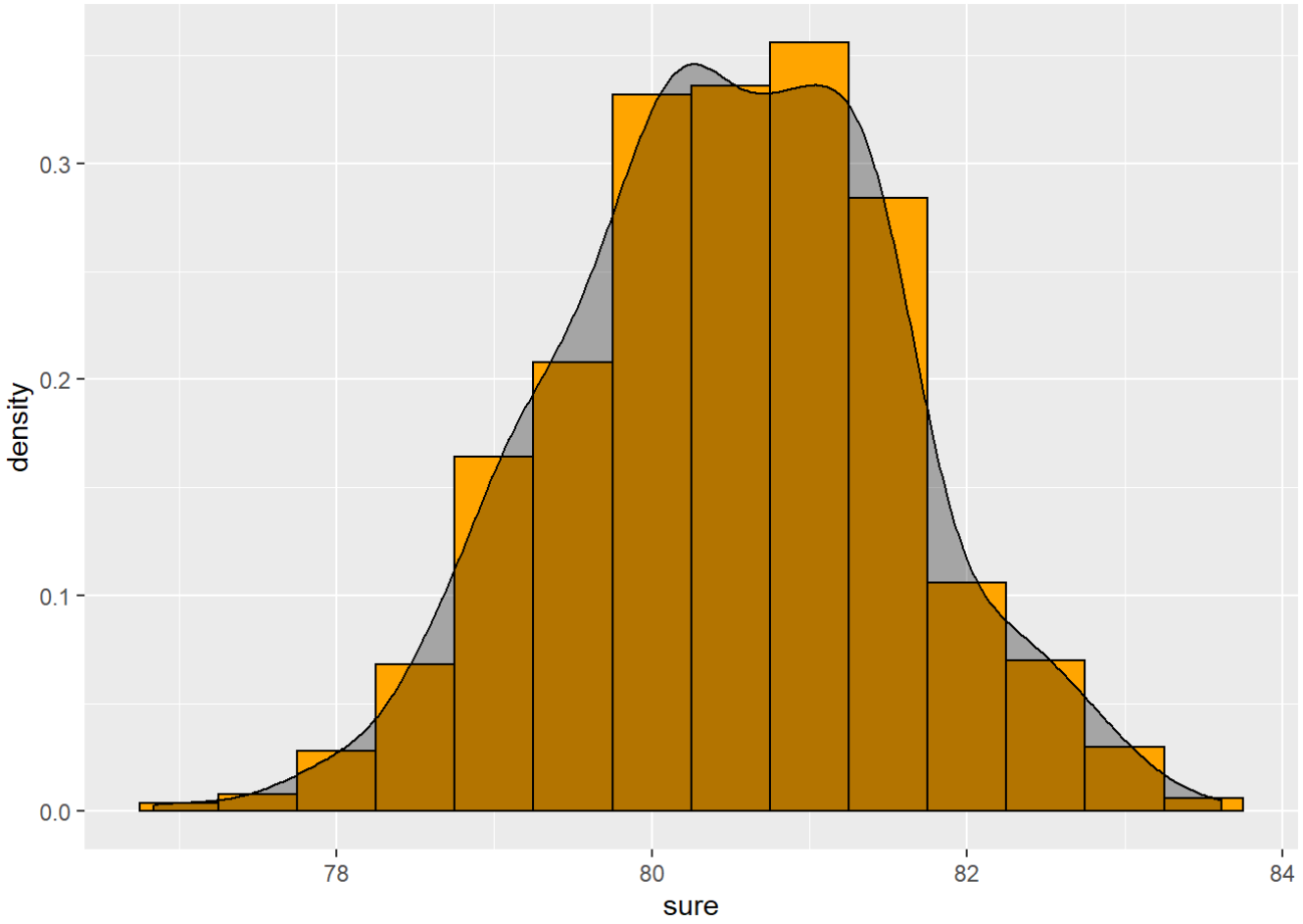
```
ggplot(df, aes(sure)) +
  geom_histogram(binwidth = .5, colour = "black", fill = "orange") +
  xlab("Sure dagilimi") + ylab("frekans") + ggtitle("Histogram")
```



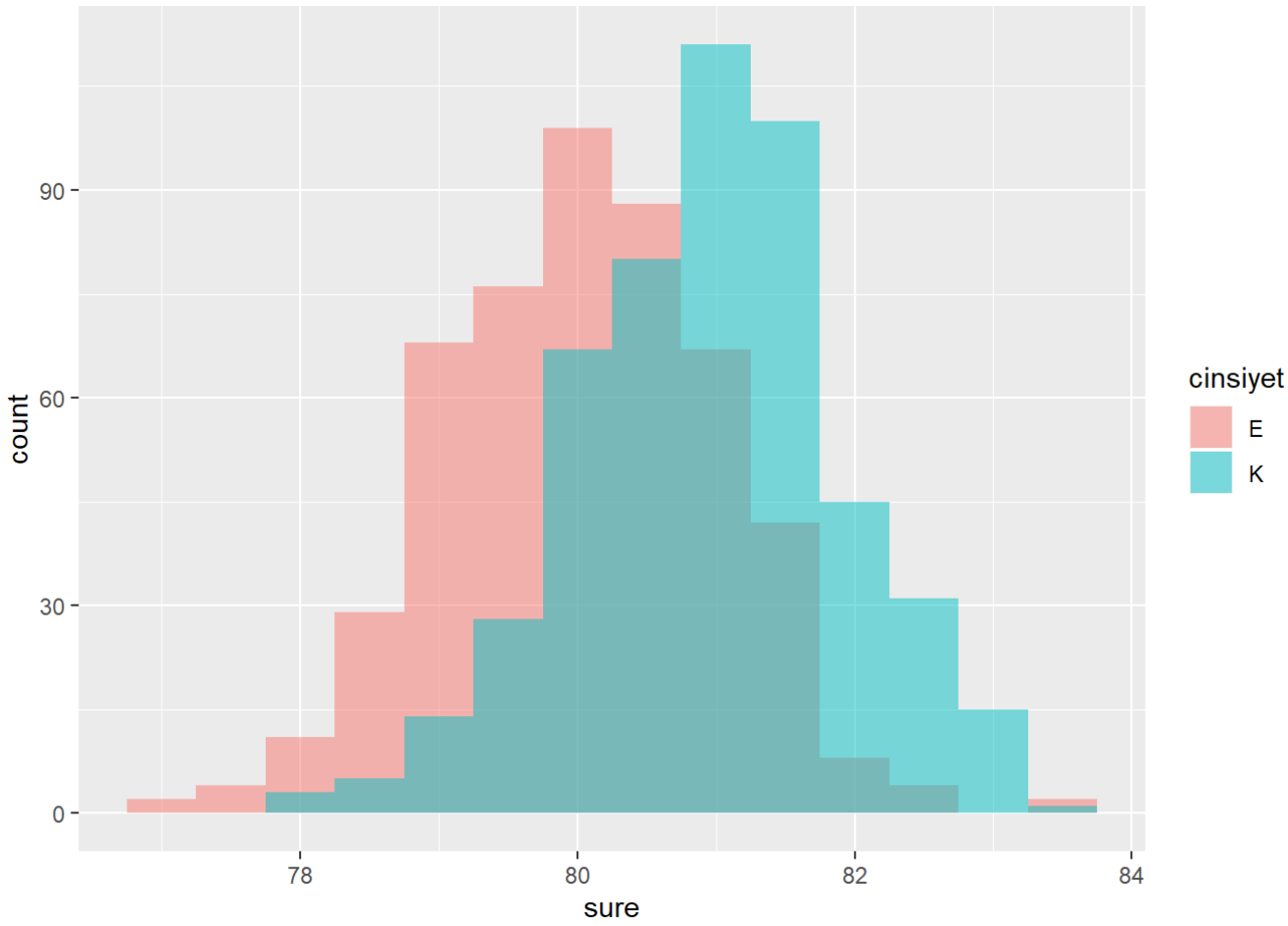

```
# yogunluk grafigi

ggplot(df, aes(sure)) +
  geom_density()
```



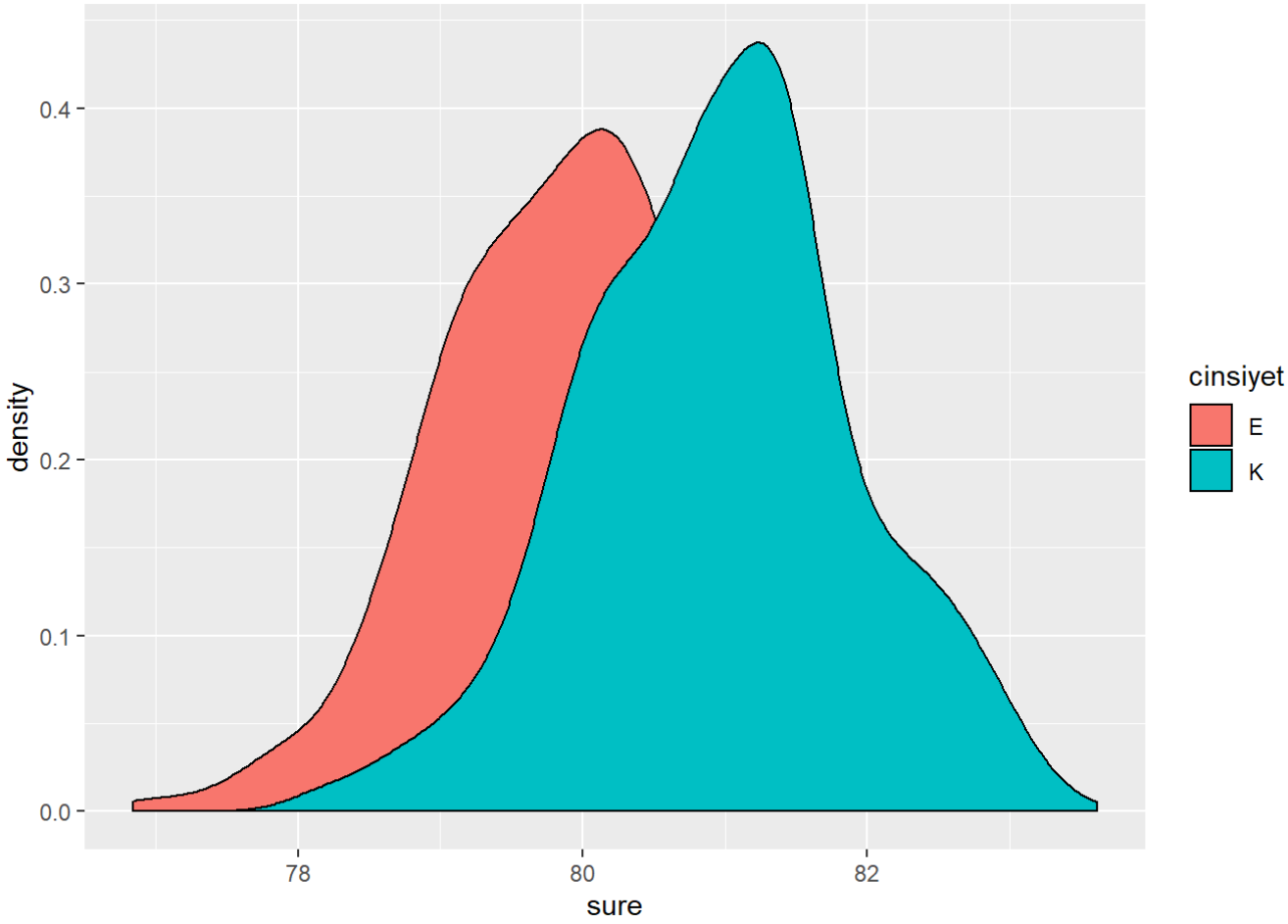

```
# yogunluk fonksiyonu ve histogram bir arada

ggplot(df, aes(sure)) +
  geom_histogram(aes( y = ..density..), binwidth = .5, colour = "black", fill = "orange"   ) +
  geom_density(alpha = .3, fill = "black")
```



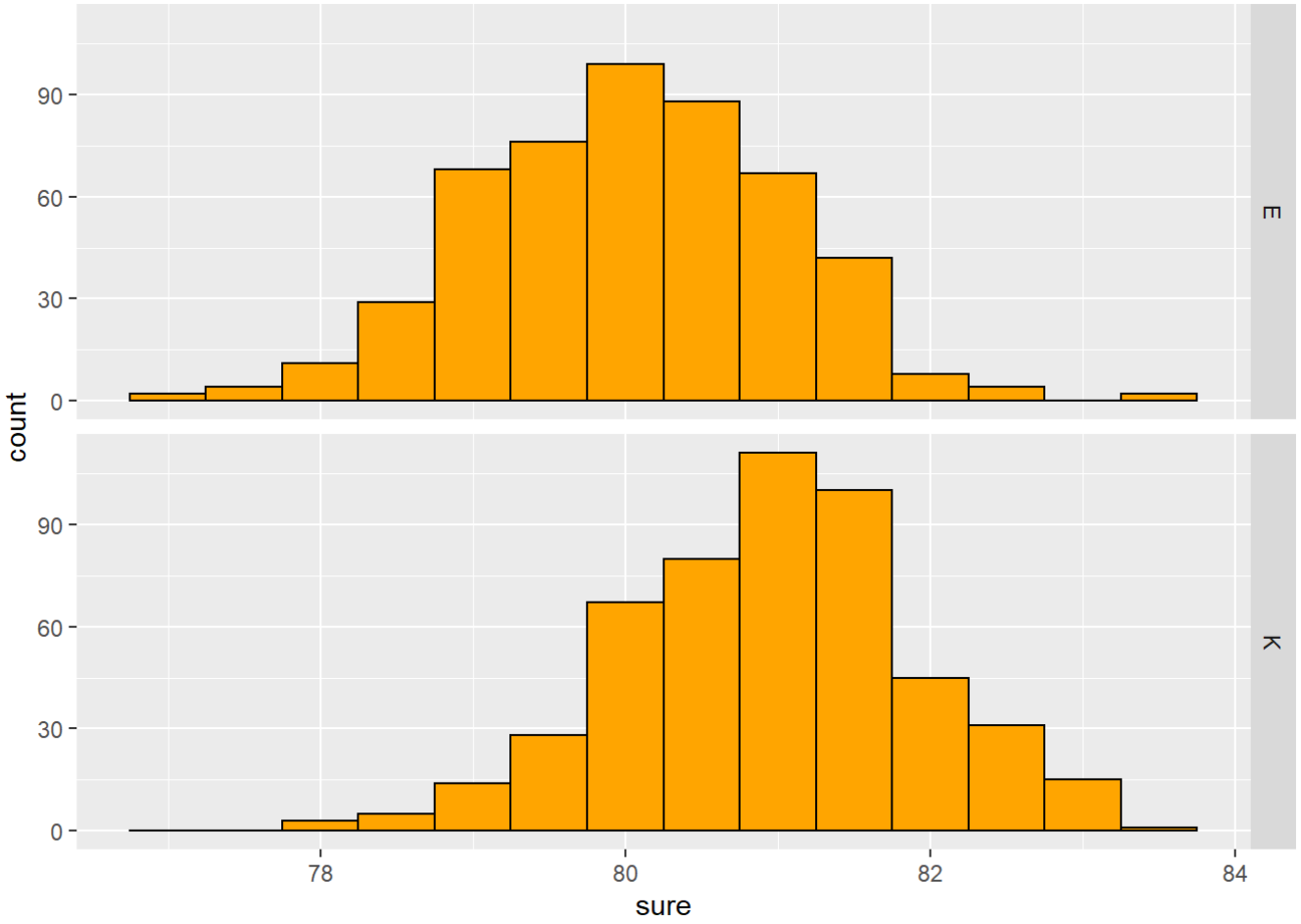

```
# Kirilimlara gore Histogram ve Yogunluk Grafigi

ggplot(df, aes(sure, fill = cinsiyet)) +
  geom_histogram(binwidth = .5, alpha = .5, position = "identity")
```




```
ggplot(df, aes(sure, fill = cinsiyet)) +
  geom_density()
```

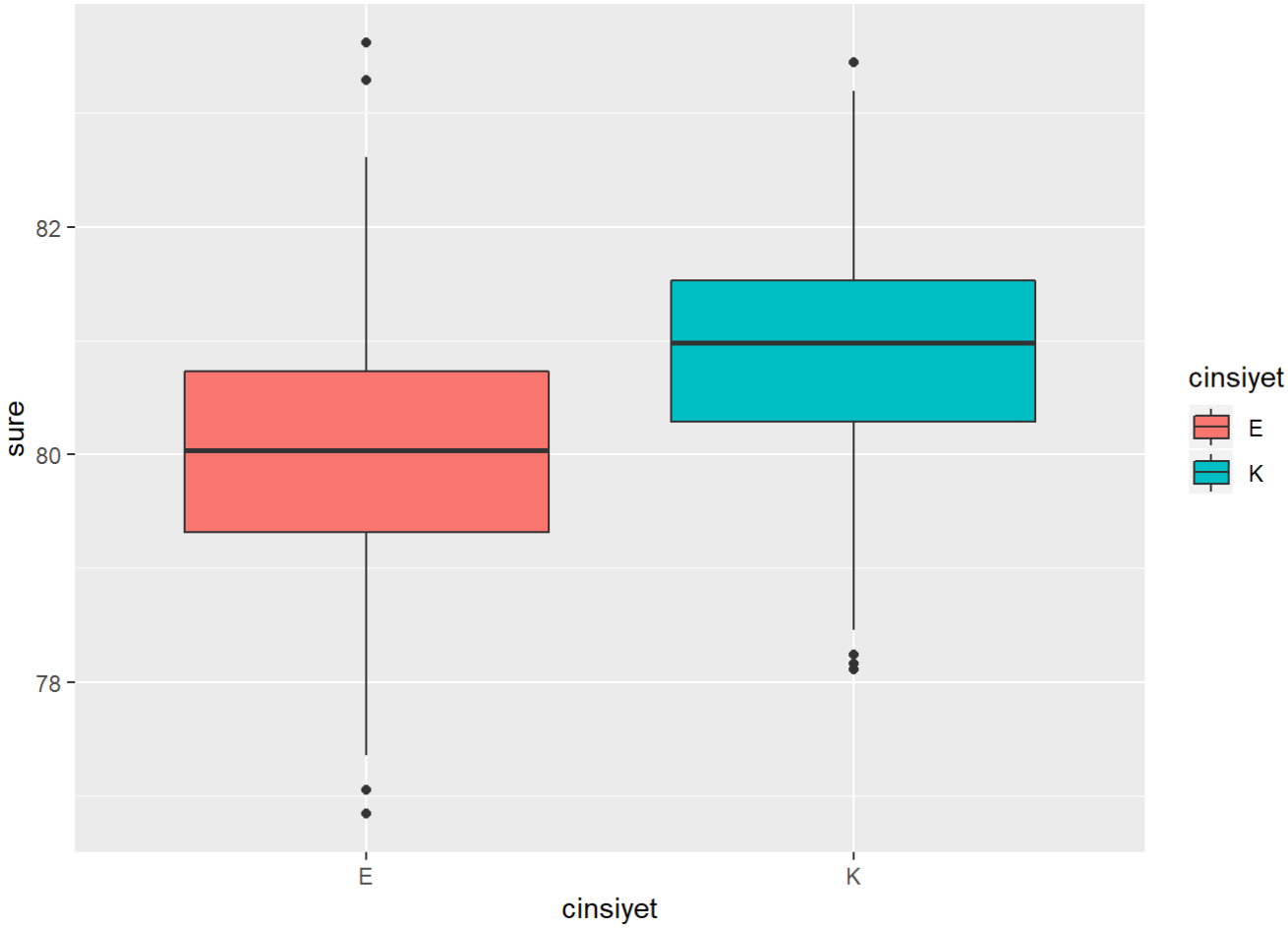



```
# kirilimlari iki ayri grafikte gostermek icin facet_grid() fonksiyonu kullanilir

ggplot(df, aes(sure)) +
  geom_histogram(binwidth = .5, colour = "black", fill = "orange") +
  facet_grid(cinsiyet ~ .)
```

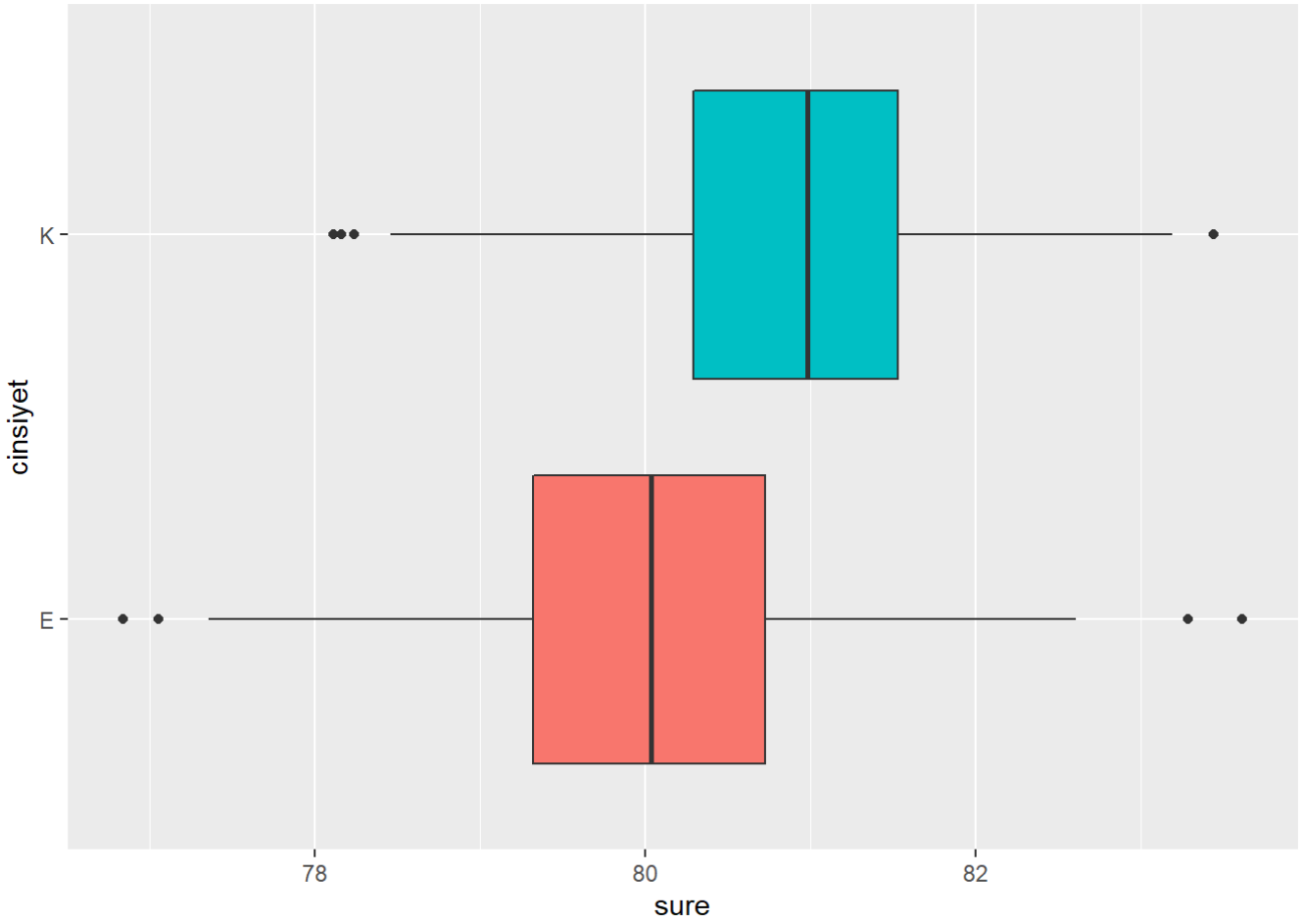


1.2.2 Box Plot (geom_boxplot)

```
# Veri seti icerisindeki aykiri gorselleri gormek icin kullanilir

ggplot(df, aes(x = cinsiyet, y = sure, fill = cinsiyet)) +
  geom_boxplot()
```



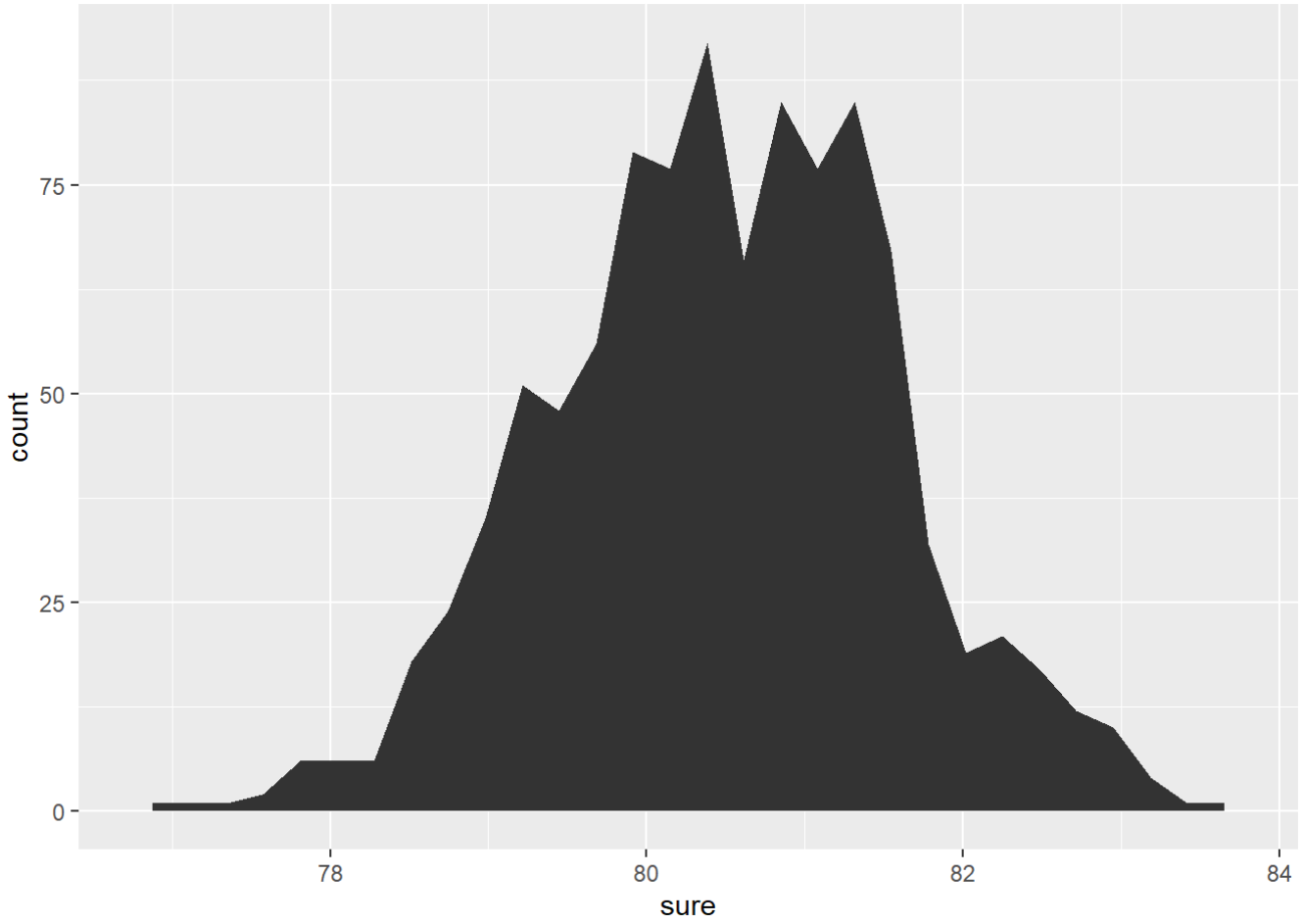

```
# guides fonksiyonu seklin sag tarafindaki sekli kaldirmak icin kullanilir, coord_flip fonksiyonu sekilleri yan c
evirir

ggplot(df, aes(x = cinsiyet, y = sure, fill = cinsiyet)) +
  geom_boxplot() +
  guides(fill = FALSE) +
  coord_flip()
```



1.2.3 Alan Grafik (geom_area)

```
# kendi degerleri uzerindn kapladigi alani gosterir

ggplot(df, aes(sure)) +
  geom_area(stat = "bin")
```

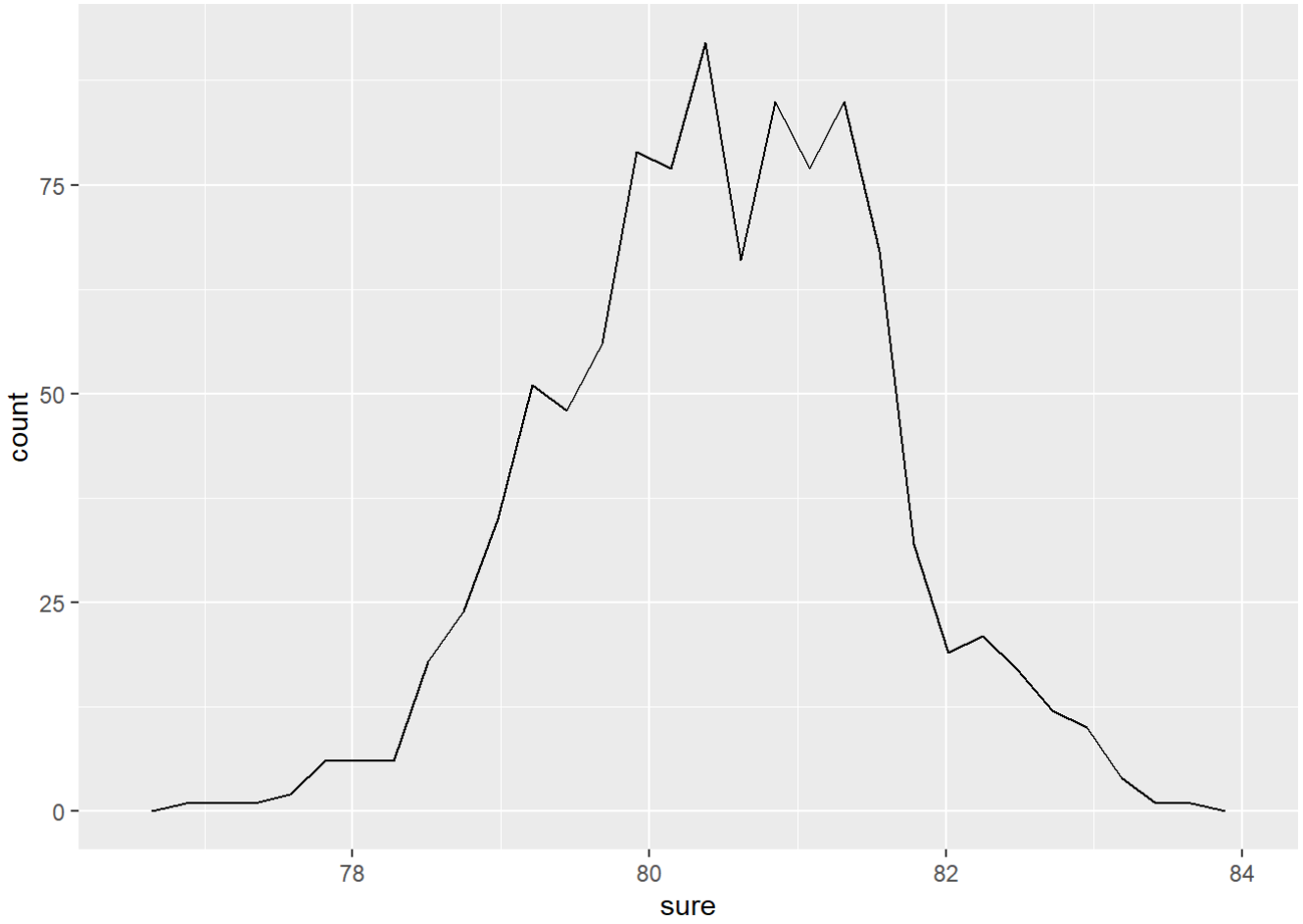
```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



1.2.4. Frekans Grafik (geom_freqpoly)

```
ggplot(df, aes(sure)) +
  geom_freqpoly()
```

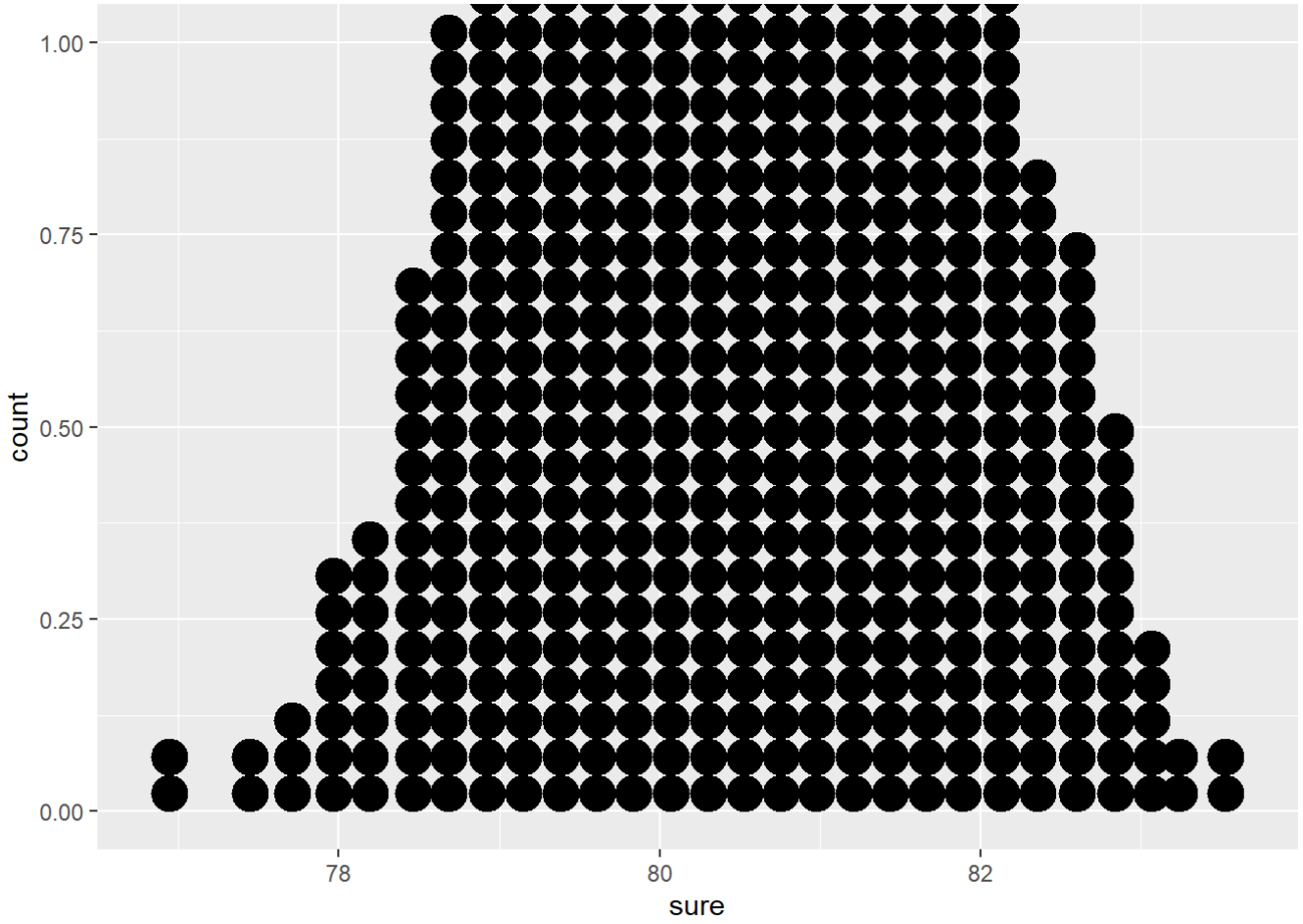
```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



1.2.5. Dotplot

```
ggplot(df, aes(sure)) +
  geom_dotplot()
```

```
## `stat_bindot()` using `bins = 30`. Pick better value with `binwidth`.
```



2. Iki degsikeni Gorsellestirme

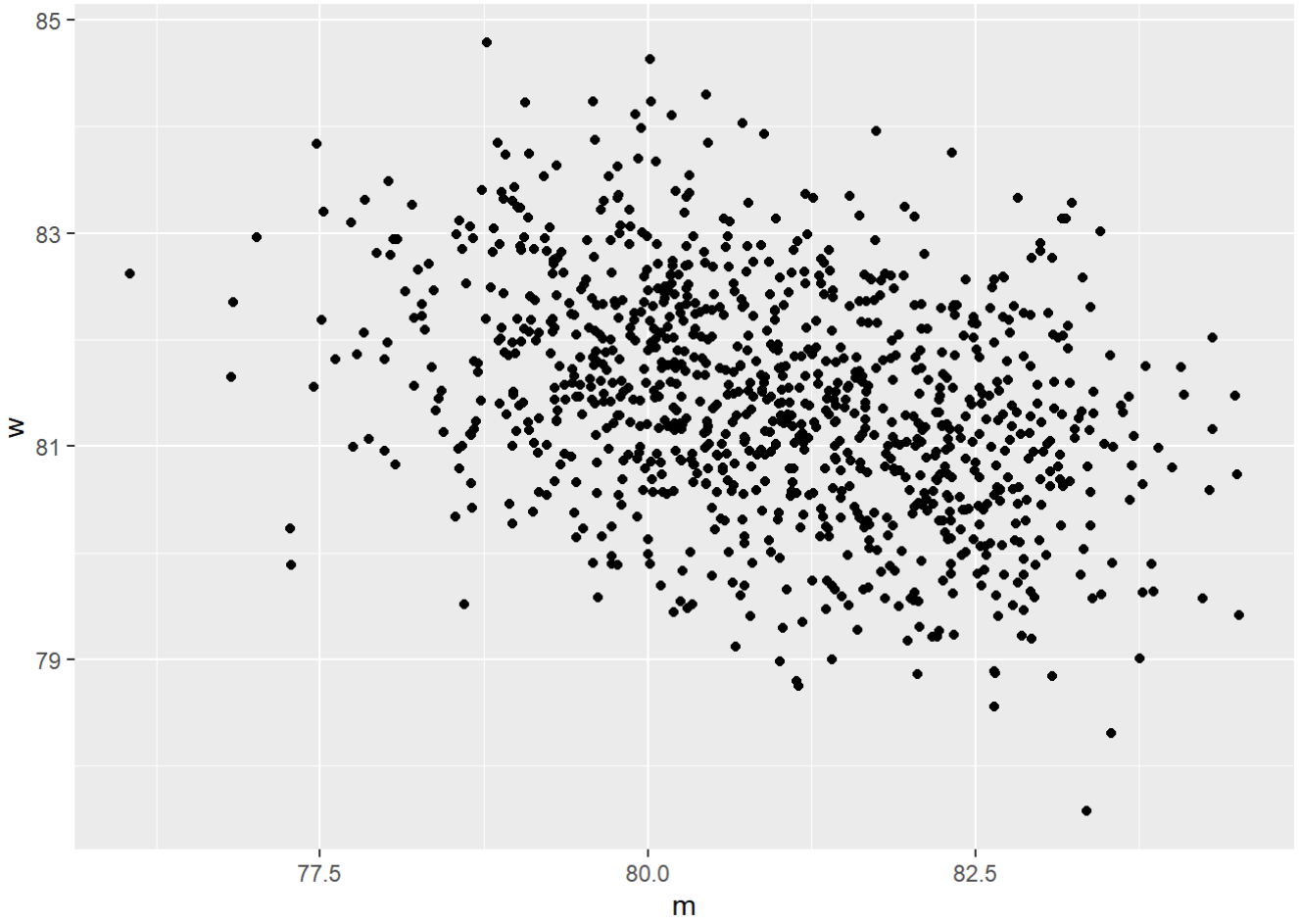
2.1. Surekli X, Sürekli Y

2.1.1. Scatter-plot

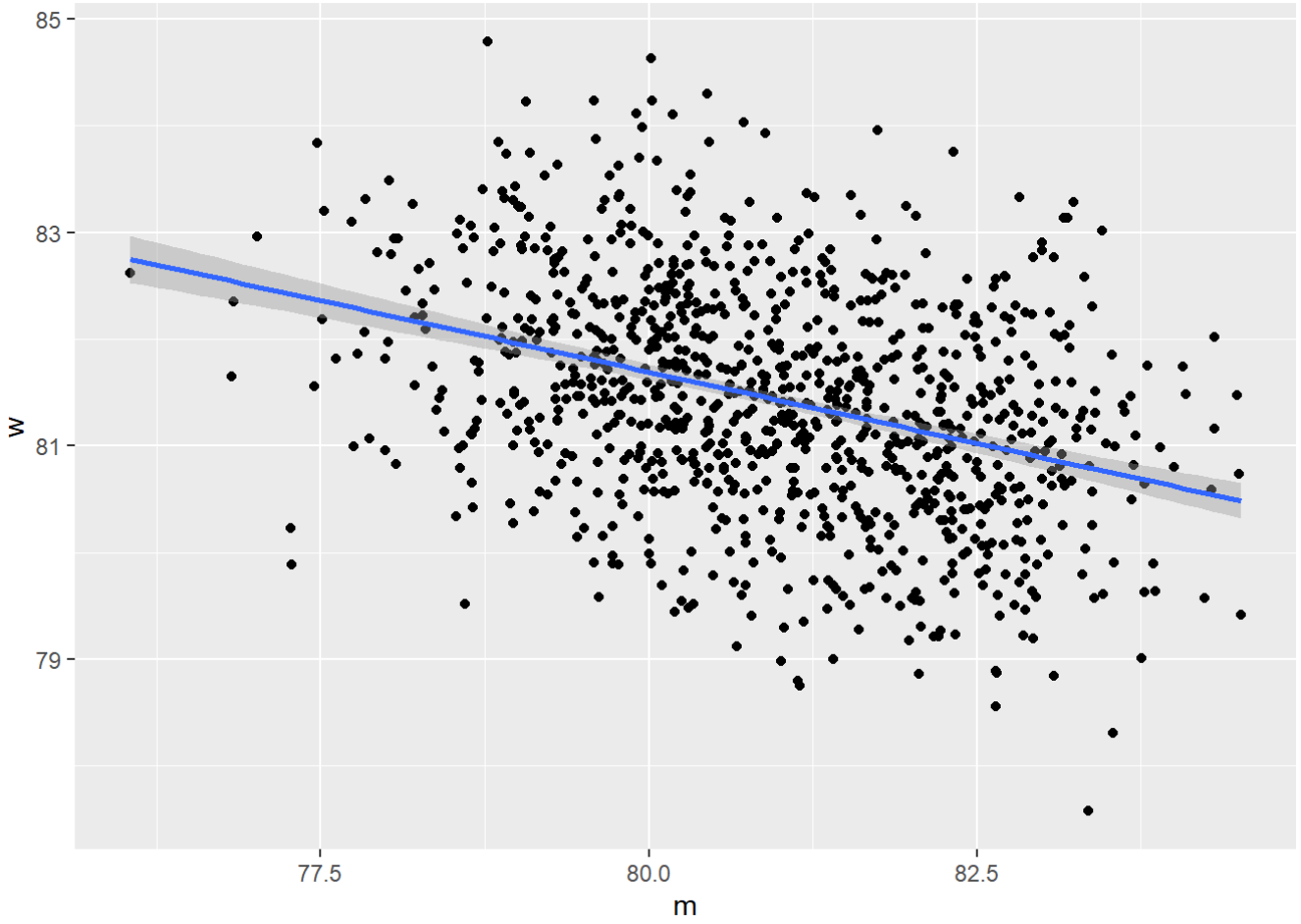
```r
# Scatter plot verilen iki surekli degiskenin birbirlerine gore durumlarini anlamaya yariyor

df <- tibble(
  cinsiyet = factor(rep(c("E", "K"), each = 500)),
  m = c(rnorm(500, mean = 80), rnorm(500, mean = 82)),
  w = c(rnorm(500, mean = 82), rnorm(500, mean = 81)))

df
```

```
## # A tibble: 1,000 x 3
##    cinsiyet     m     w
##    <fct>    <dbl> <dbl>
##  1 E         79.3  83.0
##  2 E         80.6  81.6
##  3 E         78.4  81.4
##  4 E         79.0  81.5
##  5 E         80.4  81.7
##  6 E         81.2  81.8
##  7 E         79.7  81.5
##  8 E         80.2  81.2
##  9 E         80.3  82.7
## 10 E         78.3  82.3
## # ... with 990 more rows
```

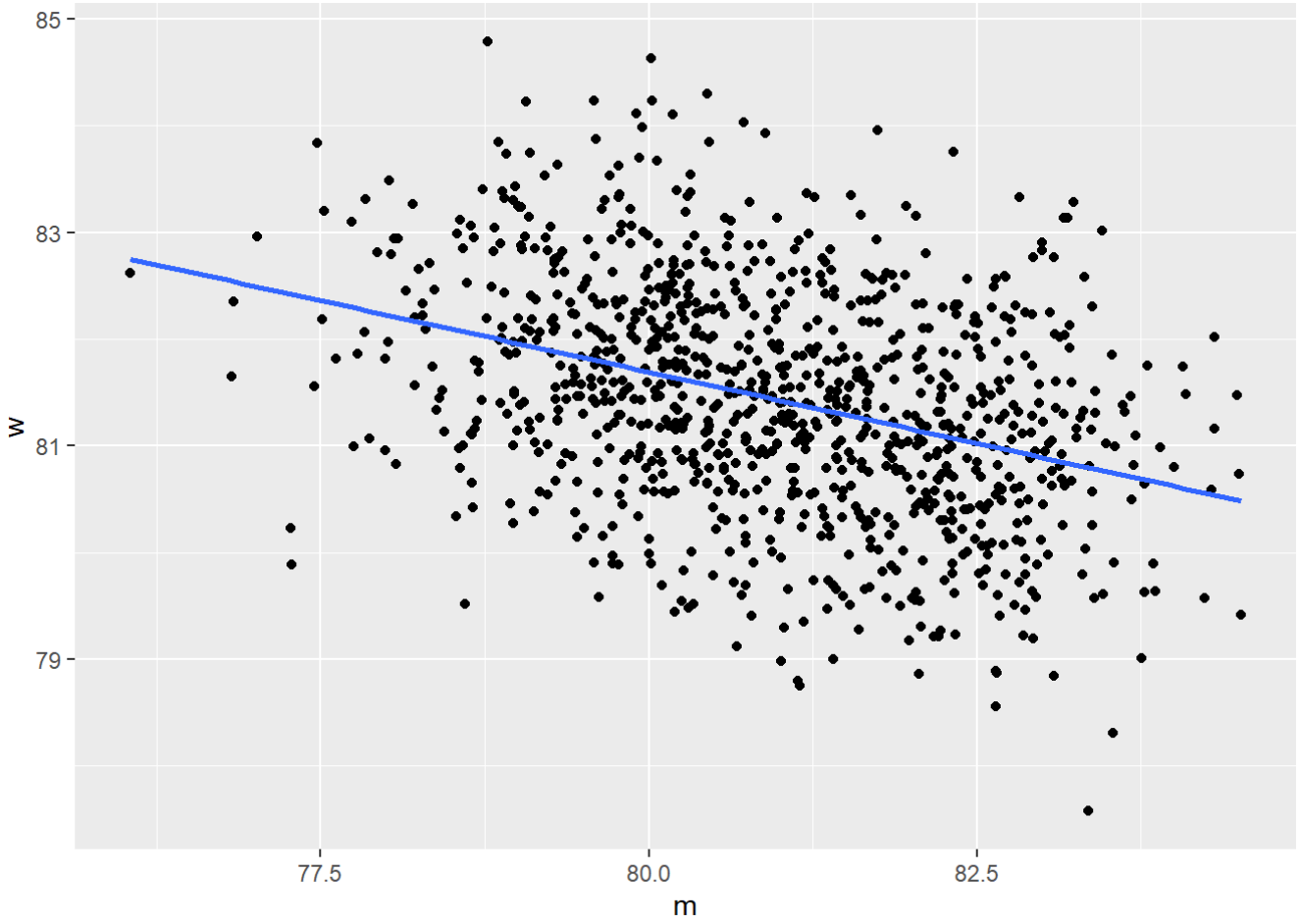
```r
ggplot(df, aes(m, w)) +
  geom_point()
```




```
ggplot(df, aes(m, w)) +
  geom_point() +
  geom_smooth(method = lm)
```

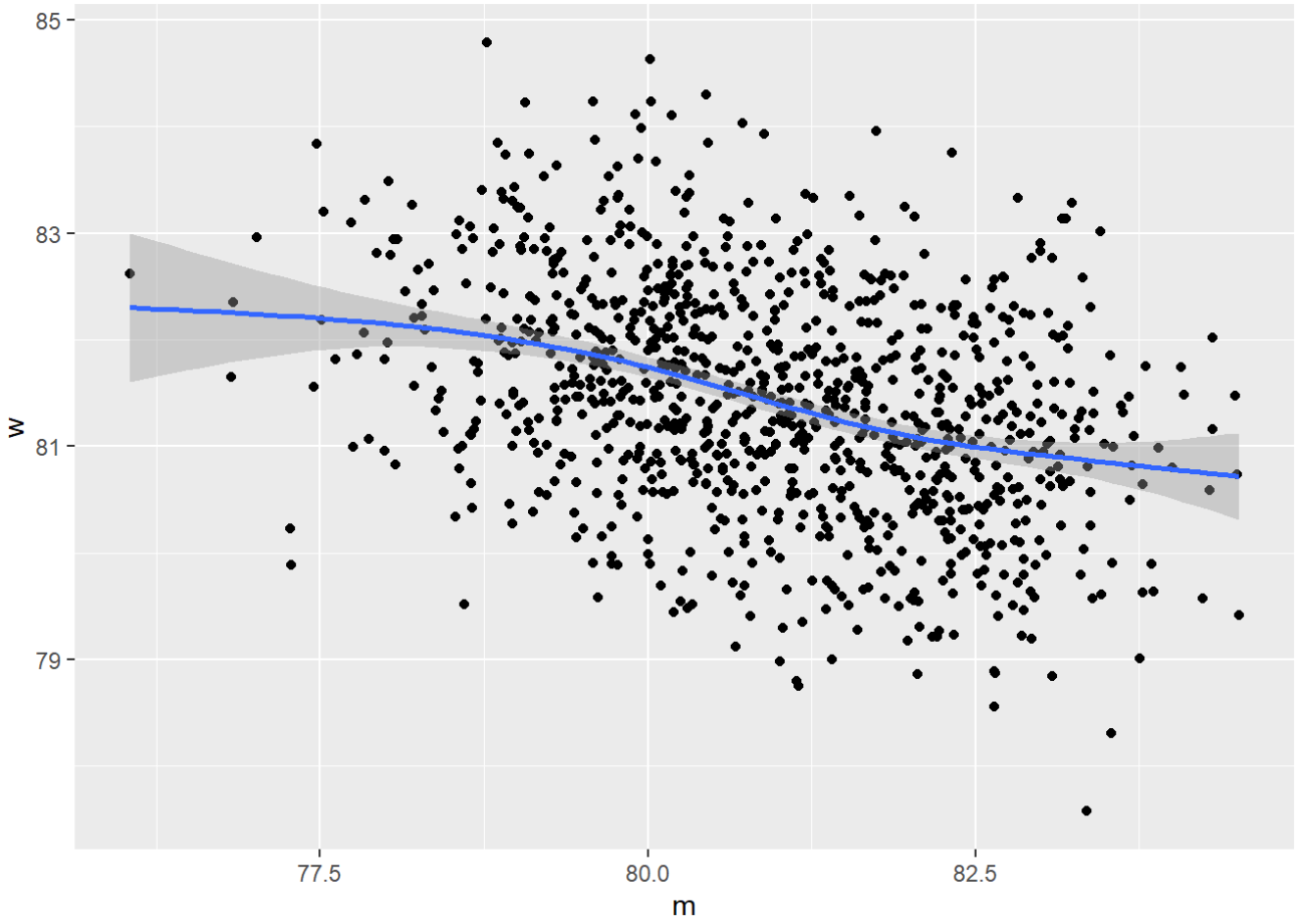



```
ggplot(df, aes(m, w)) +
  geom_point() +
  geom_smooth(method = lm, se = FALSE)
```

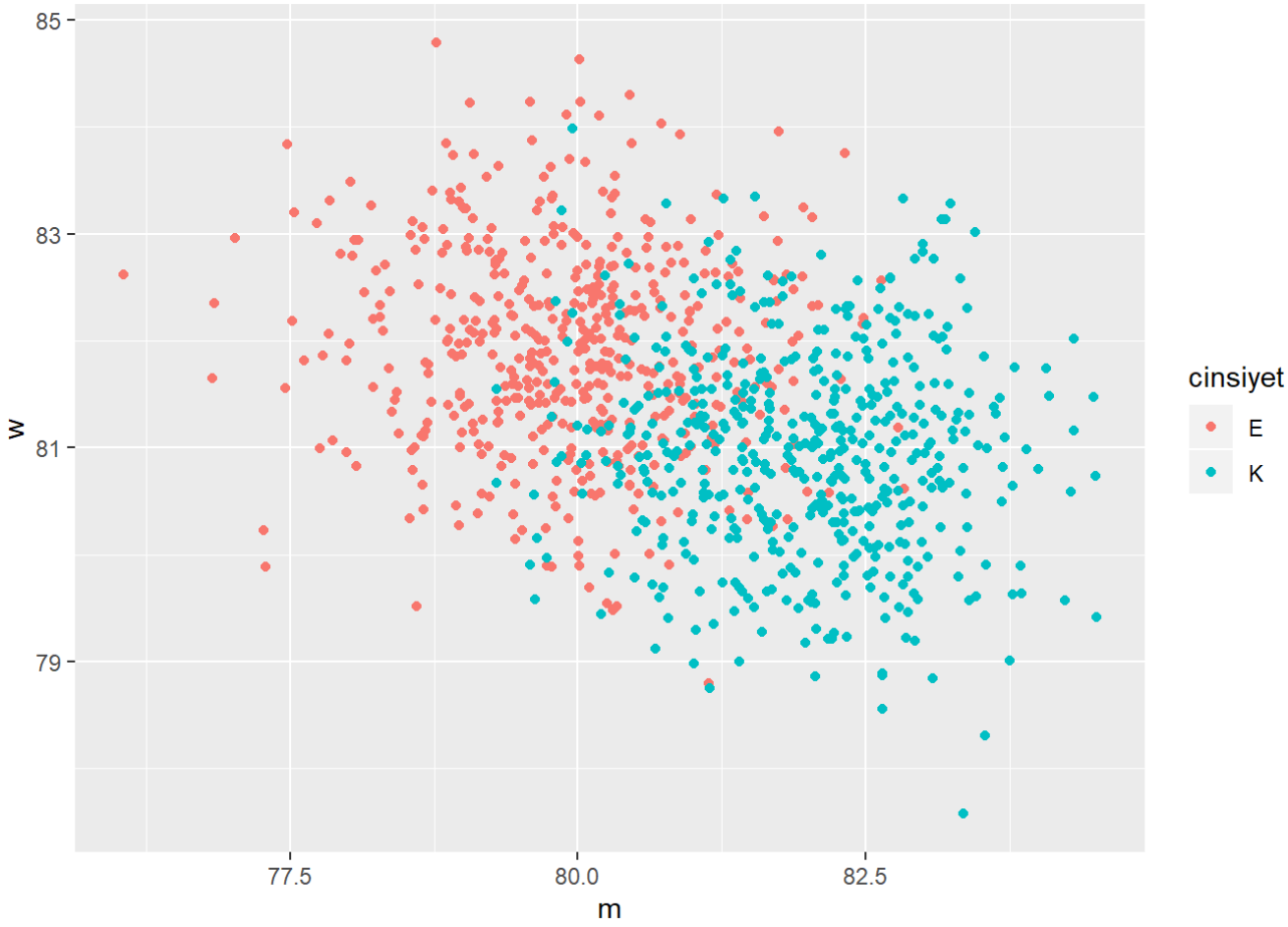



```
ggplot(df, aes(m, w)) +
  geom_point() +
  geom_smooth()
```

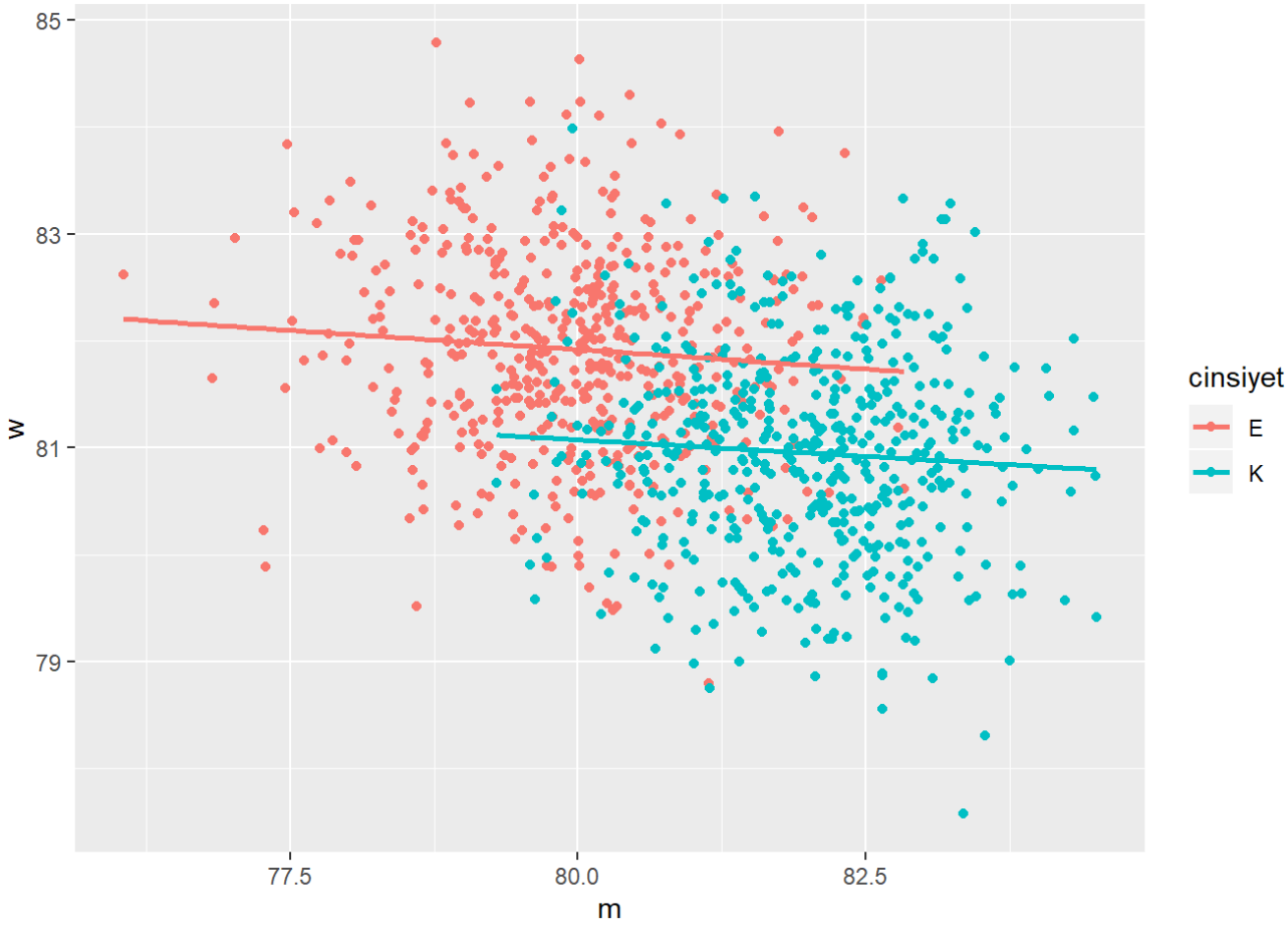
```
## `geom_smooth()` using method = 'gam' and formula 'y ~ s(x, bs = "cs")'
```




```
ggplot(df, aes(m, w, color = cinsiyet)) +
  geom_point()
```




```
ggplot(df, aes(m, w, color = cinsiyet)) +
  geom_point() +
  geom_smooth(method = lm, se = FALSE)
```

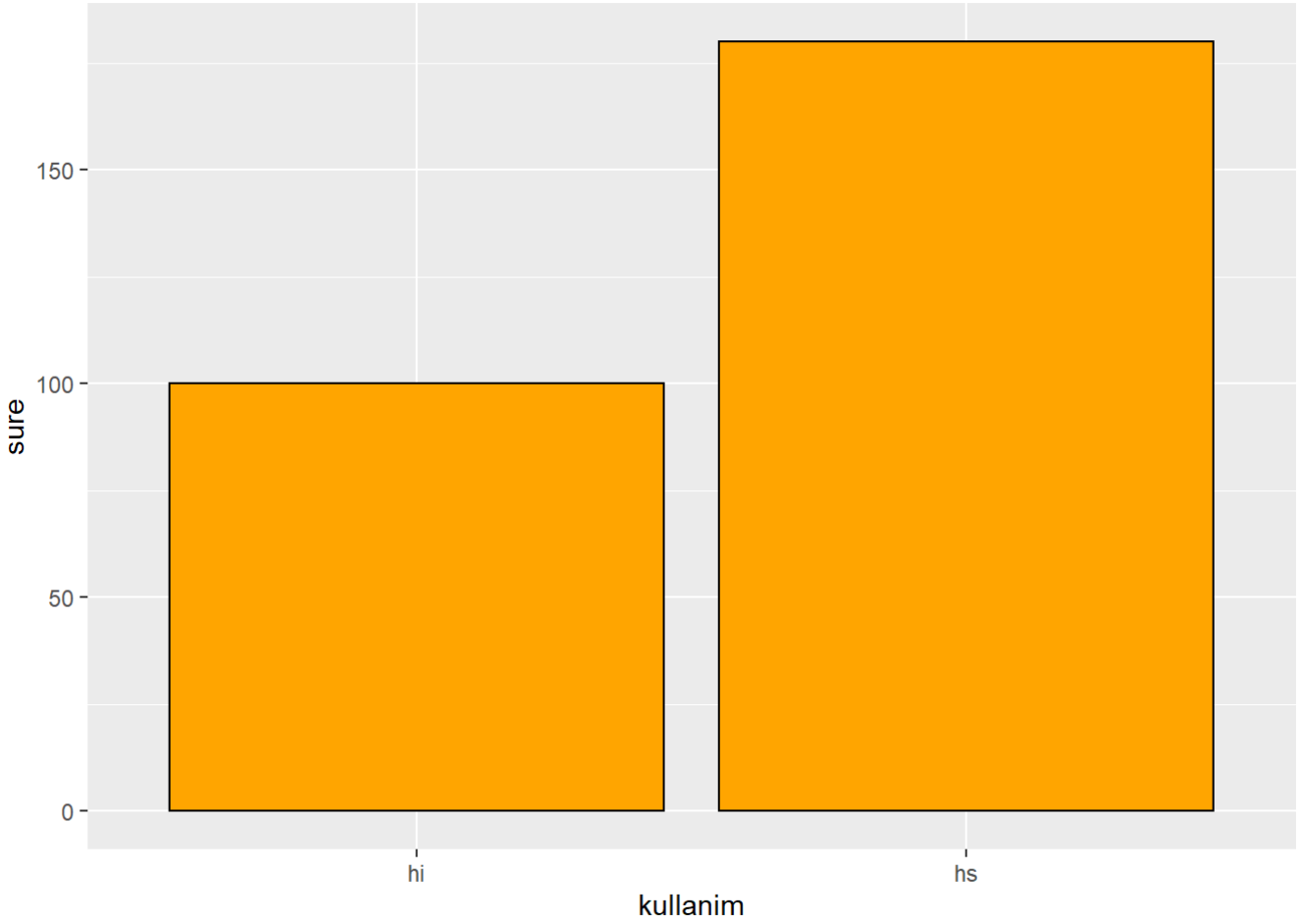


2.2. Kesikli X, Sürekli Y

2.2.1. Sutun Grafigi (geom_bar)

```
df <- tibble(
  kullanim = factor(c("hi", "hs"), levels = c("hi", "hs")),
  sure = c(100,180))
```

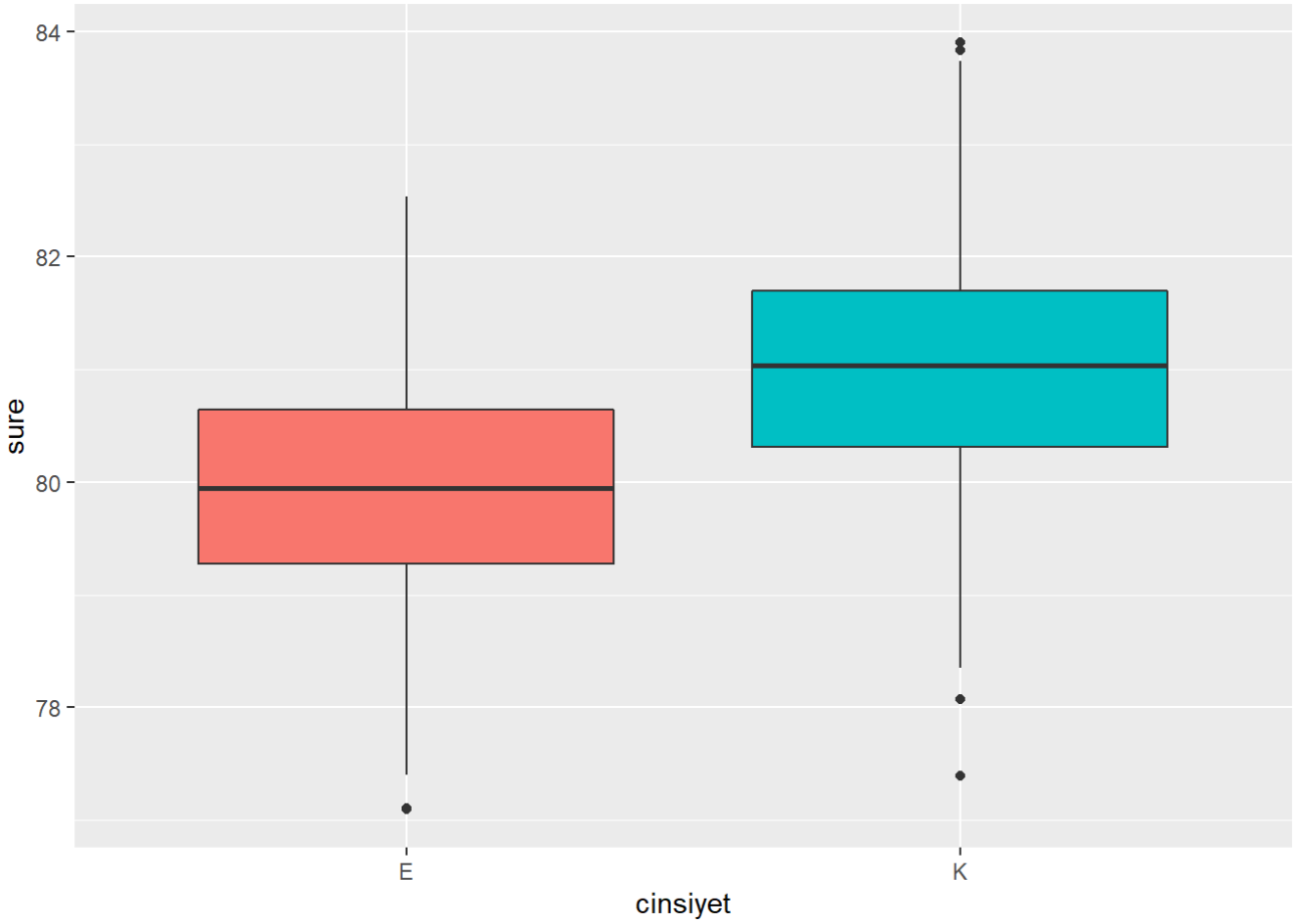
```
ggplot(df, aes(kullanim, sure, fill = kullanim)) +
  geom_bar(colour = "black", fill = "orange", stat = "identity"  )
```



2.2.2. Box Plot

```
df <- tibble(
  cinsiyet = factor(rep(c("E", "K"), each = 500)),
  sure = c(rnorm(500, mean = 80), rnorm(500, mean = 81)))
```

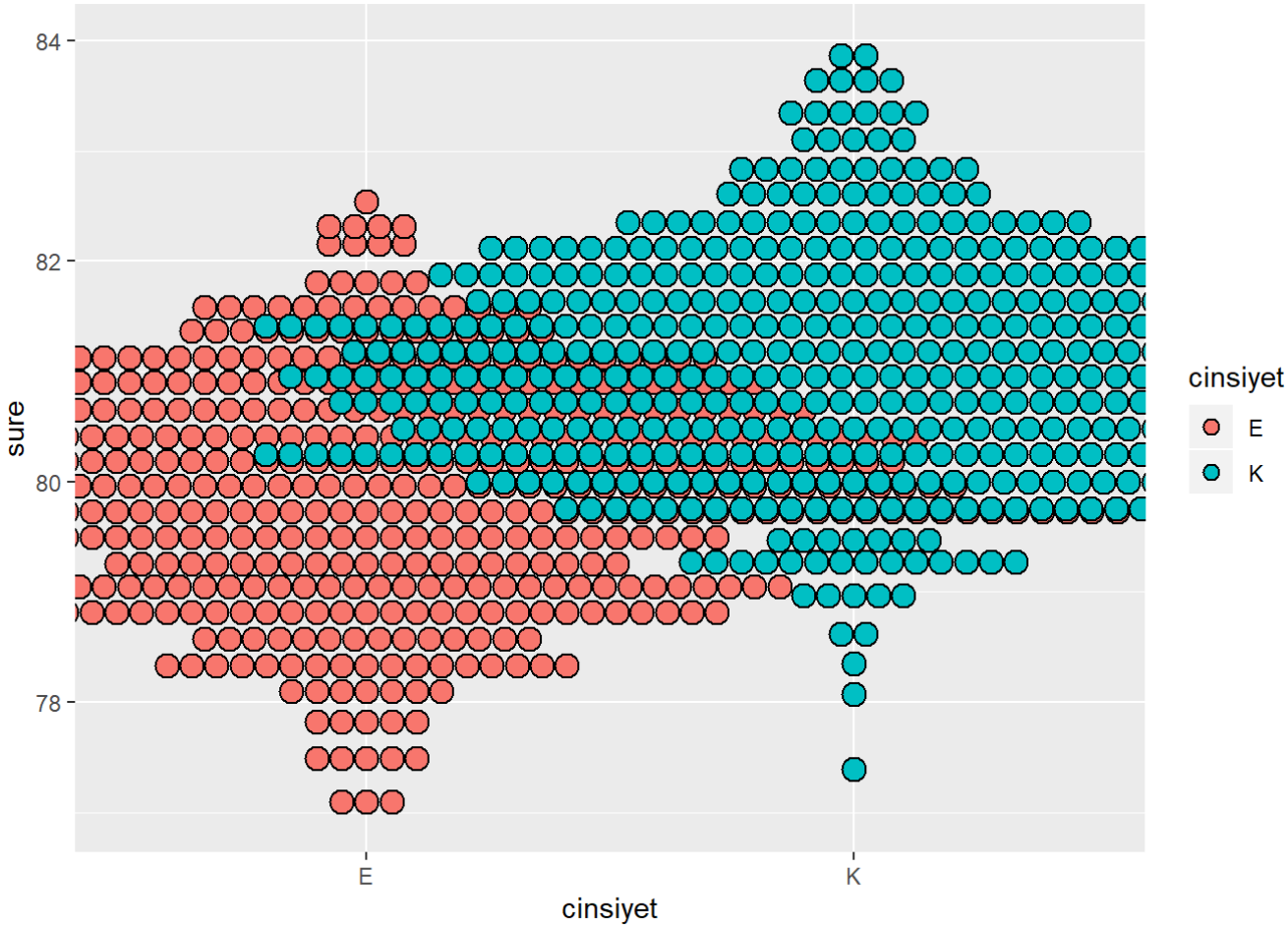
```
ggplot(df, aes(x = cinsiyet, y = sure, fill = cinsiyet)) +
  geom_boxplot() +
  guides(fill = FALSE)
```



2.2.3. Dot Plot

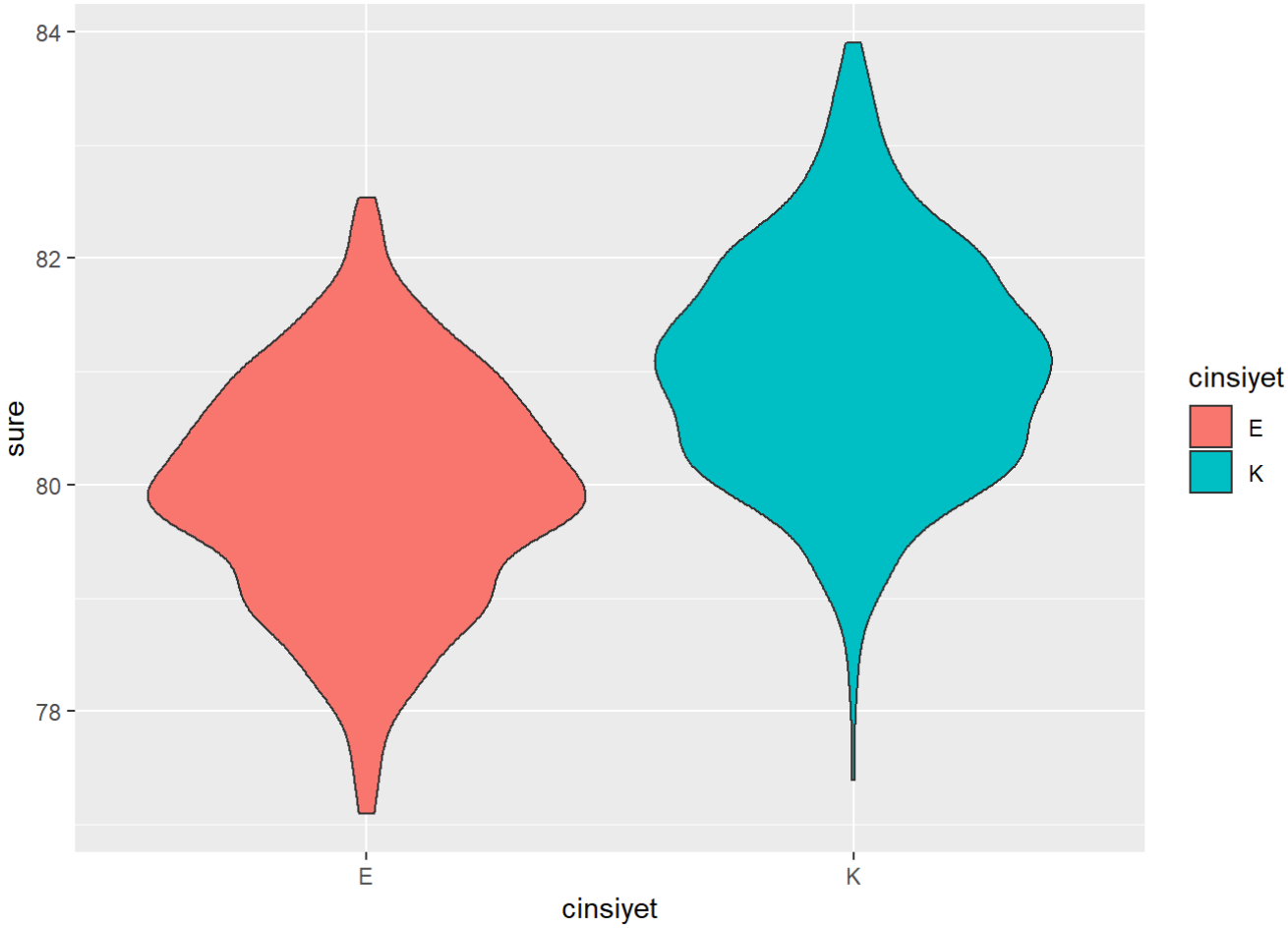
```
ggplot(df, aes(x = cinsiyet, y = sure, fill = cinsiyet)) +
  geom_dotplot(binaxis = "y", stackdir = "center")
```

```
## `stat_bindot()` using `bins = 30`. Pick better value with `binwidth`.
```



2.2.4. Violin

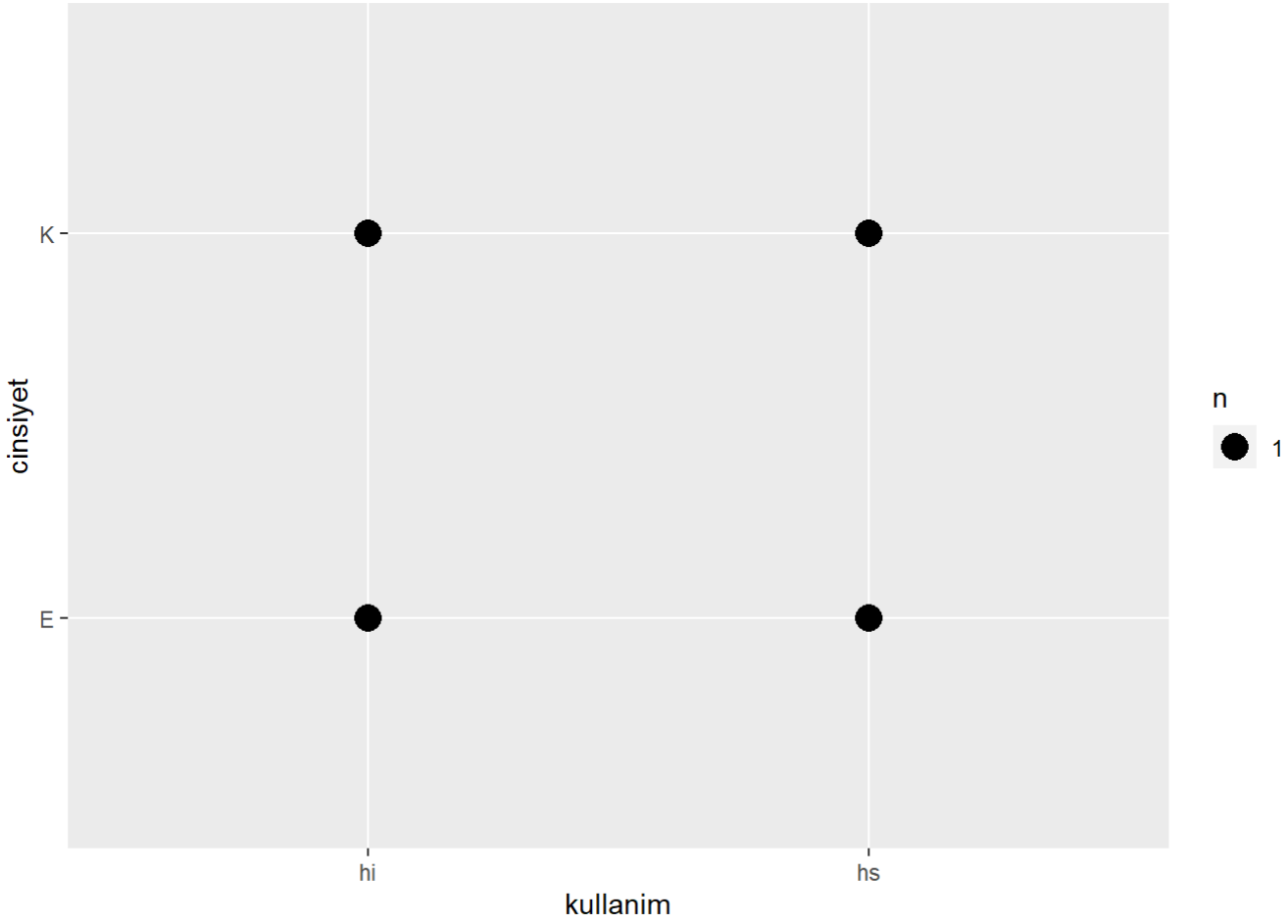
```
ggplot(df, aes(x = cinsiyet, y = sure, fill = cinsiyet)) +
  geom_violin(scale = "area")
```



2.3. Kesikli X, Kesikli Y

```
df <- tibble(
  kullanim = factor(c("hi", "hs","hi", "hs"), levels = c("hi", "hs")),
  sure = c(100,180, 90, 200),
  cinsiyet = factor(c("E","E","K","K")))
```

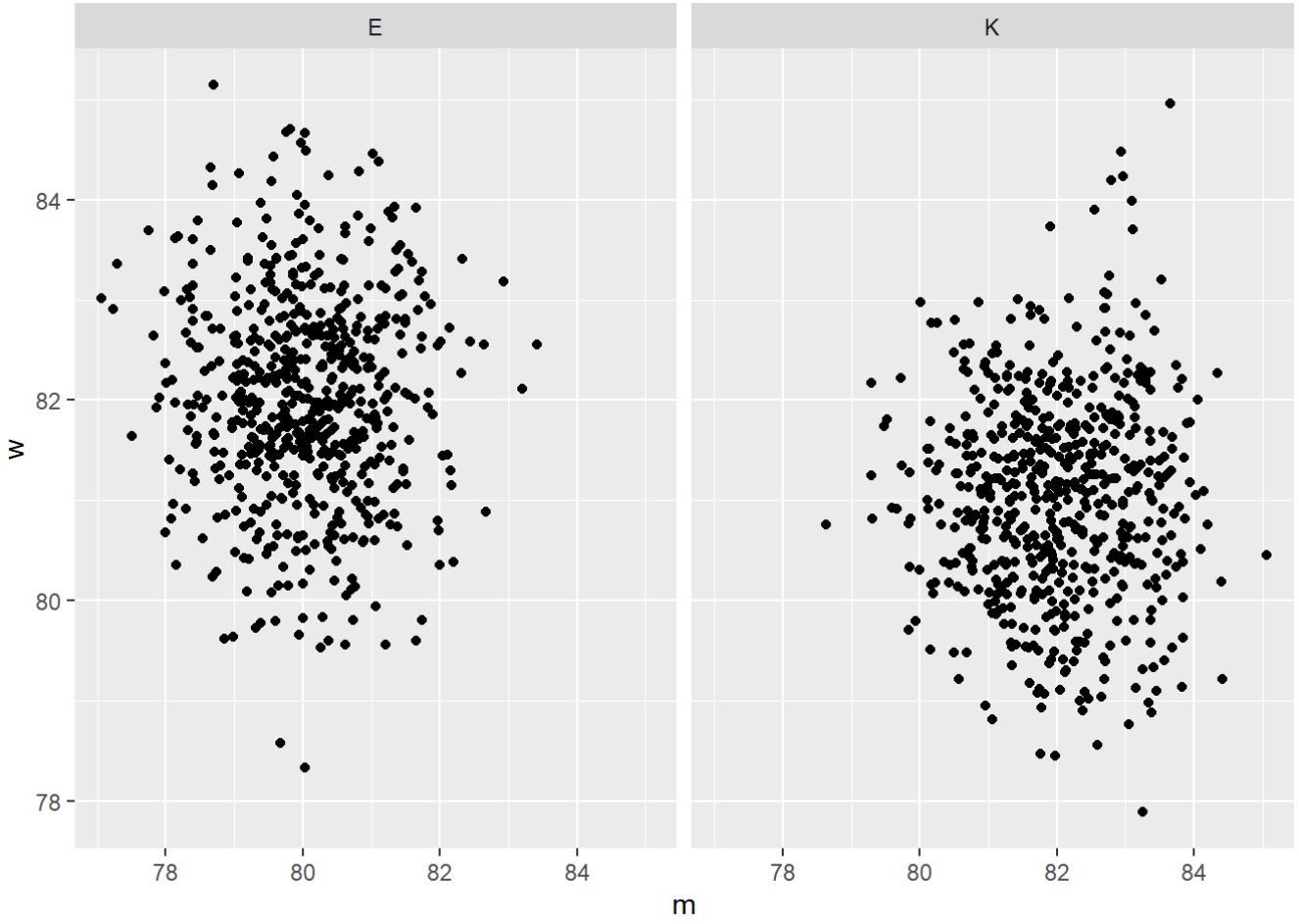
```
ggplot(df, aes(kullanim, cinsiyet)) +
  geom_count()
```



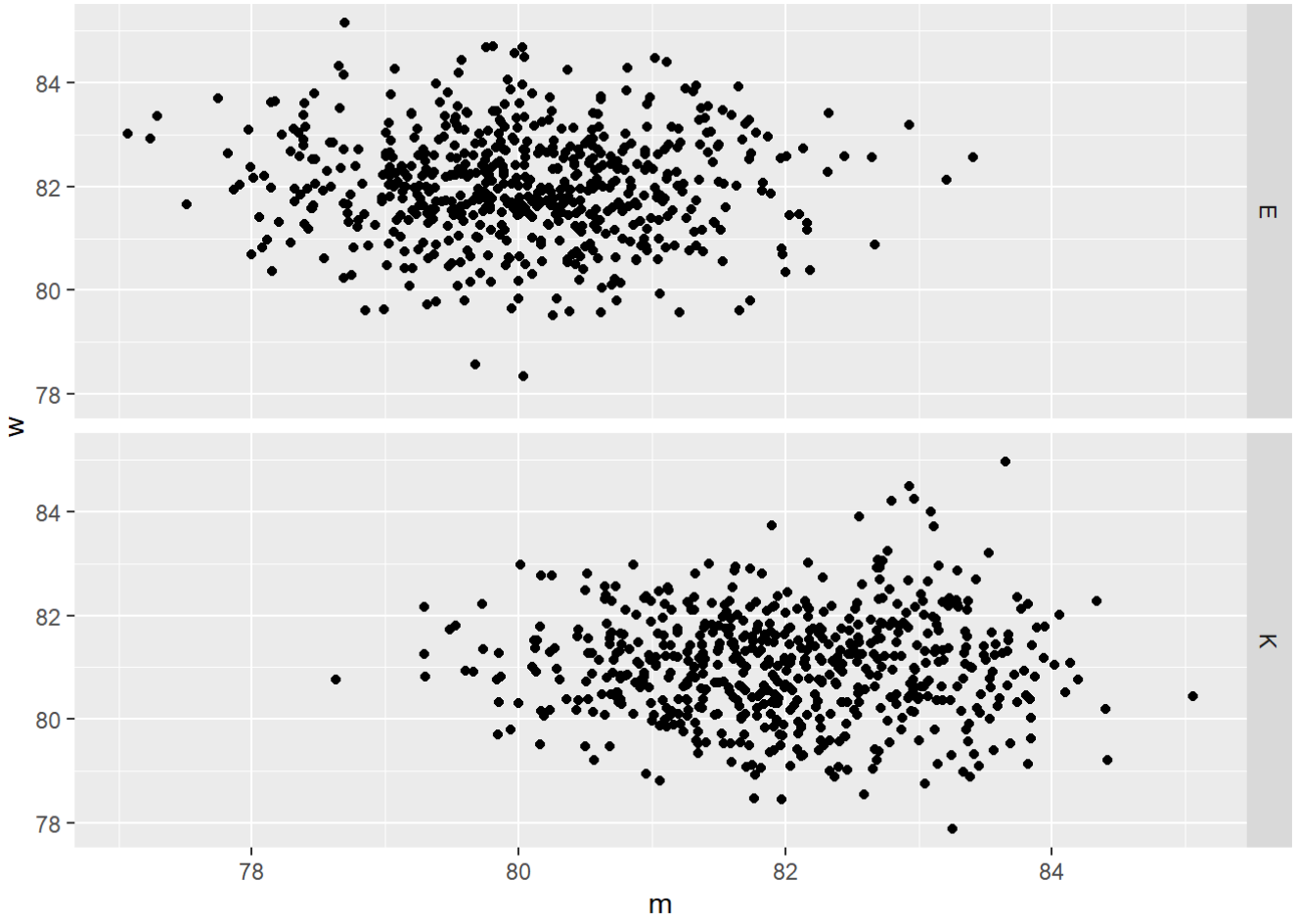
3. Grafik Bolme

```
df <- tibble(
  c = factor(rep(c("E", "K"), each = 600)),
  m = c(rnorm(600, mean = 80), rnorm(600, mean = 82)),
```

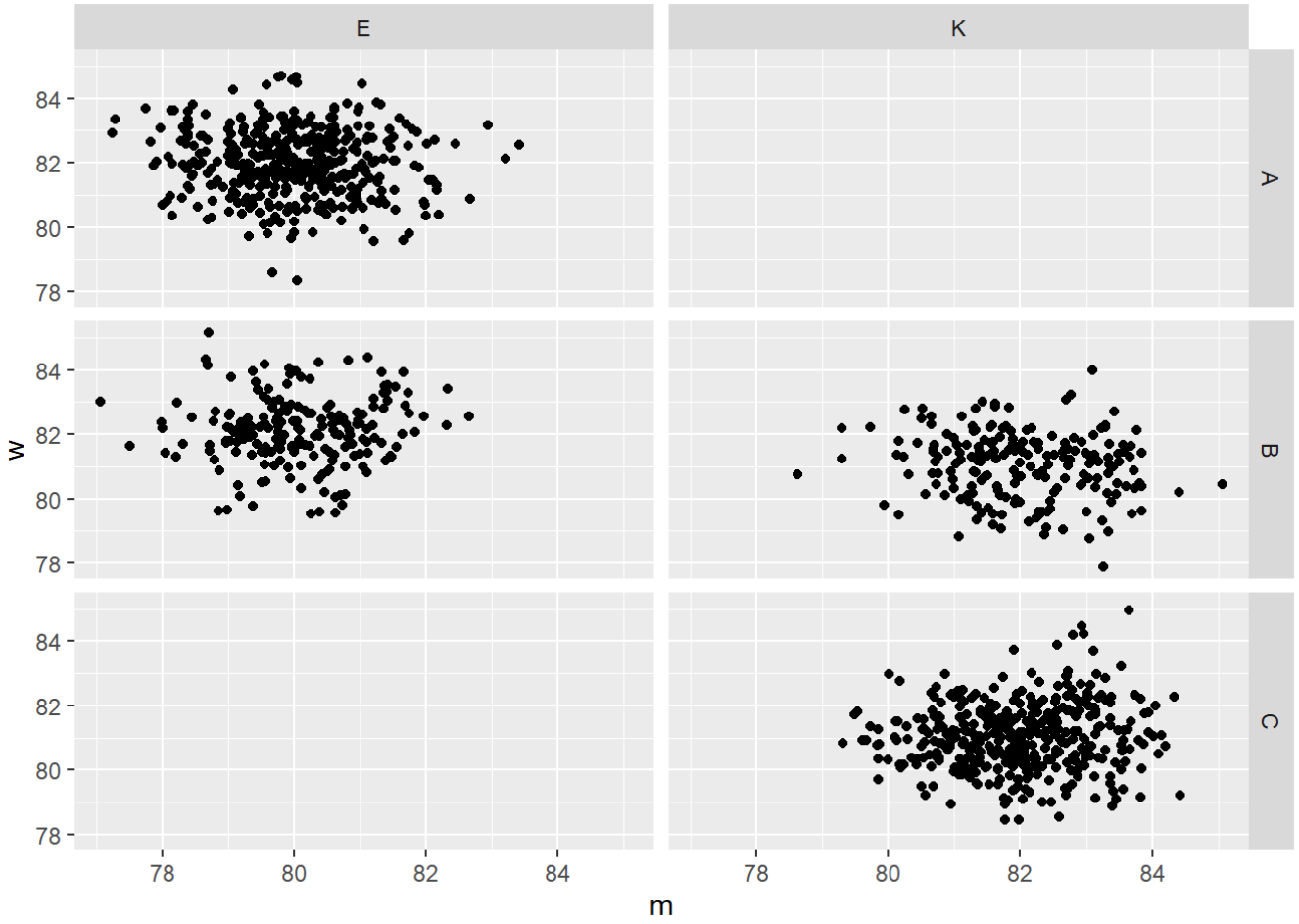
```
  w = c(rnorm(600, mean = 82), rnorm(600, mean = 81)),
  me = factor(rep(c("A","B", "C"), each = 400)))


t <- ggplot(df, aes(m,w))+ geom_point()

# sutunlara bolme
t + facet_grid(. ~ c)
```



```
# satirlara gore bolme
t + facet_grid(c ~ .)
```




```
# hem satir hem sutunlara bolme
t + facet_grid(me ~ c)
```



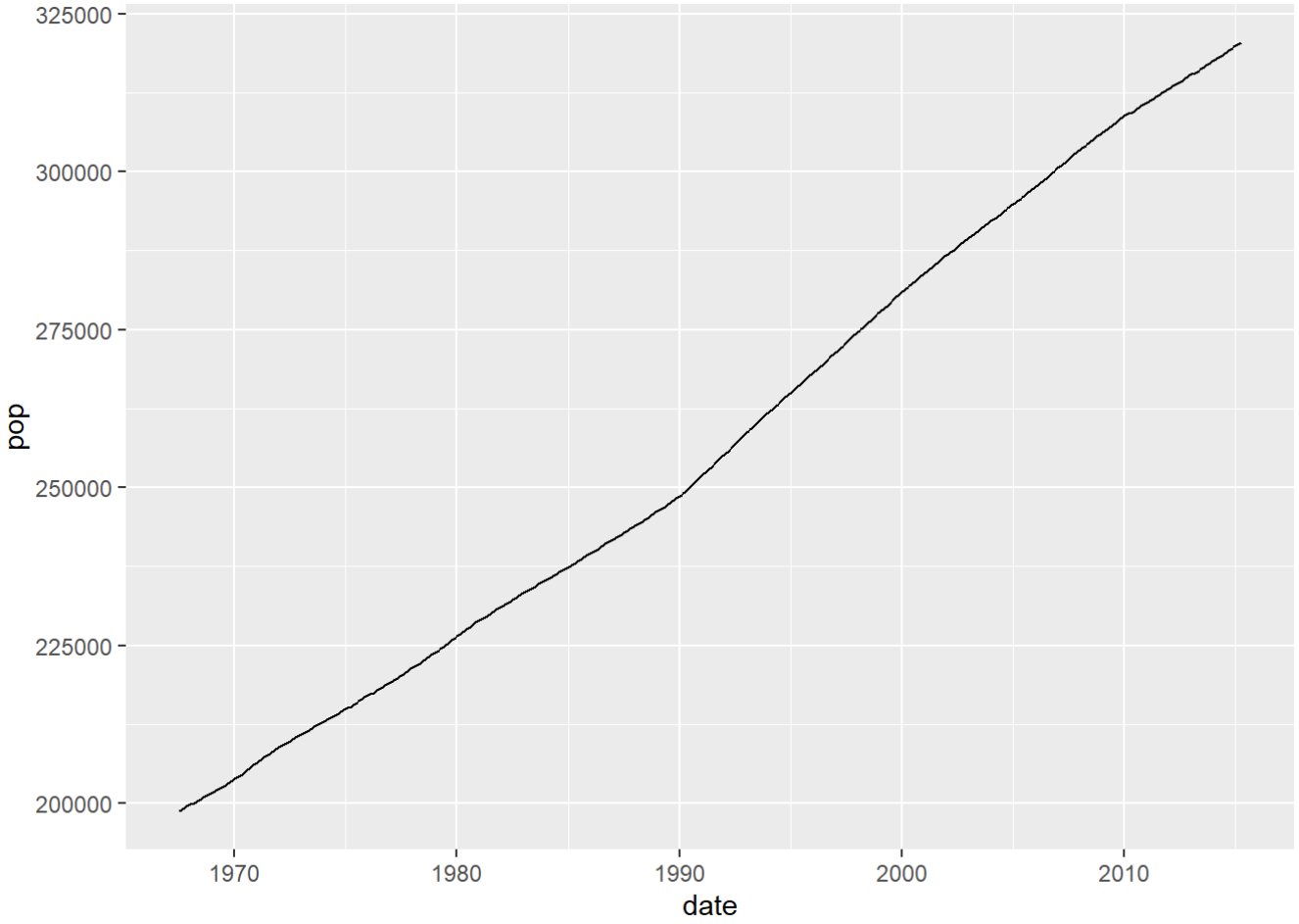
4. Zaman Serisi Gorselleştirme

```
head(economics)
```

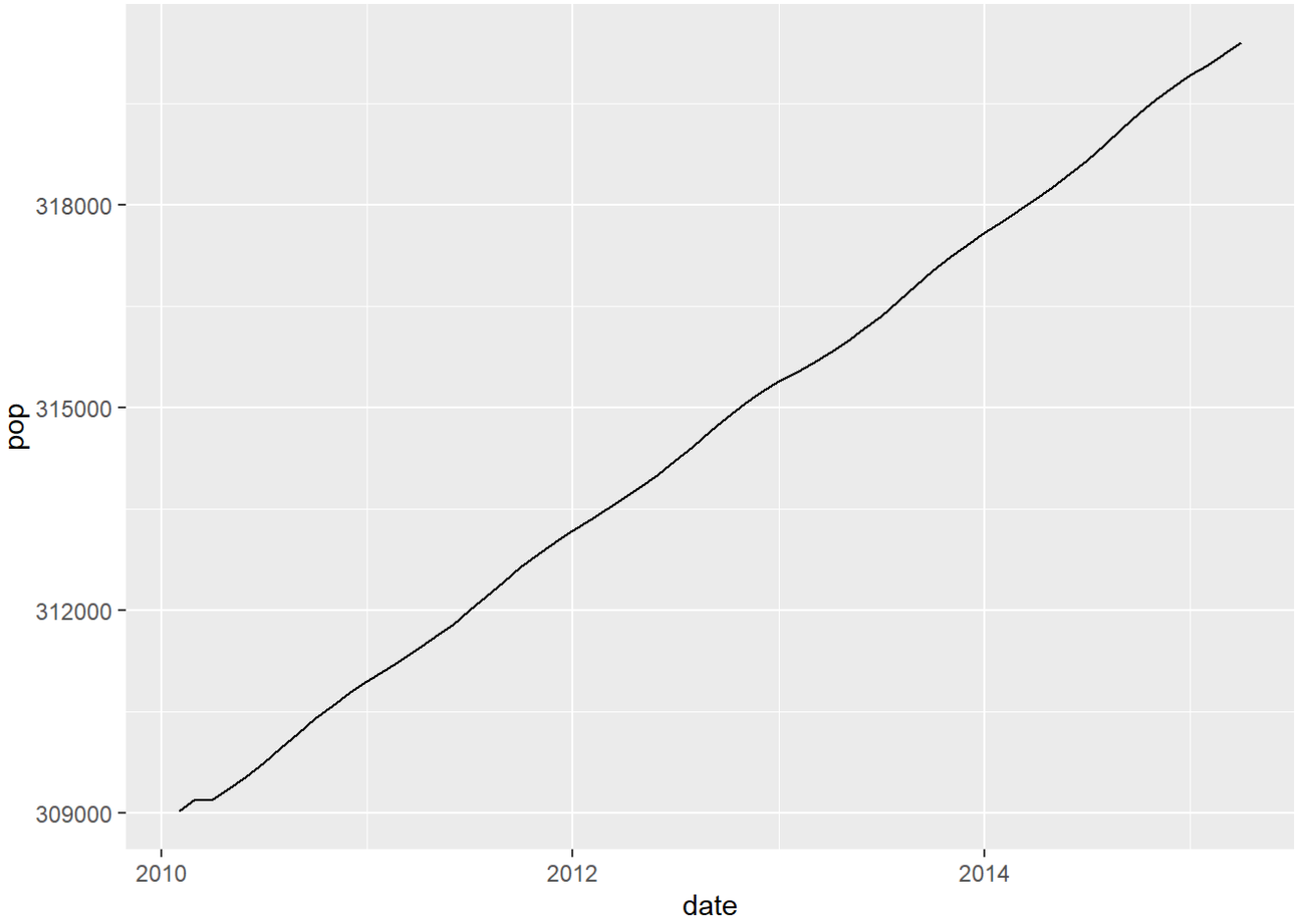
```
## # A tibble: 6 x 6
##   date         pce    pop psavert uempmed unemploy
##   <date>     <dbl>  <dbl>   <dbl>   <dbl>    <dbl>
## 1 1967-07-01  507. 198712    12.6     4.5     2944
```

```
## 2 1967-08-01  510. 198911    12.6     4.7     2945
## 3 1967-09-01  516. 199113    11.9     4.6     2958
## 4 1967-10-01  512. 199311    12.9     4.9     3143
## 5 1967-11-01  517. 199498    12.8     4.7     3066
## 6 1967-12-01  525. 199657    11.8     4.8     3018
```

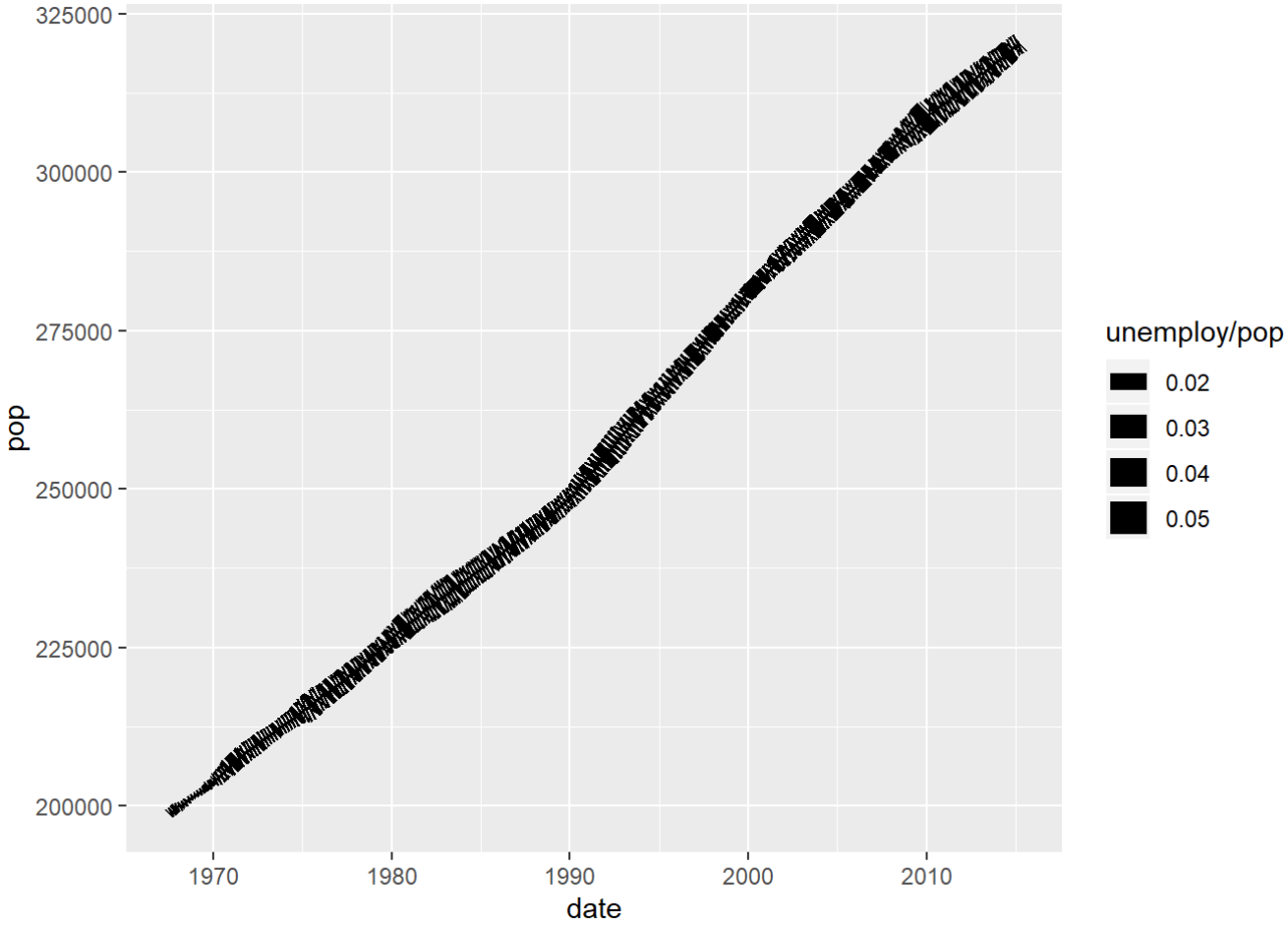
```
d <- economics


ggplot(d, aes(date, pop)) +
  geom_line()
```




```
# alt kumesini grafikleme

s <- d %>% filter(date > as.Date("2010-1-1"))

ggplot(s, aes(date, pop)) +
  geom_line()
```




```
# isiszligin tarihlere gore degisimi
ggplot(d, aes(date, pop)) +
  geom_line(aes(size = unemploy/pop))
```

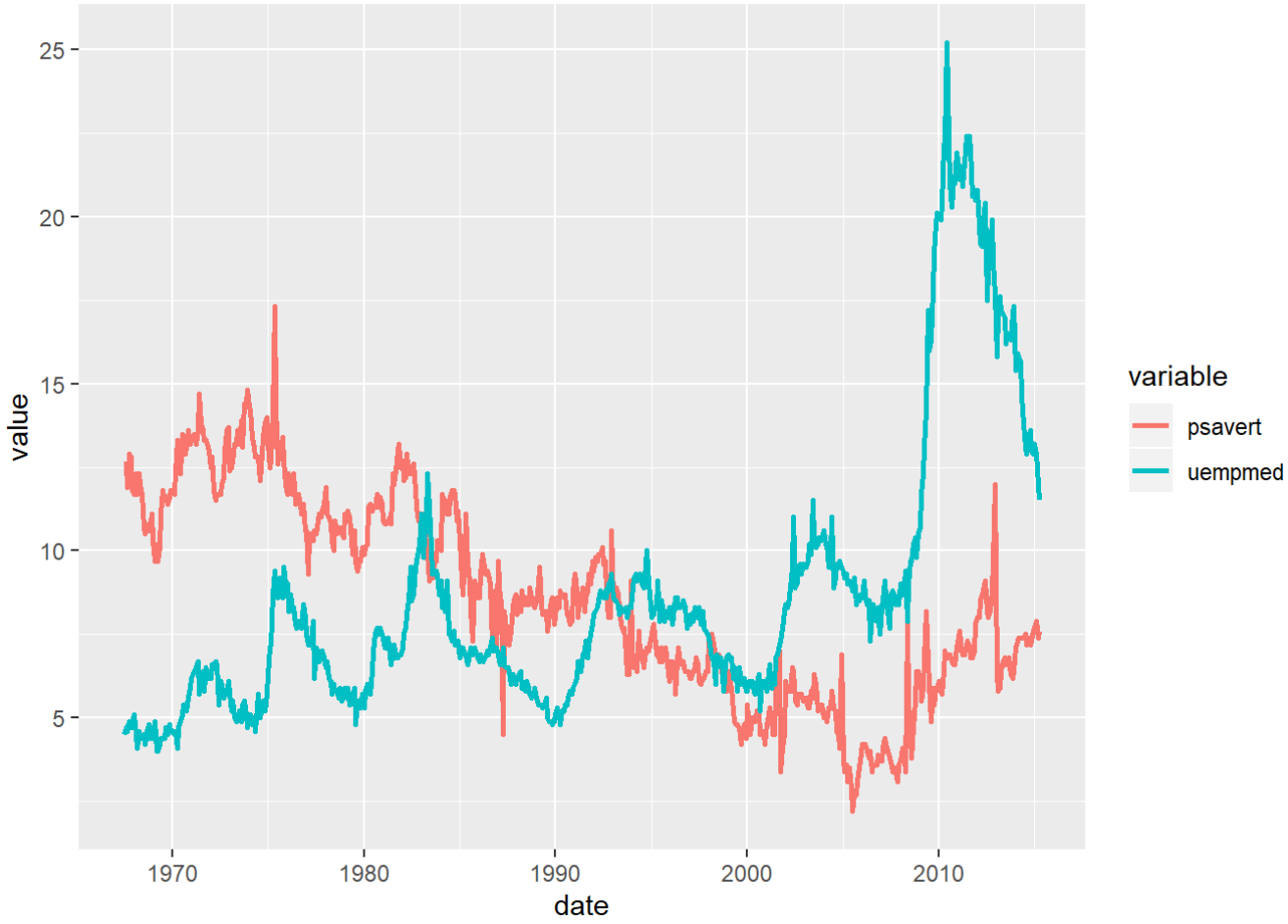


5. Coklu Zaman Serisi Gorselleştirme

```
library(tidyr)

df <- economics %>%
  select(date, psavert, uempmed) %>%
  gather(key = "variable", value = "value", -date)
head(df, 3)
```

```
## # A tibble: 3 x 3
##   date       variable value
##   <date>     <chr>    <dbl>
## 1 1967-07-01 psavert   12.6
## 2 1967-08-01 psavert   12.6
## 3 1967-09-01 psavert   11.9
```

```
ggplot(df, aes(date,value)) +
  geom_line(aes(color = variable), size = 1)
```




```
ggplot(df, aes(date,value)) +
  geom_area(aes(color = variable, fill = variable), alpha = 0.5, position = position_dodge(0.8))
```