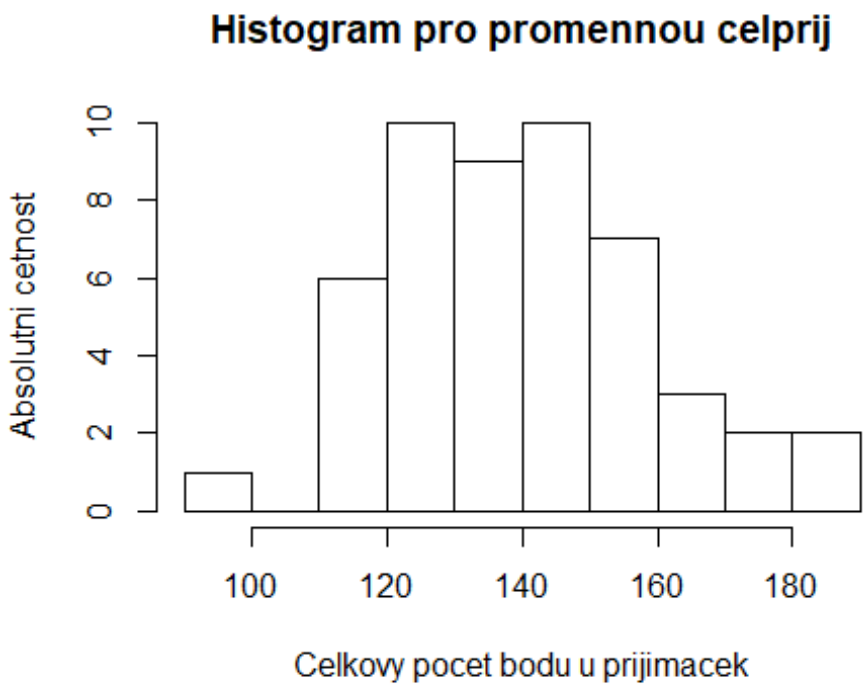
Popisne_prij.R

```
load("E:\\Aja\\Prirodoveda\\Statistika\\dataZS\\prij.RData")

## Warning in load("E:\\Aja\\Prirodoveda\\Statistika\\dataZS\\prij.RData"):
## unrecognized internal function name "plot.new"

## Warning in load("E:\\Aja\\Prirodoveda\\Statistika\\dataZS\\prij.RData"):
## unrecognized internal function name "plot.window"

## Warning in load("E:\\Aja\\Prirodoveda\\Statistika\\dataZS\\prij.RData"):
## unrecognized internal function name "title"

## Warning in load("E:\\Aja\\Prirodoveda\\Statistika\\dataZS\\prij.RData"):
## unrecognized internal function name "axis"

## Warning in load("E:\\Aja\\Prirodoveda\\Statistika\\dataZS\\prij.RData"):
## unrecognized internal function name "axis"

## Warning in load("E:\\Aja\\Prirodoveda\\Statistika\\dataZS\\prij.RData"):
## unrecognized internal function name "rect"

attach(prij)
library(DescTools)

# Databaze obsahuje informace o studijnich vysledcich studentu geografickych
oboru na PrF UK
#   studujicich tam prvni rocnik v roce 2004
# promenne:
# Obor: obor studia: FYZG - fyzickageografie, KARTG - kartografie
#                    REGG - regionalni geografie, SOCG - socialni geografie
# Pohlavi: pohlavi studenta: m - muz, z - zena
# celprij: celkovy pocet bodu u prijimacek
# zemprij: pocet bodu u prijimacek ze zemepisu
# matprij: pocet bodu u prijimacek z matematiky
# TypM: typ zadani prijimacek z matematiky
# matzem: znamka z prvniho rocniku matematicka geografie
# meteo: znamka z prvniho rocniku meteorologie
# geol: znamka z prvniho rocniku geologie
# mat: znamka z prvniho rocniku matematika
# stat: znamka z prvniho rocniku statistika
# Matur.drive: informace, jestli student maturoval drive nez v roce nastupu
na VS
# ss2: prumerna znamka z 2. rocniku SS
# ss3: prumerna znamka z 3. rocniku SS

##########################################
# Popisne statistiky ciselnych promennych
ind.num<-c(3,4,5,13,14)
```

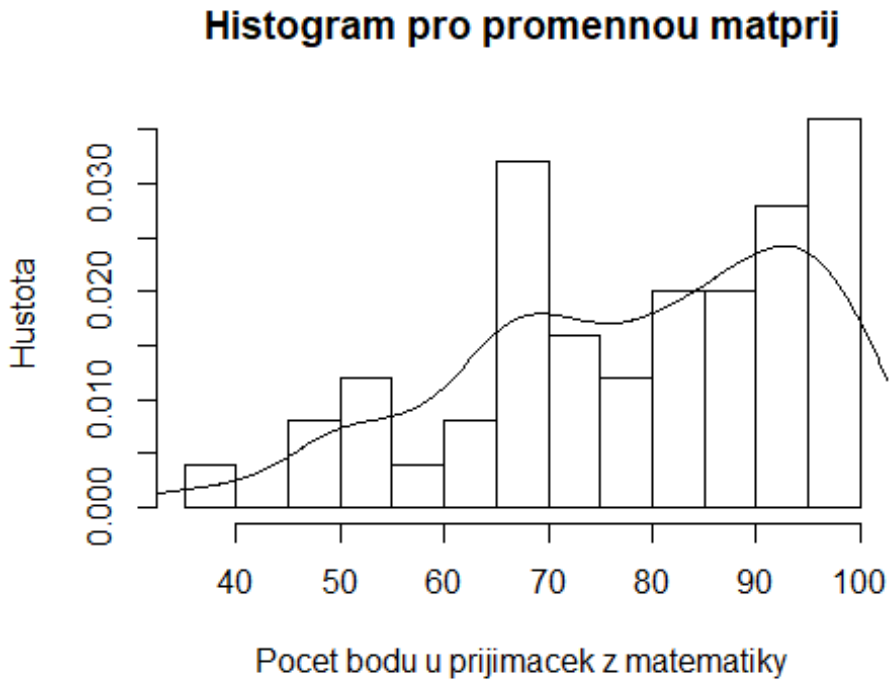
```r
ciselne<-prij[,ind.num]
vystup.num<-matrix(NA,length(ind.num),12)
for(i in 1:length(ind.num)){
  vystup.num[i,1]<-mean(ciselne[,i])
  vystup.num[i,2:6]<-fivenum(ciselne[,i])
  vystup.num[i,7]<-sd(ciselne[,i])
  vystup.num[i,8]<-IQR(ciselne[,i])
  vystup.num[i,9]<-MAD(ciselne[,i])
  vystup.num[i,10]<-CoefVar(ciselne[,i])
  vystup.num[i,11]<-Skew(ciselne[,i])
  vystup.num[i,12]<-Kurt(ciselne[,i])
}
rownames(vystup.num)<-names(prij)[ind.num]
colnames(vystup.num)<-c("Mean","Min","1st Qu","Median","3rd
Qu","Max","SD","IQR","MAD","CoefVar","Skew","Kurt")
vystup.num
```

```
##             Mean   Min 1st Qu  Median 3rd Qu   Max         SD    IQR
MAD
## celprij 140.6900 91.00 125.50 140.000  154.5 185.5 19.9248307 28.125
21.497700
## zemprij  62.0500 40.00  55.00  61.250   67.5  92.5 10.6028731 11.875
9.266250
## matprij  78.6400 36.00  66.00  81.000   92.0 100.0 16.4413118 25.750
18.532500
## ss2       1.7504  1.08   1.42   1.705    2.0   3.4  0.4591117  0.570
0.437367
## ss3       1.7362  1.00   1.38   1.680    2.0   3.4  0.5069714  0.620
0.474432
##           CoefVar       Skew       Kurt
## celprij 0.1416222  0.1937232 -0.1535309
## zemprij 0.1708763  0.5597903  0.4206702
## matprij 0.2090706 -0.5493095 -0.6285598
## ss2     0.2622896  0.9714122  1.6241044
## ss3     0.2920006  0.9237443  0.8421960
```

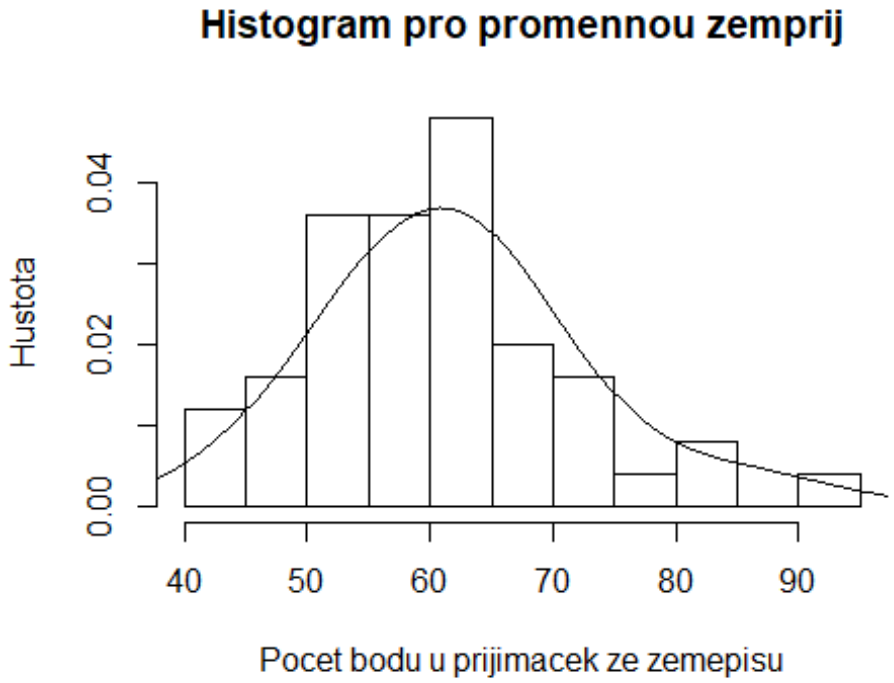
```r
# Histogramy
hist(celprij,col="white",xlab="Celkovy pocet bodu u
prijimacek",ylab="Absolutni cetnost",main="Histogram pro promennou celprij")
```



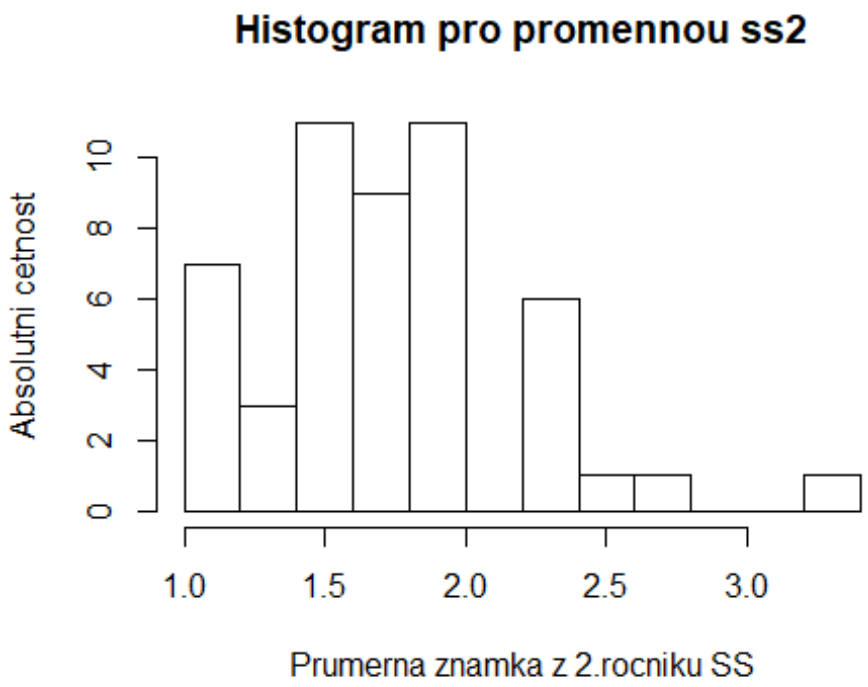

```
hist(matprij,freq=F,breaks=10,col="white",xlab="Pocet bodu u prijimacek z
matematiky",ylab="Hustota",main="Histogram pro promennou matprij")
lines(density(matprij,bw=5.5))
```



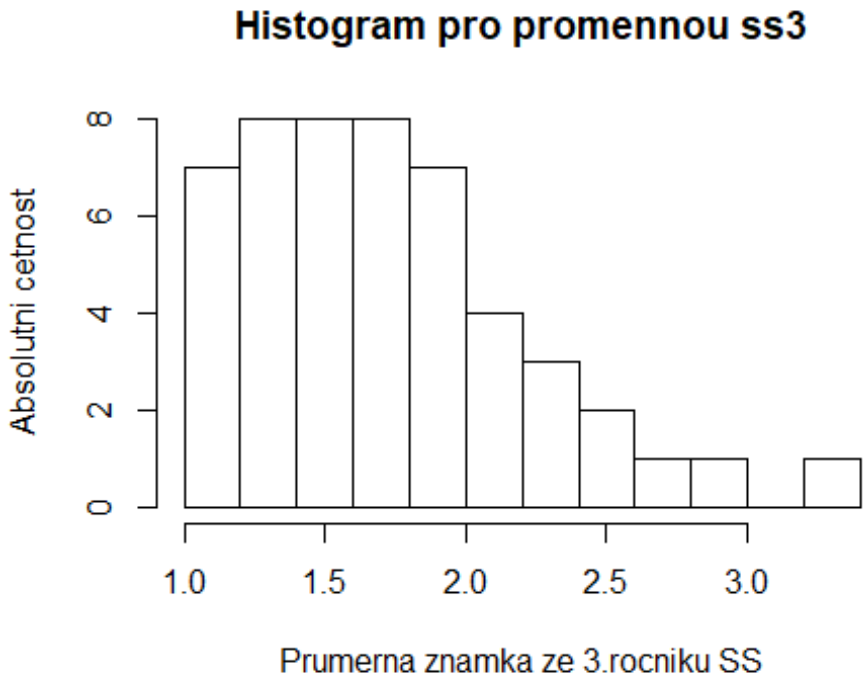
```r
hist(zemprij,freq=F,breaks=10,col="white",xlab="Pocet bodu u prijimacek ze
zemepisu",ylab="Hustota",main="Histogram pro promennou zemprij")
lines(density(zemprij,bw=5.5))
```



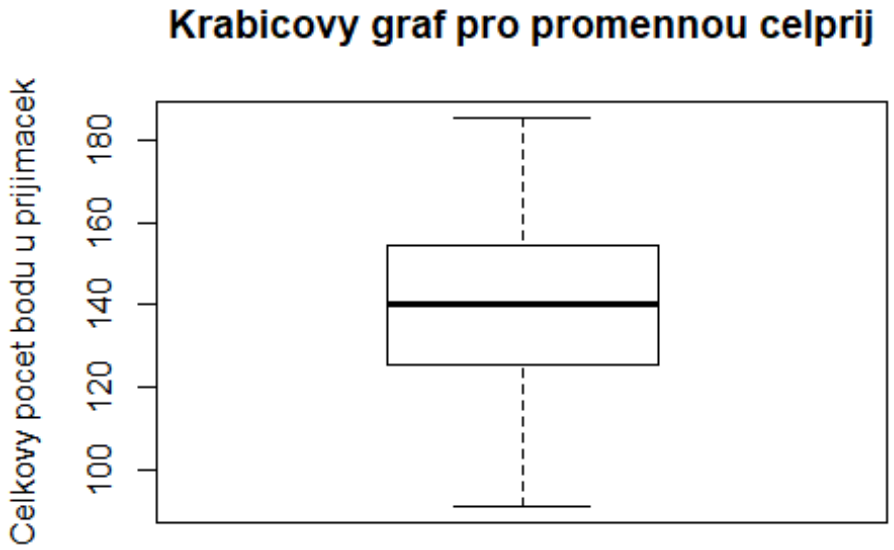

```r
hist(ss2,breaks=10,col="white",xlab="Prumerna znamka z 2.rocniku
SS",ylab="Absolutni cetnost",main="Histogram pro promennou ss2")
```



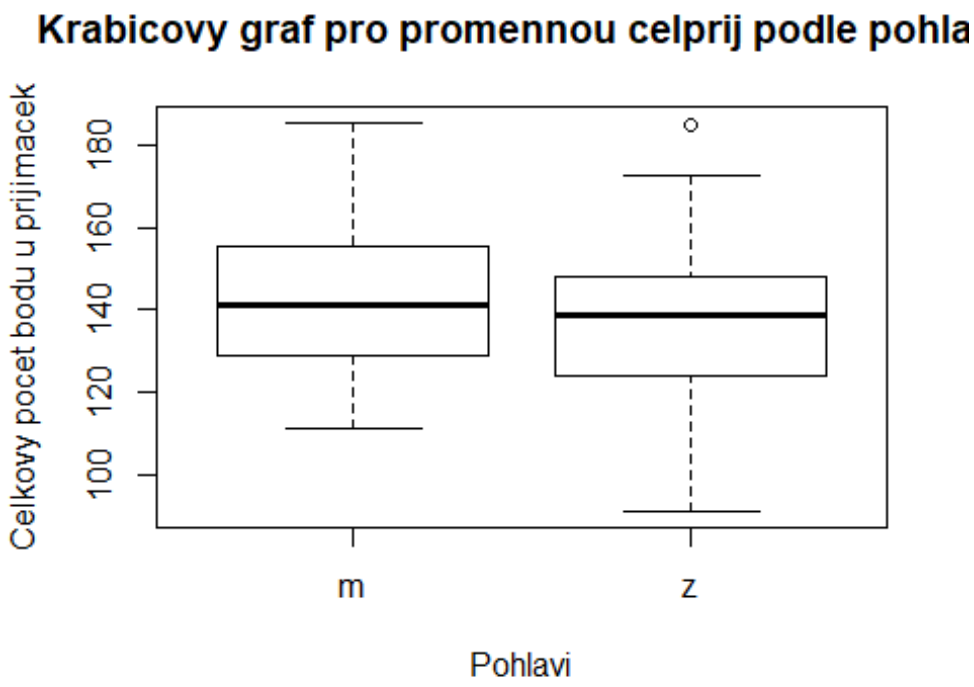

```
hist(ss3,breaks=10,col="white",xlab="Prumerna znamka ze 3.rocniku
SS",ylab="Absolutni cetnost",main="Histogram pro promennou ss3")
```



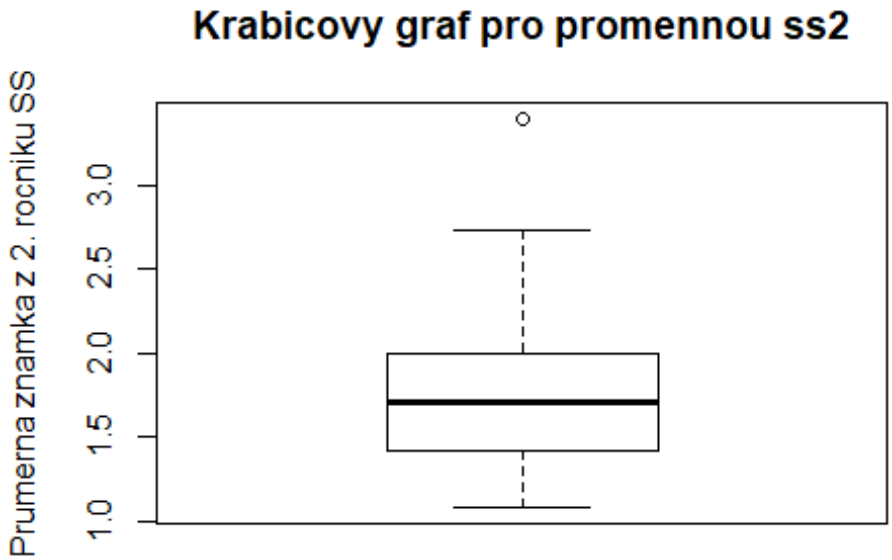
```r
# Vybrane krabicove grafy
boxplot(celprij,col="white",main="Krabicovy graf pro promennou
celprij",xlab="",ylab="Celkovy pocet bodu u prijimacek")
```



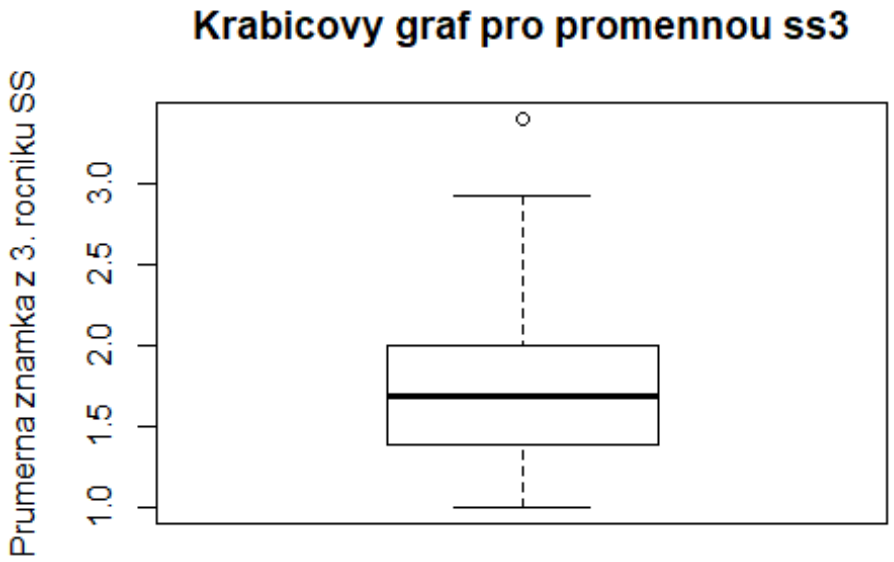

```r
boxplot(celprij~Pohlavi,col="white",main="Krabicovy graf pro promennou
celprij podle pohlavi",ylab="Celkovy pocet bodu u prijimacek")
```



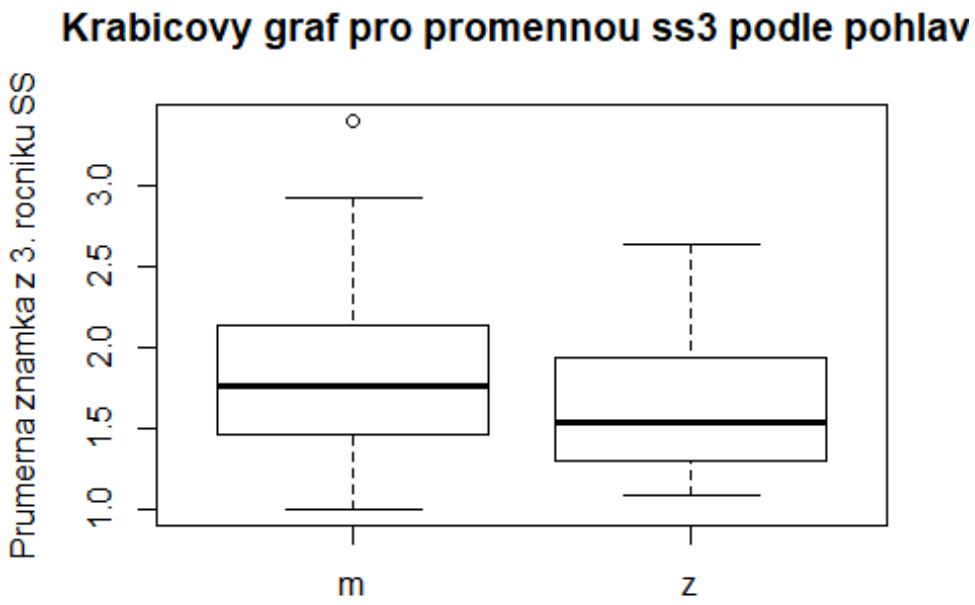

```r
boxplot(ss2,col="white",main="Krabicovy graf pro promennou
ss2",xlab="",ylab="Prumerna znamka z 2. rocniku SS")
```



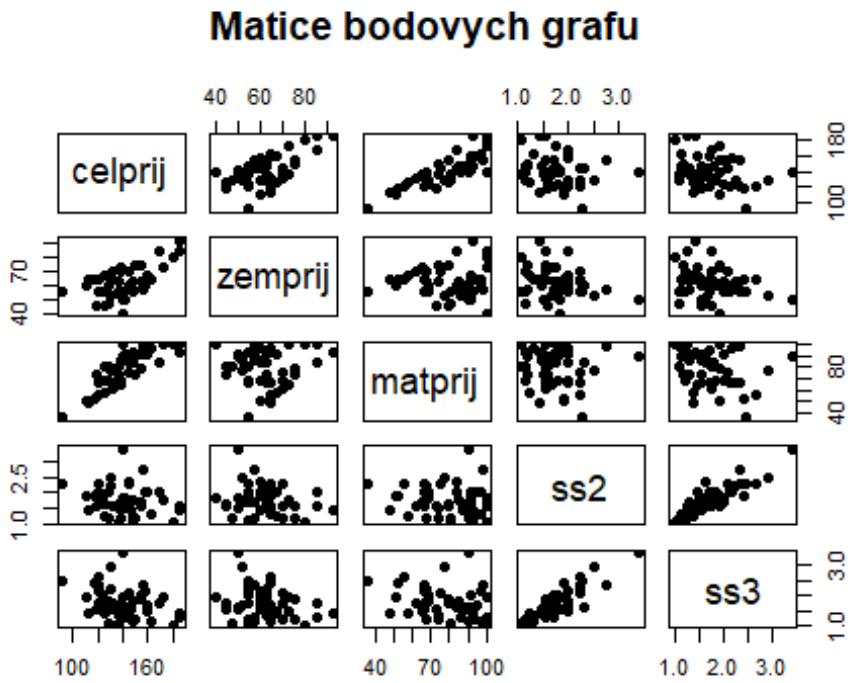
```
boxplot(ss3,col="white",main="Krabicovy graf pro promennou
ss3",xlab="",ylab="Prumerna znamka z 3. rocniku SS")
```




```
boxplot(ss3~Pohlavi,col="white",main="Krabicovy graf pro promennou ss3 podle
pohlavi",xlab="",ylab="Prumerna znamka z 3. rocniku SS")
```




```
# korelacni matice
cor(ciselne)

##            celprij    zemprij     matprij         ss2        ss3
## celprij  1.0000000  0.5658964  0.84693381 -0.15912024 -0.3033427
## zemprij  0.5658964  1.0000000  0.04090410 -0.22760924 -0.2662777
## matprij  0.8469338  0.0409041  1.00000000 -0.04605059 -0.1958933
## ss2     -0.1591202 -0.2276092 -0.04605059  1.00000000  0.8838419
## ss3     -0.3033427 -0.2662777 -0.19589331  0.88384193  1.0000000

# matice bodovych grafu
pairs(ciselne,pch=19,main="Matice bodovych grafu")
```




```
# kategoricke promenne
cbind("absolutni cetnosti"=table(Obor),"relativni
cetnosti"=round(prop.table(table(Obor)),4))
```

```
##       absolutni cetnosti relativni cetnosti
## FYZG                  10               0.20
## KARTG                 15               0.30
## REGG                  16               0.32
## SOCG                   9               0.18
```

```
cbind("absolutni cetnosti"=table(Pohlavi),"relativni
cetnosti"=round(prop.table(table(Pohlavi)),4))
```

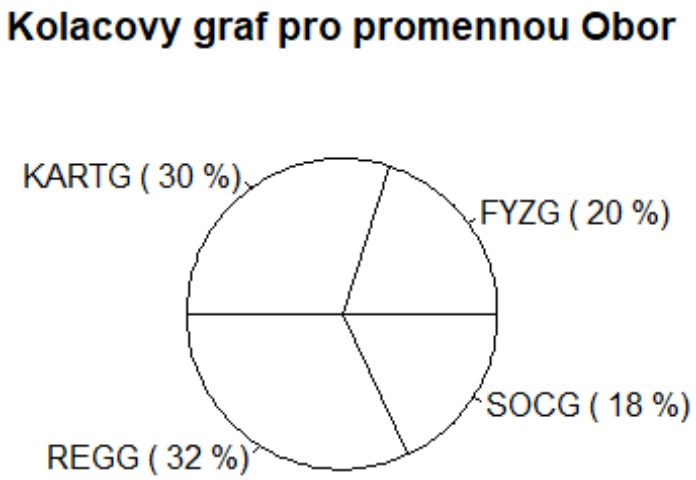
```
##   absolutni cetnosti relativni cetnosti
## m                 25                0.5
## z                 25                0.5
```

```
cbind("absolutni cetnosti"=table(TypM),"relativni
cetnosti"=round(prop.table(table(TypM)),4))
```

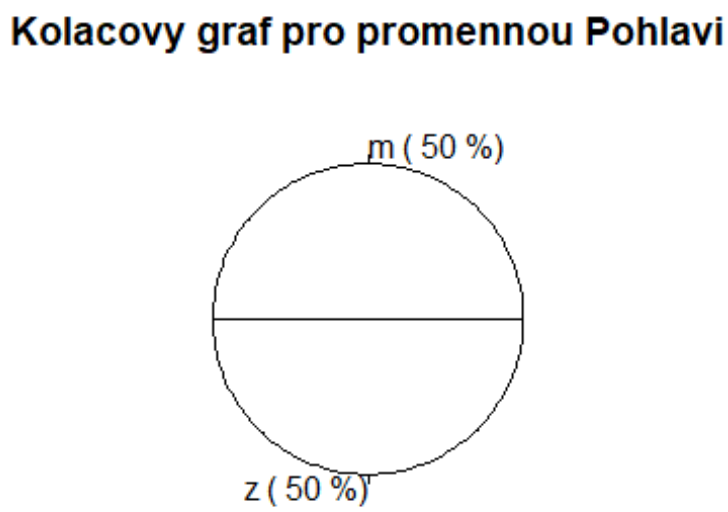
```
##   absolutni cetnosti relativni cetnosti
## A                 26               0.52
## B                 24               0.48
```

```
cbind("absolutni cetnosti"=table(Matur.drive),"relativni
cetnosti"=round(prop.table(table(Matur.drive)),4))
```

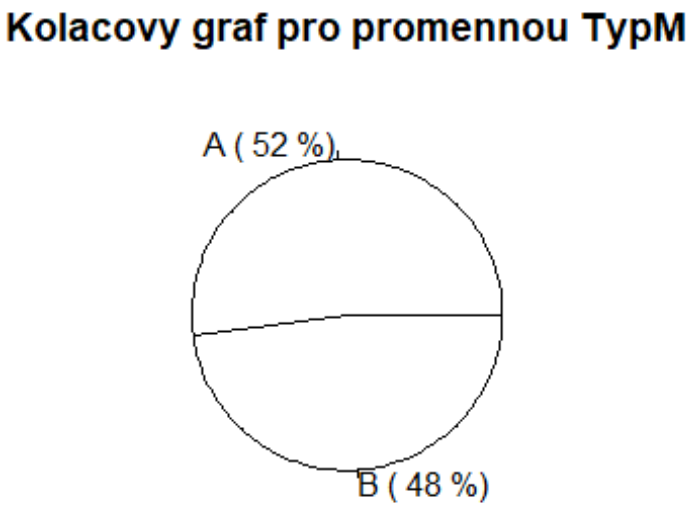
```
##     absolutni cetnosti relativni cetnosti
## ano                 14               0.28
## ne                  36               0.72

# Kolacove grafy
popis<-
paste(sort(unique(Obor)),"(",round(prop.table(table(Obor))*100,2),"%)")
pie(table(Obor),lab=popis,col="white",main="Kolacovy graf pro promennou
Obor")
```



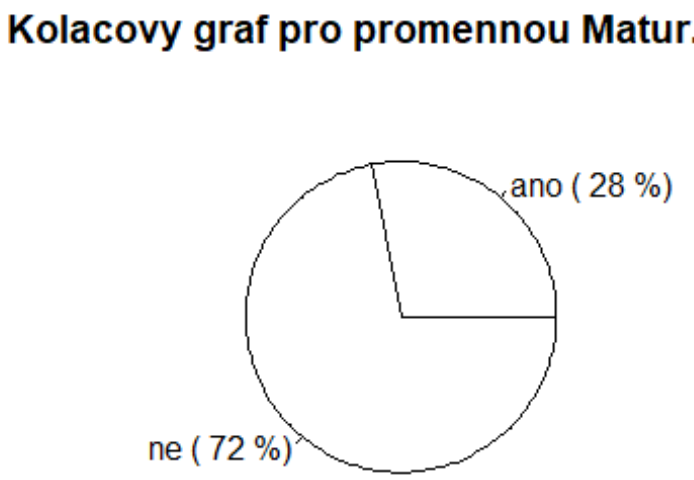

```
popis<-
paste(sort(unique(Pohlavi)),"(",round(prop.table(table(Pohlavi))*100,2),"%)")
pie(table(Pohlavi),lab=popis,col="white",main="Kolacovy graf pro promennou
Pohlavi")
```




```
popis<-
paste(sort(unique(TypM)),"(",round(prop.table(table(TypM))*100,2),"%)")
pie(table(TypM),lab=popis,col="white",main="Kolacovy graf pro promennou
TypM")
```




```
popis<-
paste(sort(unique(Matur.drive)),"(",round(prop.table(table(Matur.drive))*100,
2),"%)")
pie(table(Matur.drive),lab=popis,col="white",main="Kolacovy graf pro
promennou Matur.drive")
```



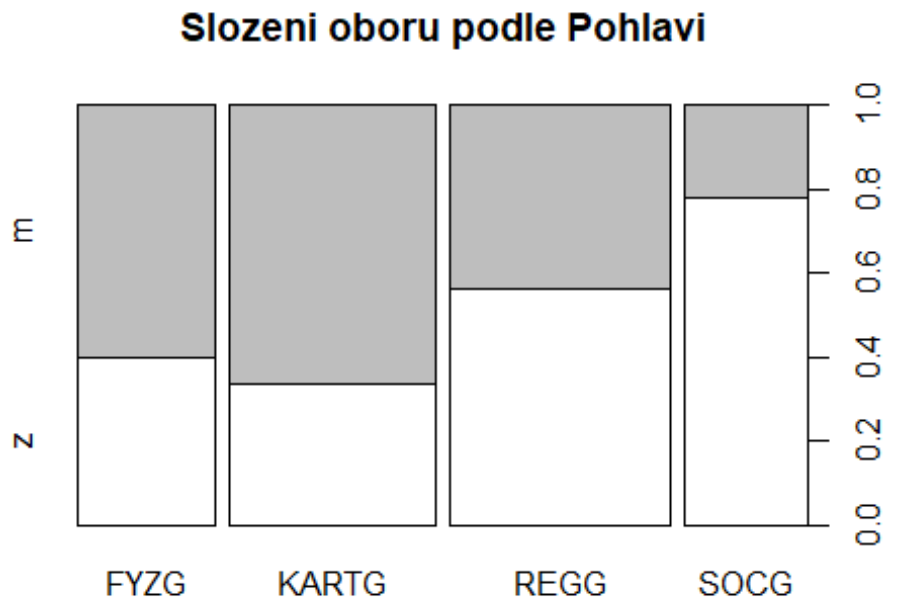

```r
# Kontingencni tabulka pro Obor a Pohlavi
addmargins(table(Obor,Pohlavi))
```

```
##        Pohlavi
## Obor     m  z Sum
##   FYZG   6  4  10
##   KARTG 10  5  15
##   REGG   7  9  16
##   SOCG   2  7   9
##   Sum   25 25  50
```

```r
rbind(prop.table(table(Obor,Pohlavi),2),"Sum"=c(1,1))
```

```
##          m    z
## FYZG  0.24 0.16
## KARTG 0.40 0.20
## REGG  0.28 0.36
## SOCG  0.08 0.28
## Sum   1.00 1.00
```

```r
plot(Obor,Pohlavi,col=c("white","grey"),xlab="",ylab="",main="Slozeni oboru
podle Pohlavi")
```




```
# ordinalni promenne
cbind("bezne abs. cetnosti"=table(matzem),"kumulativni abs.
cetnosti"=cumsum(table(matzem)),
      "bezne rel. cetnosti"=round(prop.table(table(matzem)),4),"kumulativni
rel. cetnosti"=cumsum(round(prop.table(table(matzem)),4)))
```

```
##   bezne abs. cetnosti kumulativni abs. cetnosti bezne rel. cetnosti
## 1                  20                        20                0.40
## 2                  24                        44                0.48
## 3                   6                        50                0.12
##   kumulativni rel. cetnosti
## 1                      0.40
## 2                      0.88
## 3                      1.00
```

```
cbind("bezne abs. cetnosti"=table(meteo),"kumulativni abs.
cetnosti"=cumsum(table(meteo)),
      "bezne rel. cetnosti"=round(prop.table(table(meteo)),4),"kumulativni
rel. cetnosti"=cumsum(round(prop.table(table(meteo)),4)))
```

```
##   bezne abs. cetnosti kumulativni abs. cetnosti bezne rel. cetnosti
## 1                   1                         1                0.02
## 2                  23                        24                0.46
## 3                  26                        50                0.52
##   kumulativni rel. cetnosti
## 1                      0.02
```

```
## 2                     0.48
## 3                     1.00
```

```
cbind("bezne abs. cetnosti"=table(geol),"kumulativni abs.
cetnosti"=cumsum(table(geol)),
      "bezne rel. cetnosti"=round(prop.table(table(geol)),4),"kumulativni
rel. cetnosti"=cumsum(round(prop.table(table(geol)),4)))
```

```
##   bezne abs. cetnosti kumulativni abs. cetnosti bezne rel. cetnosti
## 1                  10                       10                 0.2
## 2                  20                       30                 0.4
## 3                  20                       50                 0.4
##   kumulativni rel. cetnosti
## 1                       0.2
## 2                       0.6
## 3                       1.0
```

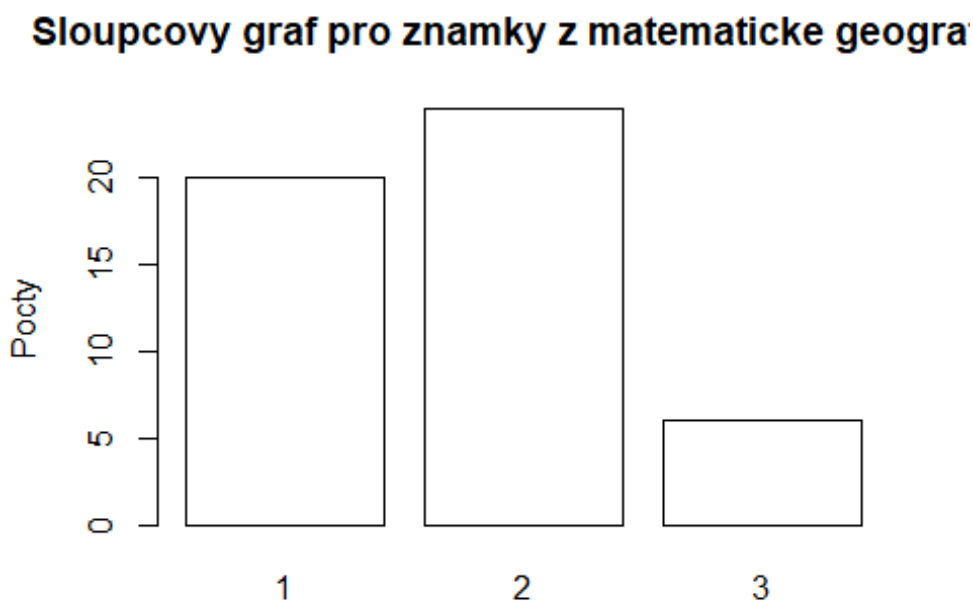
```
cbind("bezne abs. cetnosti"=table(mat),"kumulativni abs.
cetnosti"=cumsum(table(mat)),
      "bezne rel. cetnosti"=round(prop.table(table(mat)),4),"kumulativni rel.
cetnosti"=cumsum(round(prop.table(table(mat)),4)))
```

```
##   bezne abs. cetnosti kumulativni abs. cetnosti bezne rel. cetnosti
## 1                  21                       21                0.42
## 2                  26                       47                0.52
## 3                   3                       50                0.06
##   kumulativni rel. cetnosti
## 1                      0.42
## 2                      0.94
## 3                      1.00
```

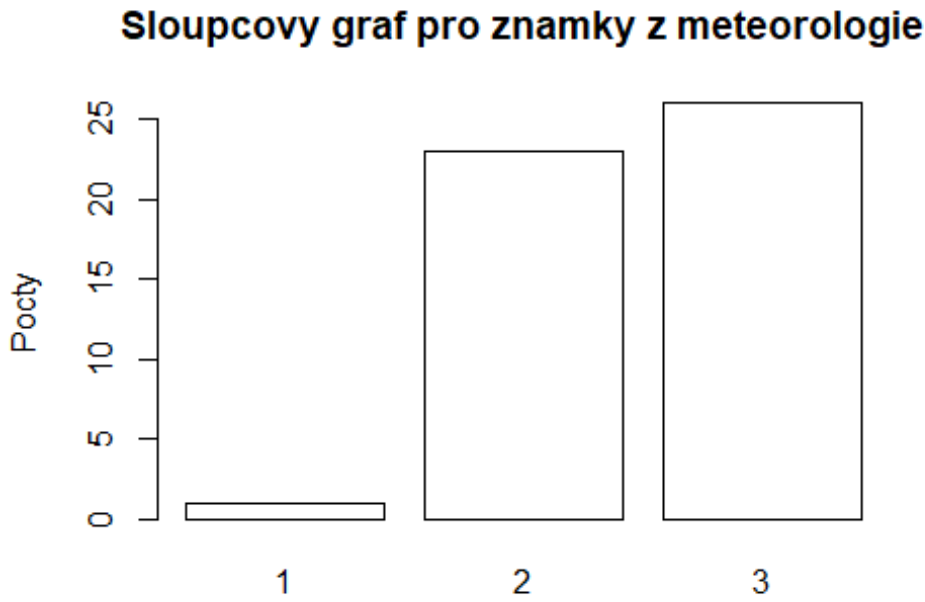
```
cbind("bezne abs. cetnosti"=table(stat),"kumulativni abs.
cetnosti"=cumsum(table(stat)),
      "bezne rel. cetnosti"=round(prop.table(table(stat)),4),"kumulativni
rel. cetnosti"=cumsum(round(prop.table(table(stat)),4)))
```

```
##   bezne abs. cetnosti kumulativni abs. cetnosti bezne rel. cetnosti
## 1                  12                       12                0.24
## 2                  30                       42                0.60
## 3                   8                       50                0.16
##   kumulativni rel. cetnosti
## 1                      0.24
## 2                      0.84
## 3                      1.00
```

```
# Sloupcove grafy
barplot(table(matzem),col="white",main="Sloupcovy graf pro znamky z
matematicke geografie",ylab="Pocty")
```

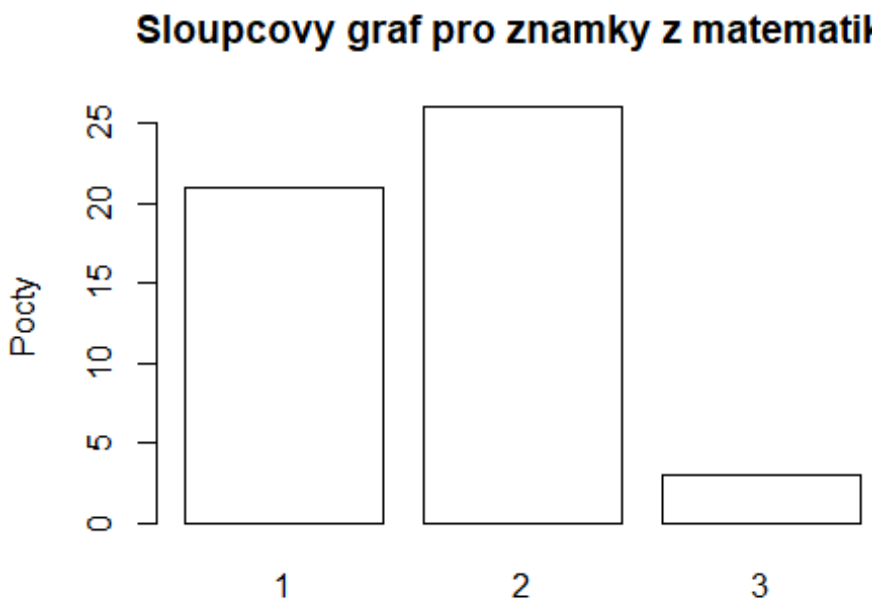



```
barplot(table(meteo),col="white",main="Sloupcovy graf pro znamky z
meteorologie",ylab="Pocty")
```



```r
barplot(table(geol),col="white",main="Sloupcovy graf pro znamky z
geologie",ylab="Pocty")
```


```r
barplot(table(mat),col="white",main="Sloupcovy graf pro znamky z
matematiky",ylab="Pocty")
```




```
barplot(table(stat),col="white",main="Sloupcovy graf pro znamky ze
statistiky",ylab="Pocty")
```