graphics_package

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Example 1

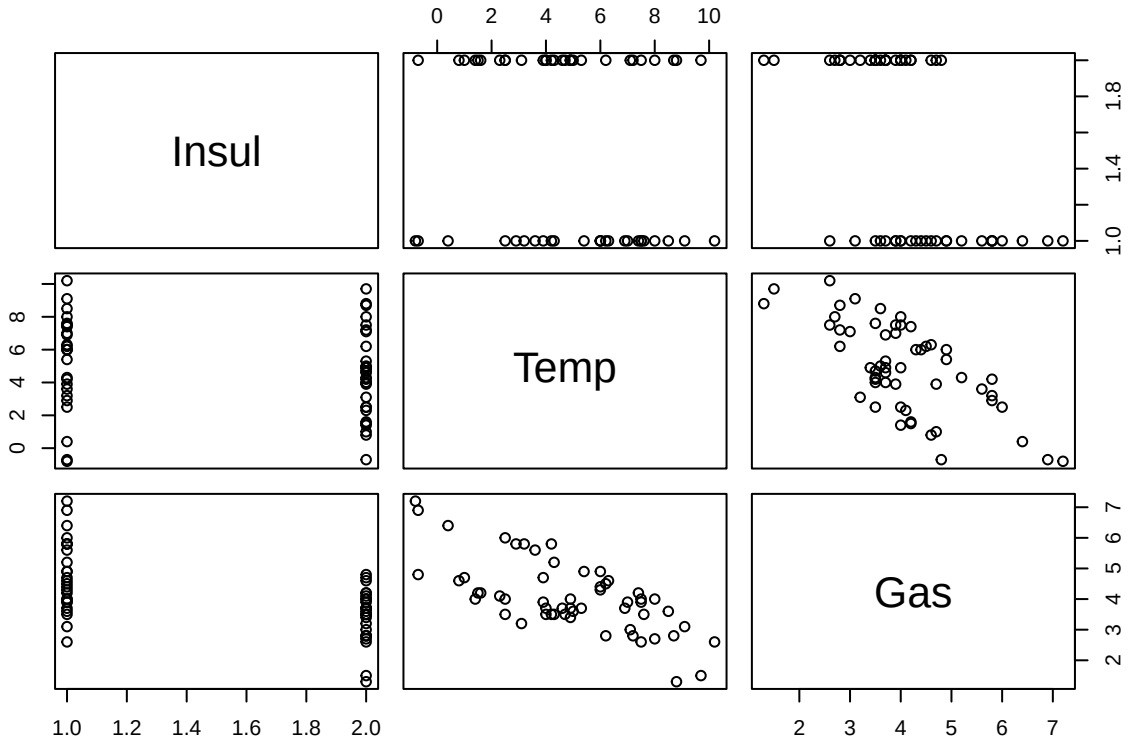
```
library(MASS)
```

```
## Warning: pakiet 'MASS' został zbudowany w wersji R 4.3.2
```

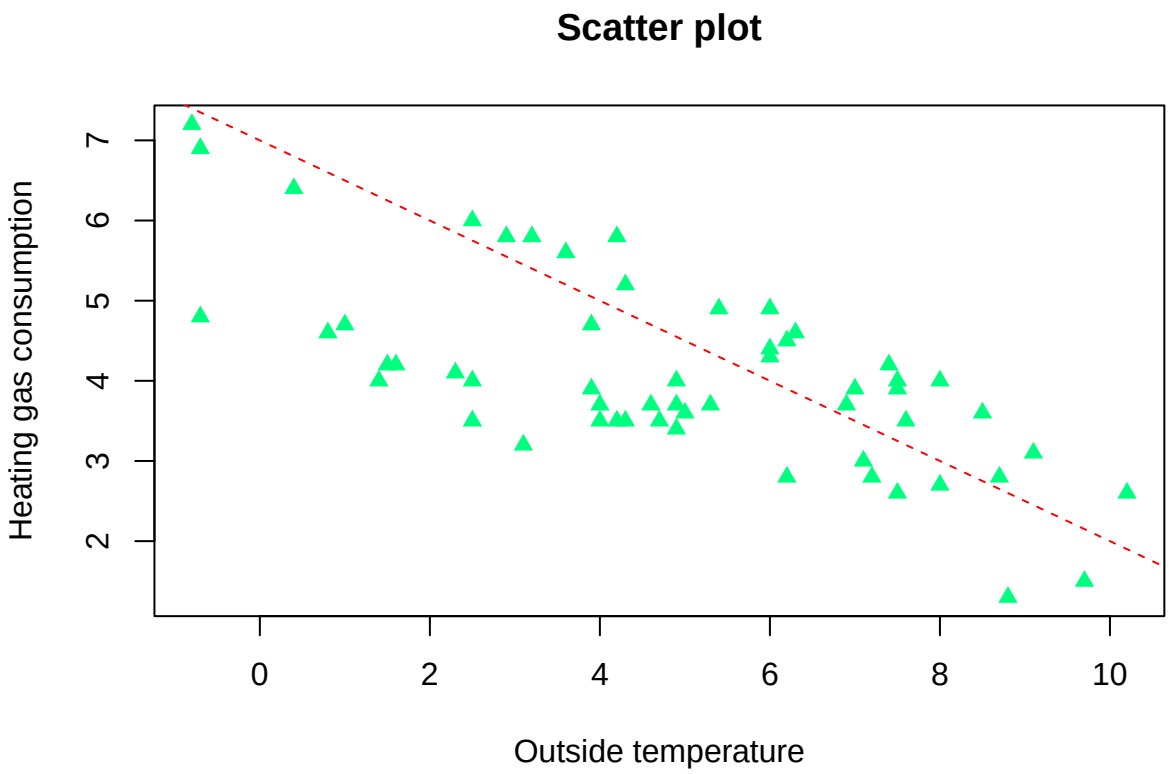
```
str(whiteside) #information about structure
```

```
## 'data.frame':    56 obs. of  3 variables:
##  $ Insul: Factor w/ 2 levels "Before","After": 1 1 1 1 1 1 1 1 1 1 ...
##  $ Temp : num  -0.8 -0.7 0.4 2.5 2.9 3.2 3.6 3.9 4.2 4.3 ...
##  $ Gas  : num  7.2 6.9 6.4 6 5.8 5.8 5.6 4.7 5.8 5.2 ...
```

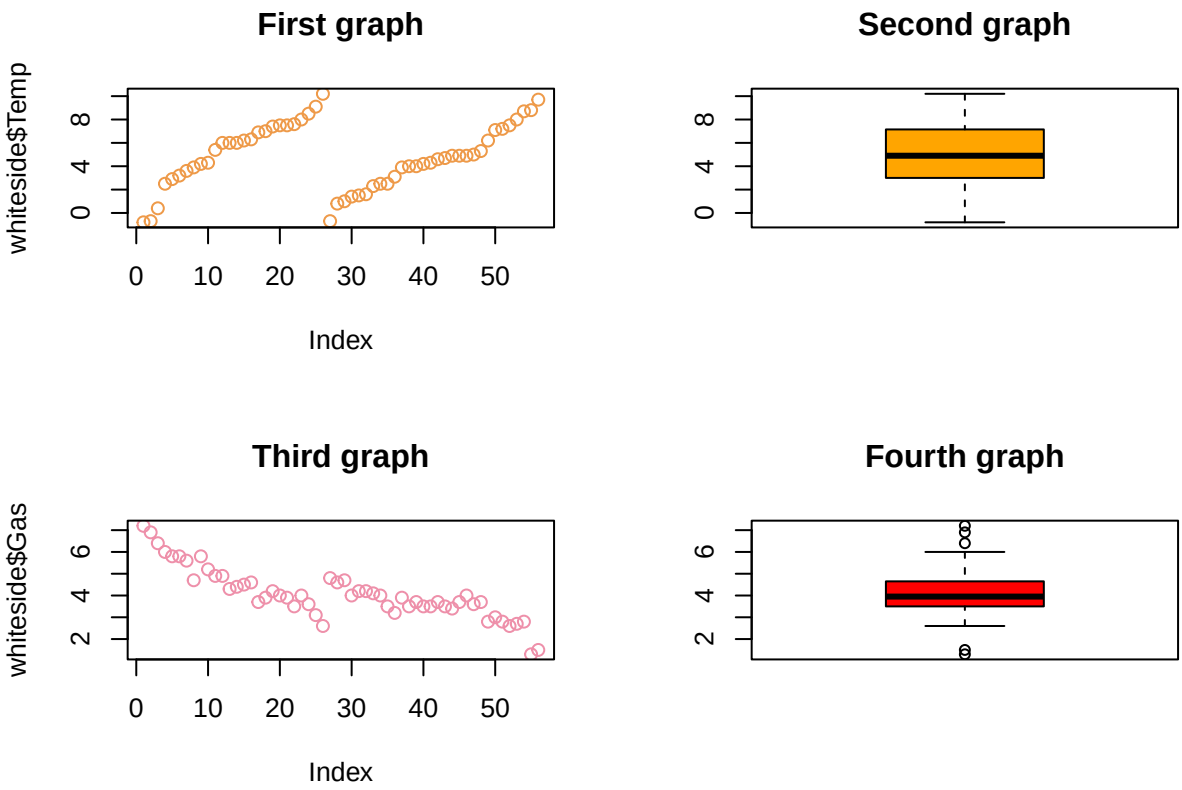
```
plot(whiteside)
```




```
plot(whiteside$Temp, whiteside$Gas,
     type = "p", pch=17, col="springgreen", xlab = "Outside temperature",
     ylab = "Heating gas consumption")
title("Scatter plot")
abline(a=7, b=-0.5, lty=2, col="red")
```




```
par(mfrow=c(2,2))
plot(whiteside$Temp, col="#EE9A49")
title("First graph")
boxplot(whiteside$Temp, col="orange")
title("Second graph")
plot(whiteside$Gas, col="#EE90AA")
title("Third graph")
boxplot(whiteside$Gas, col="red")
title("Fourth graph")
```

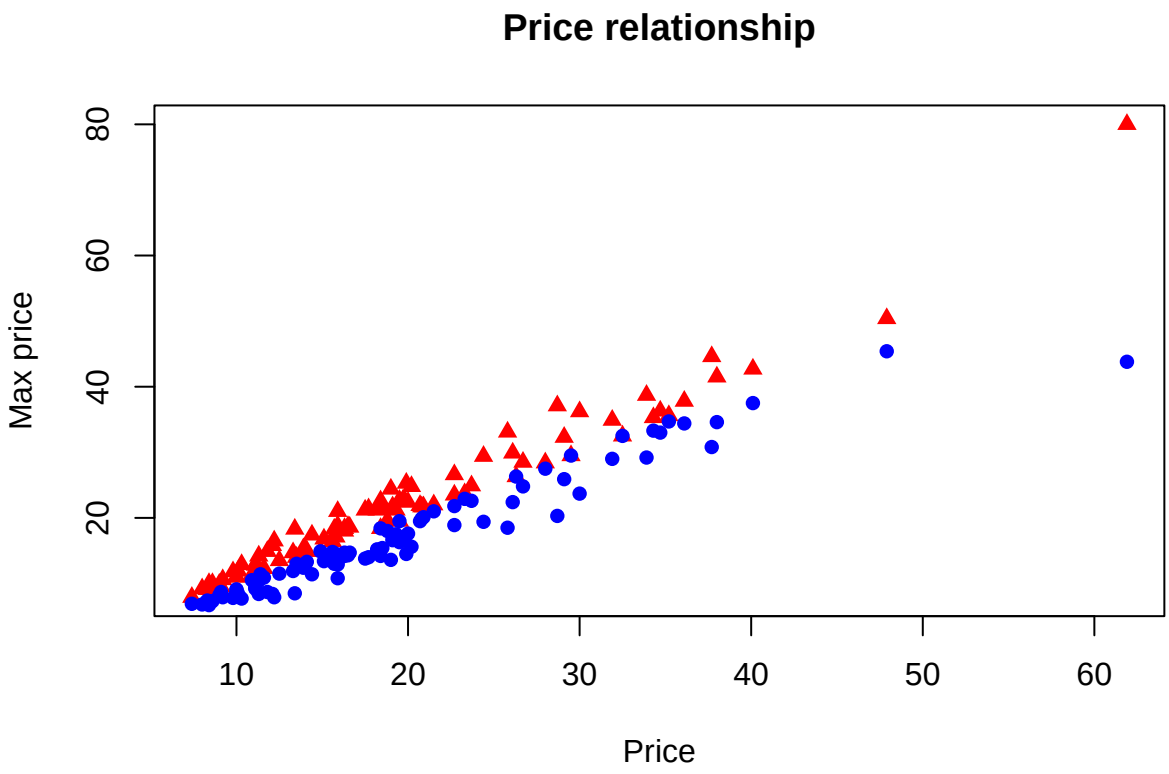


Task 1

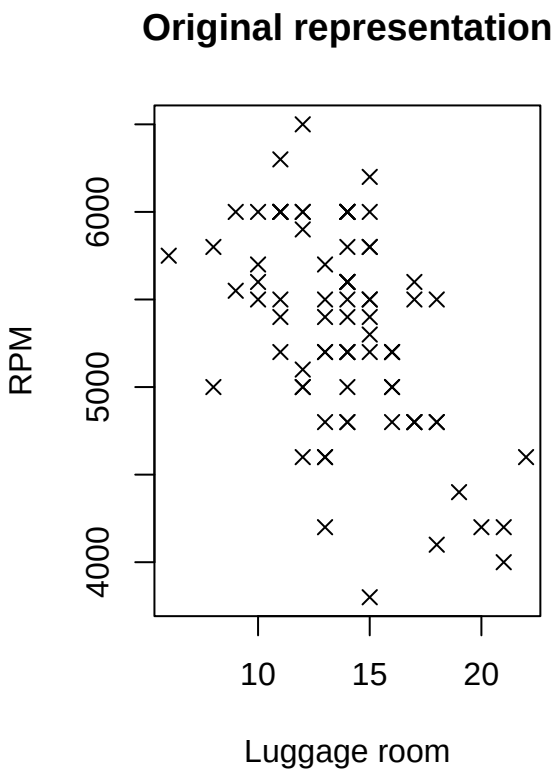
```
#a)
data(cars93)
```

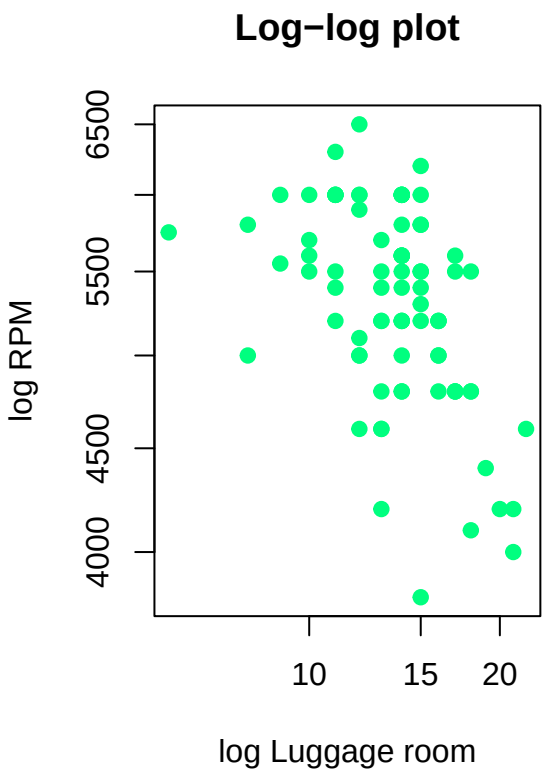
```
## Warning in data(cars93): zbiór danych 'cars93' nie został znaleziony
```

```
par(mfrow=c(1,1))
plot(Cars93$Price, Cars93$Max.Price,
     type = "p", pch=17, col="red", xlab = "Price",
     ylab = "Max price")
title("Price relationship")
points(Cars93$Price, Cars93$Min.Price, col = "blue", pch = 16)
```



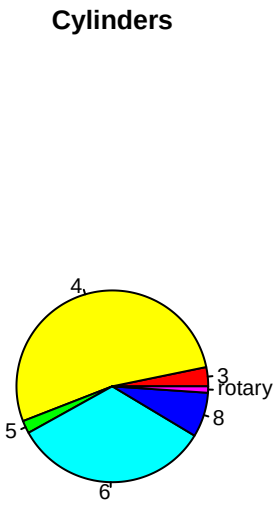

```
#b)
par(mfrow = c(1,2))
plot(Cars93$Luggage.room, Cars93$RPM, pch = 4, xlab = "Luggage room", ylab = "RPM")
title("Original representation")
plot(Cars93$Luggage.room, Cars93$RPM, xlab = "log Luggage room", ylab = "log RPM", pch=19, col="springg
title("Log-log plot")
```

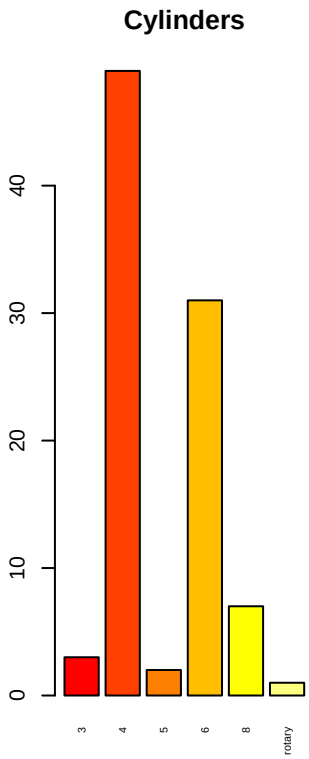


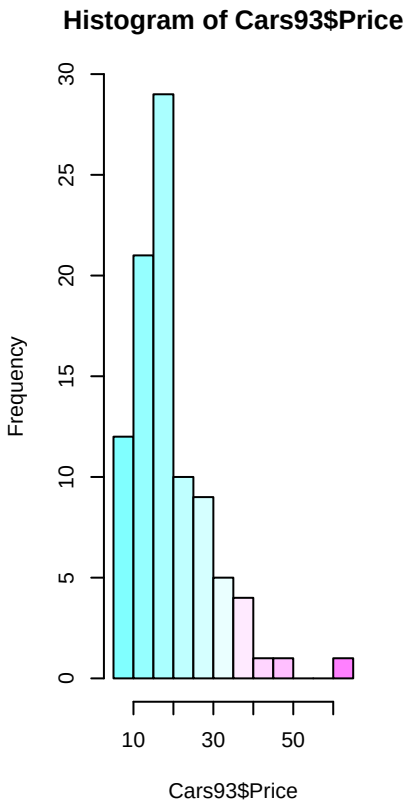



```r
#c)
par(mfrow = c(1,3))

pie(table(Cars93$Cylinders), col = rainbow(6)) #table - creates a table from data
title("Cylinders")
barplot(table(Cars93$Cylinders), las = 3, cex.names = 0.5, col = heat.colors(6))
title("Cylinders")
hist(Cars93$Price, col = cm.colors(12)) #histogram
```

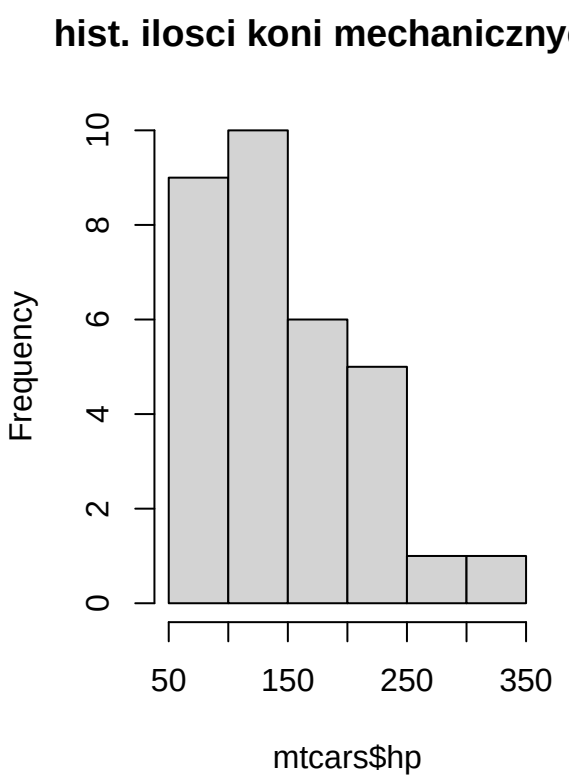


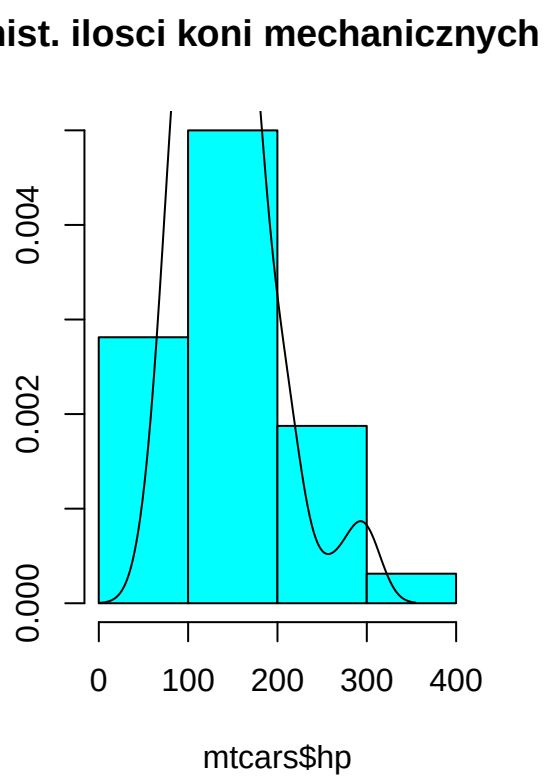




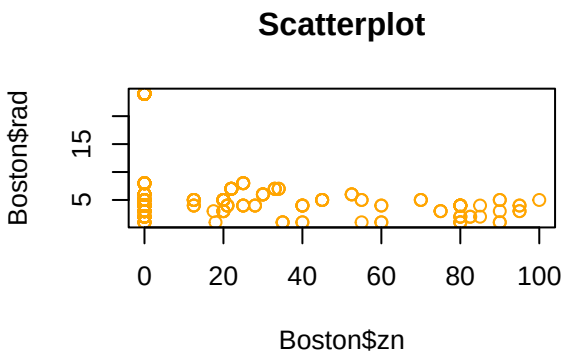
Task 2

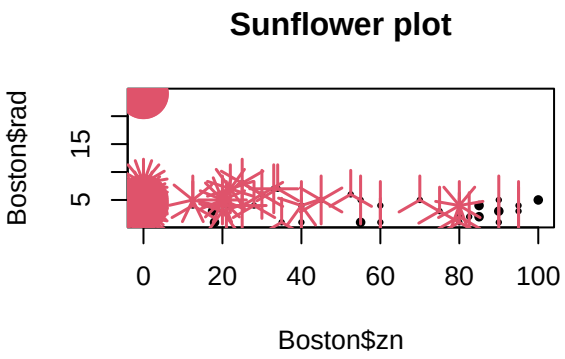
```
#a)
par(mfrow = c(1,2))
hist(mtcars$hp, main = "hist. ilosci koni mechanicznych 1")
truehist(mtcars$hp, main = "hist. ilosci koni mechanicznych 2")
lines(density(Cars93$Horsepower))
```

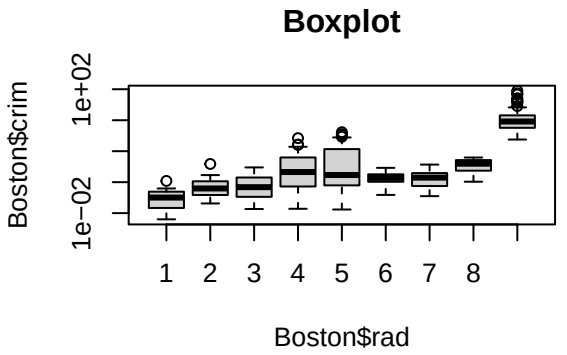


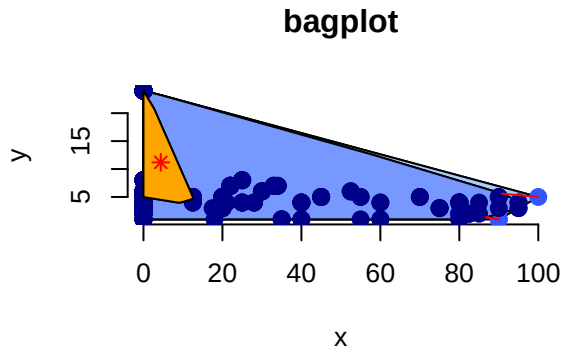



```r
#b)
library(MASS)
library("aplpack")
par(mfrow = c(2,2))
plot(Boston$zn, Boston$rad, type = 'p', col = 'orange')
title("Scatterplot")
sunflowerplot(Boston$zn, Boston$rad)
title("Sunflower plot")
boxplot(Boston$crim~Boston$rad, log='y') #boxplot
title("Boxplot")
bagplot(Boston$zn, Boston$rad, cex = 1.5) #2D boxplot
title("bagplot")
```










```
#c)
plot(Cars93$Horsepower, Cars93$MPG.city, type = "n",
     xlab = "Horsepower", ylab = "Gas mileage")
points(Cars93$Horsepower, Cars93$MPG.city, pch = as.character(Cars93$Cylinders))


#d)
library("dplyr")
```

```
## Warning: pakiet 'dplyr' został zbudowany w wersji R 4.3.2

##
## Dołączanie pakietu: 'dplyr'

## Następujący obiekt został zakryty z 'package:MASS':
##
##     select

## Następujące obiekty zostały zakryte z 'package:stats':
##
##     filter, lag

## Następujące obiekty zostały zakryte z 'package:base':
##
##     intersect, setdiff, setequal, union
```

```r
pointer <- Cars93 %>%
  filter(Cylinders == 3)
plot(Cars93$Horsepower, Cars93$MPG.city, type = 'p', pch = 15)
text(x = pointer$Horsepower,
     y = pointer$MPG.city,
     labels = pointer$Cylinders, adj = -0.1, font = 2, cex = 2)
points(pointer$Horsepower, pointer$MPG.city, pch = 15, col = 'red')
```