

tanımlayıcı

ilke

2022-06-29

```
data(mtcars)
```

#ortalama

```
mean(mtcars$mpg)
```

```
## [1] 20.09062
```

#satır ve sütun ortalaması

```
colMeans(mtcars)
```

```
##      mpg      cyl      disp      hp      drat      wt      qsec
## 20.090625  6.187500 230.721875 146.687500  3.596563  3.217250 17.848750
##      vs      am      gear      carb
##  0.437500  0.406250  3.687500  2.812500
```

```
head(rowMeans(mtcars))
```

```
##      Mazda RX4      Mazda RX4 Wag      Datsun 710      Hornet 4 Drive
##      29.90727      29.98136      23.59818      38.73955
## Hornet Sportabout      Valiant
##      53.66455      35.04909
```

#medyan

```
median(mtcars$mpg)
```

```
## [1] 19.2
```

#sütunların medyanı

```
colMedians<-apply(mtcars,MARGIN=2,FUN=median)
```

```
colMedians
```

```
##      mpg      cyl      disp      hp      drat      wt      qsec      vs      am      gear
## 19.200      6.000 196.300 123.000      3.695      3.325 17.710      0.000      0.000      4.000
##      carb
##      2.000
```

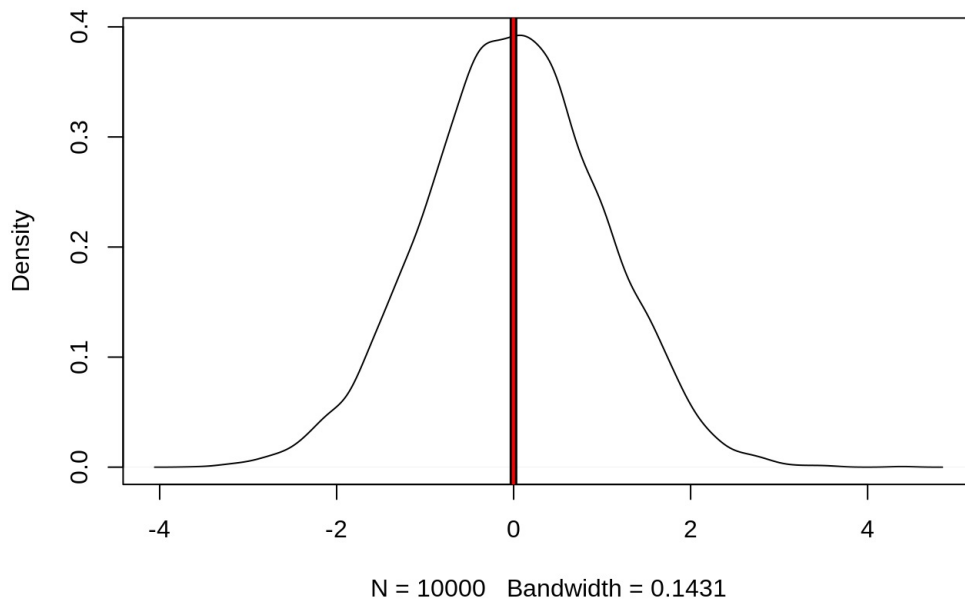
#yoğunluk grafikleri

```
normal_veri<-rnorm(10000)
plot(density(normal_veri))

abline(v=mean(normal_veri),lwd=5)

abline(v=median(normal_veri), col="red", lwd=2)
```

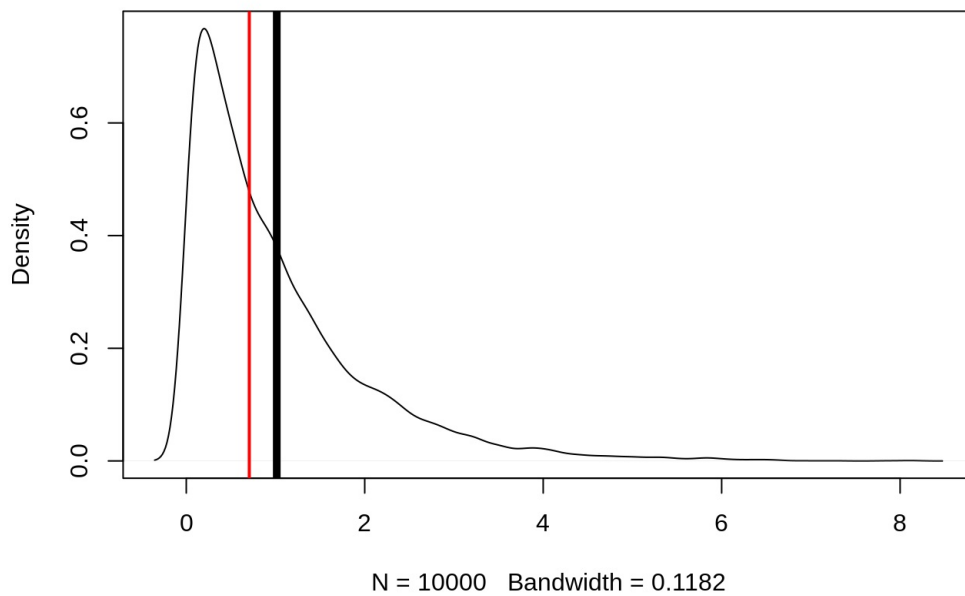
density.default(x = normal_veri)



#çarpık veri

```
carpik_veri<-rexp(10000)
plot(density(carpik_veri))
abline(v=mean(carpik_veri),lwd=5)
abline(v=median(carpik_veri), col="red", lwd=2)
```

density.default(x = carpik_veri)



#genel inceleme

```
summary(mtcars)
```

```
##      mpg      cyl      disp      hp
## Min.   :10.40   Min.   :4.000   Min.    : 71.1   Min.    : 52.0
## 1st Qu.:15.43   1st Qu.:4.000   1st Qu.:120.8   1st Qu.: 96.5
## Median :19.20   Median :6.000   Median :196.3   Median :123.0
## Mean   :20.09   Mean   :6.188   Mean   :230.7   Mean   :146.7
## 3rd Qu.:22.80   3rd Qu.:8.000   3rd Qu.:326.0   3rd Qu.:180.0
## Max.   :33.90   Max.   :8.000   Max.   :472.0   Max.   :335.0
##      drat      wt      qsec      vs
## Min.    :2.760   Min.    :1.513   Min.    :14.50   Min.    :0.0000
## 1st Qu.:3.080   1st Qu.:2.581   1st Qu.:16.89   1st Qu.:0.0000
## Median :3.695   Median :3.325   Median :17.71   Median :0.0000
## Mean    :3.597   Mean    :3.217   Mean    :17.85   Mean    :0.4375
## 3rd Qu.:3.920   3rd Qu.:3.610   3rd Qu.:18.90   3rd Qu.:1.0000
## Max.    :4.930   Max.    :5.424   Max.    :22.90   Max.    :1.0000
##      am      gear      carb
## Min.    :0.0000   Min.    :3.000   Min.    :1.000
## 1st Qu.:0.0000   1st Qu.:3.000   1st Qu.:2.000
## Median :0.0000   Median :4.000   Median :2.000
## Mean    :0.4062   Mean    :3.688   Mean    :2.812
## 3rd Qu.:1.0000   3rd Qu.:4.000   3rd Qu.:4.000
## Max.    :1.0000   Max.    :5.000   Max.    :8.000
```

#range (aralık)

```
max(mtcars$carb)-min(mtcars$carb)
```

```
## [1] 7
```

#kantiller

```
quantile(mtcars$mpg)
```

```
##      0%      25%      50%      75%      100%
## 10.400 15.425 19.200 22.800 33.900
```

```
fivenum(mtcars$mpg)
```

```
## [1] 10.40 15.35 19.20 22.80 33.90
```

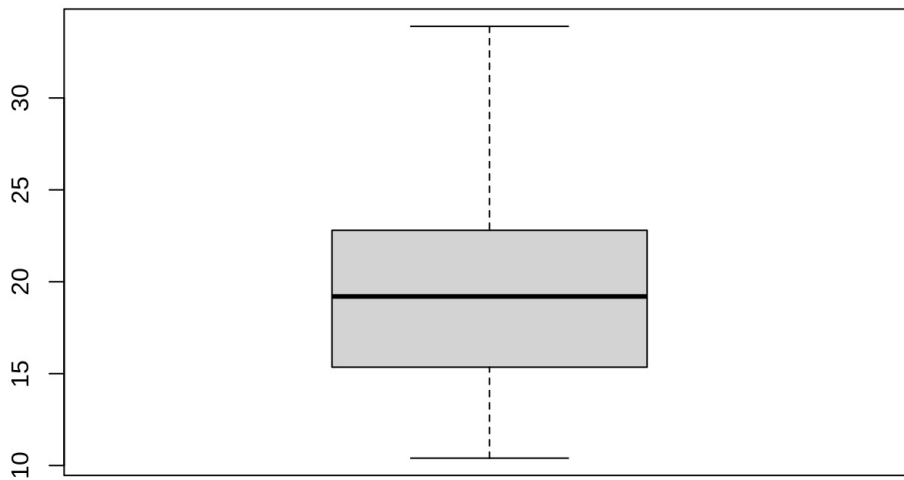
```
quantile(mtcars$mpg, probs=c(0.1,0.9))
```

```
##      10%      90%
## 14.34 30.09
```

```
IQR(mtcars$mpg)
```

```
## [1] 7.375
```

```
boxplot(mtcars$mpg)
```



#varyans ve standart spama

```
var(mtcars$mpg)
```

```
## [1] 36.3241
```

```
sd(mtcars$mpg)
```

```
## [1] 6.026948
```

#lapply

```
lapply(mtcars,mean)
```

```
## $mpg
## [1] 20.09062
##
## $cyl
## [1] 6.1875
##
## $disp
## [1] 230.7219
##
## $hp
## [1] 146.6875
##
## $drat
## [1] 3.596563
##
## $wt
## [1] 3.21725
##
## $qsec
## [1] 17.84875
##
## $vs
## [1] 0.4375
##
## $am
## [1] 0.40625
##
## $gear
## [1] 3.6875
##
## $carb
## [1] 2.8125
```

```
lapply(mtcars, var)
```

```
## $mpg
## [1] 36.3241
##
## $cyl
## [1] 3.189516
##
## $disp
## [1] 15360.8
##
## $hp
## [1] 4700.867
##
## $drat
## [1] 0.2858814
##
## $wt
## [1] 0.957379
##
## $qsec
## [1] 3.193166
##
## $vs
## [1] 0.2540323
##
## $am
## [1] 0.2489919
##
## $gear
## [1] 0.5443548
##
## $carb
## [1] 2.608871
```

```
lapply(mtcars, sd)
```

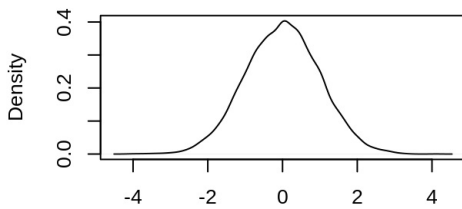
```
## $mpg
## [1] 6.026948
##
## $cyl
## [1] 1.785922
##
## $disp
## [1] 123.9387
##
## $hp
## [1] 68.56287
##
## $drat
## [1] 0.5346787
##
## $wt
## [1] 0.9784574
##
## $qsec
## [1] 1.786943
##
## $vs
## [1] 0.5040161
##
## $am
## [1] 0.4989909
##
## $gear
## [1] 0.7378041
##
## $carb
## [1] 1.6152
```

#dağılımlar

```
normal<-rnorm(10000)
carpik<-c(rnorm(7000),rexp(10000))
uniform<-runif(10000)
sivri<-c(rexp(1000),rexp(10000))*-1)

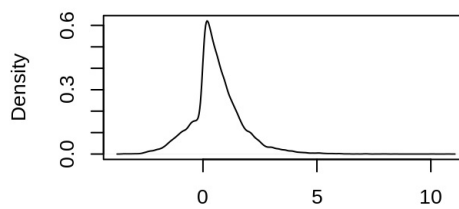
par(mfrow=c(2,2))
plot(density(normal))
plot(density(carpik))
plot(density(uniform))
plot(density(sivri))
```

density.default(x = normal)



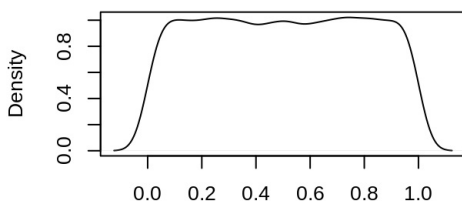
N = 10000 Bandwidth = 0.1418

density.default(x = carpik)



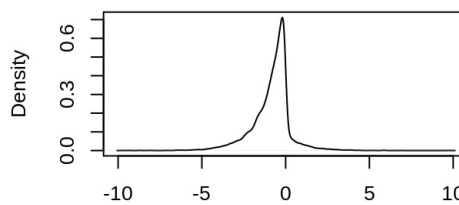
N = 17000 Bandwidth = 0.1008

density.default(x = uniform)



N = 10000 Bandwidth = 0.04138

density.default(x = sivri)



N = 11000 Bandwidth = 0.1153

```
#install.packages("moments")
```

```
skewness()=çarpıklık
```

```
install.packages("moments")
```

```
## Installing package into '/home/ilke/R/x86_64-pc-linux-gnu-library/4.2'
## (as 'lib' is unspecified)
```

```
library(moments)
```

```
skewness(normal)
```

```
## [1] -0.02398558
```

```
skewness(carpik)
```

```
## [1] 0.8438429
```

```
skewness(uniform)
```

```
## [1] -0.003379634
```

```
skewness(sivri)
```

```
## [1] -0.6678242
```

```
``r
kurtosis(normal)
```

```
## [1] 3.050163
```

```
kurtosis(carpik)
```

```
## [1] 6.688167
```

```
kurtosis(uniform)
```

```
## [1] 1.787005
```

```
kurtosis(sivri)
```

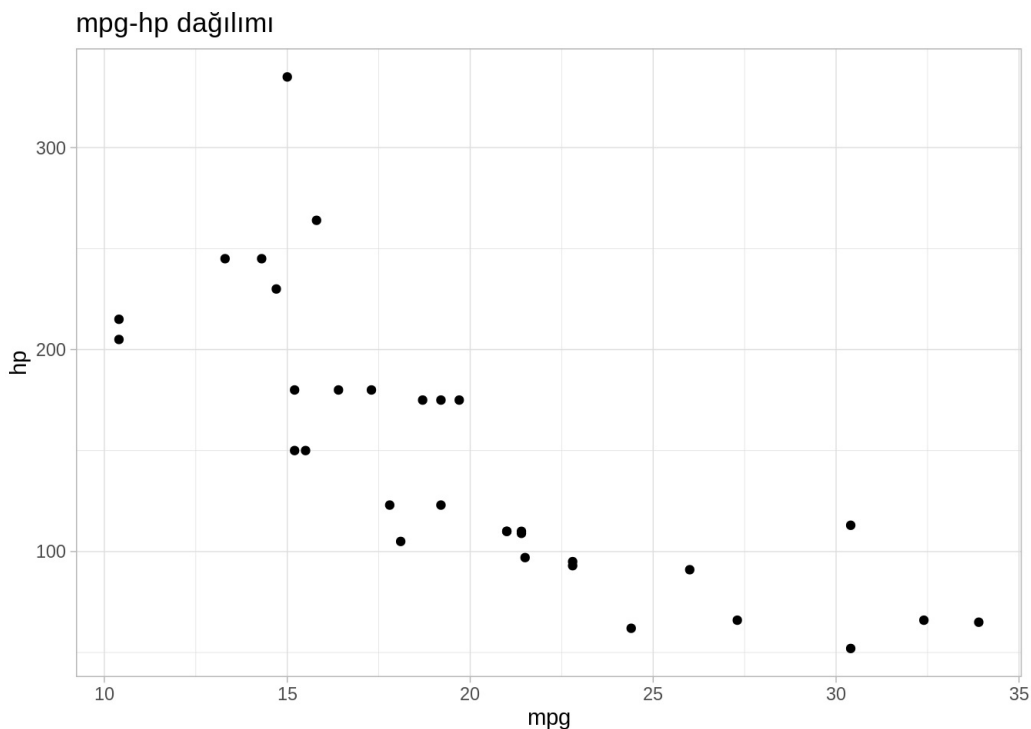
```
## [1] 8.666138
```

```
library(tidyverse)
```

```
## — Attaching packages — tidyverse 1.3.2 —
## ✓ ggplot2 3.3.6      ✓ purrr  0.3.4
## ✓ tibble  3.1.8      ✓ dplyr  1.0.9
## ✓ tidyr   1.2.0      ✓ stringr 1.4.0
## ✓ readr   2.1.2      ✓ forcats 0.5.1
## — Conflicts — tidyverse_conflicts() —
## ✖ dplyr::filter() masks stats::filter()
## ✖ dplyr::lag()     masks stats::lag()
```

```
car<-as_tibble(mtcars)
```

```
ggplot(car, aes(x=mpg,y=hp))+
  geom_point()+theme_light() +
  labs(title="mpg-hp dağılımı")
```



Korelasyon Analizi

```
install.packages("stats")
```

```
## Installing package into '/home/ilke/R/x86_64-pc-linux-gnu-library/4.2'
## (as 'lib' is unspecified)
```

```
## Warning: package 'stats' is a base package, and should not be updated
```

```
library(stats)
```

```
cor(car$mpg, car$hp)
```

```
## [1] -0.7761684
```