

GL04/1 Hoermann

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Aufgabe 1: Konstrukte

a.

```
df = data.frame(rnorm(100, mean=50, s=20))
count <- 0;
min(df)
```

```
## [1] 1.344656
```

```
max(df)
```

```
## [1] 107.5906
```

```
for (i in df[[1]]) {
  if (i < 60) {
  } else {
    count <- count + 1
  }
}
count
```

```
## [1] 25
```

b.

```
head(iris)
```

```
##   Sepal.Length Sepal.Width Petal.Length Petal.Width Species
## 1         5.1         3.5          1.4          0.2   setosa
## 2         4.9         3.0          1.4          0.2   setosa
## 3         4.7         3.2          1.3          0.2   setosa
## 4         4.6         3.1          1.5          0.2   setosa
## 5         5.0         3.6          1.4          0.2   setosa
## 6         5.4         3.9          1.7          0.4   setosa
```

```
df_log = cbind(log(iris[,c(1:4)]), Species=iris[,5])
head(df_log)
```

```
##   Sepal.Length Sepal.Width Petal.Length Petal.Width Species
## 1    1.629241    1.252763    0.3364722  -1.6094379   setosa
## 2    1.589235    1.098612    0.3364722  -1.6094379   setosa
## 3    1.547563    1.163151    0.2623643  -1.6094379   setosa
## 4    1.526056    1.131402    0.4054651  -1.6094379   setosa
## 5    1.609438    1.280934    0.3364722  -1.6094379   setosa
## 6    1.686399    1.360977    0.5306283  -0.9162907   setosa
```

c.

```
is.sorted = function(x) {
  index = 1
  toReturn = TRUE
  for (val in tail(x, -1)) {
    if (val < x[index]) toReturn = FALSE
    index = index + 1
  }
  toReturn
}
is.sorted(c(1:9))
```

```
## [1] TRUE
```

```
is.sorted(c(9:1))
```

```
## [1] FALSE
```

```
is.sorted(c(4:20, 19:4))
```

```
## [1] FALSE
```

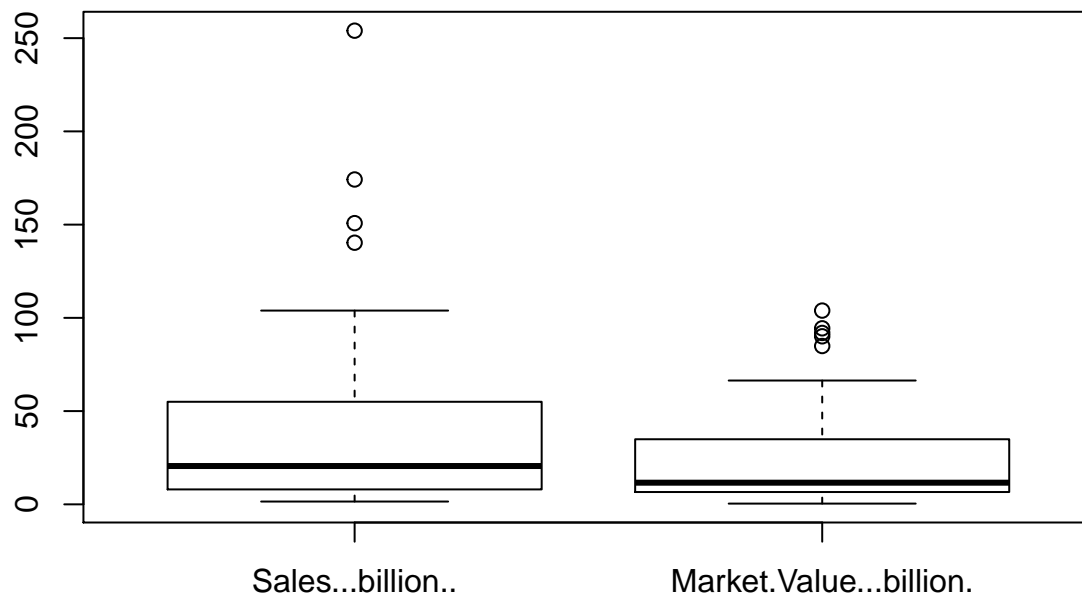
Aufgabe 2: Deskriptive Statistik

a)

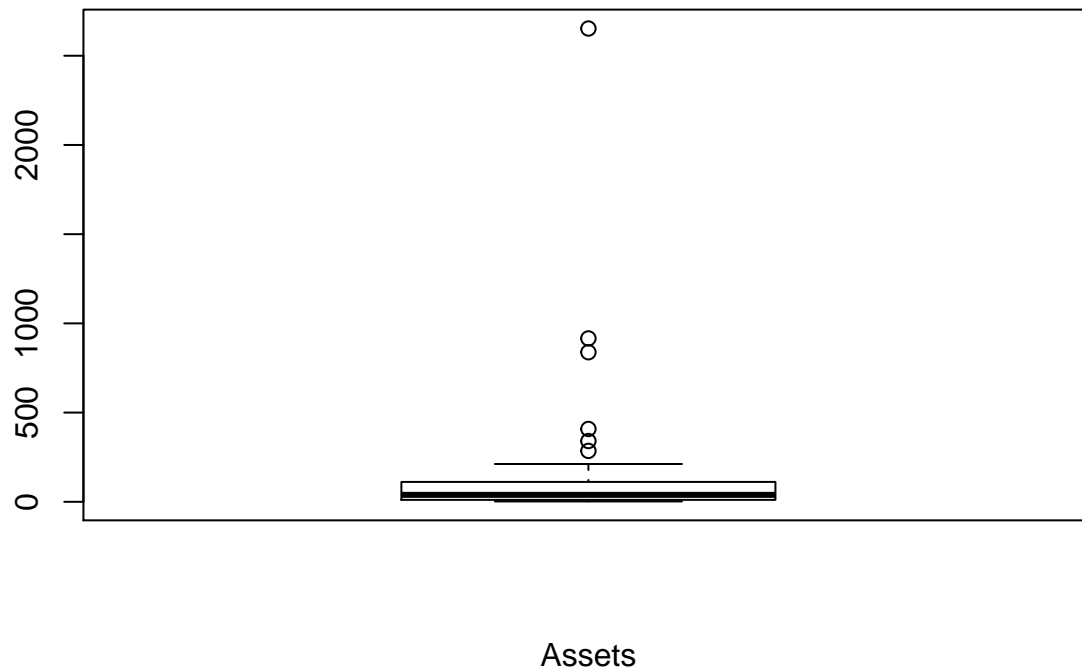
```
ger_comp = data.frame(read.csv(file="./Germany_largest_companies.csv", sep=";"))
head(ger_comp)
```

```
##   Global.Rank.      Company.      Field Sales...billion..
## 1           14 Volkswagen Group      Automobil           254.0
## 2           25      Allianz      Finanz           140.3
## 3           36      Daimler      Automobil           150.8
## 4           51      Siemens Technologie           100.6
## 5           55      BMW Group      Automobil           98.8
## 6           69      BASF      Chemie           103.9
##   Profits...billion.. Assets...billion.. Market.Value...billion..
## 1           28.6           408.2           94.4
## 2           6.8           915.8           66.4
## 3           8.0           211.9           64.1
## 4           5.7           134.4           91.9
## 5           6.6           165.5           60.0
## 6           6.4           83.5           90.1
```

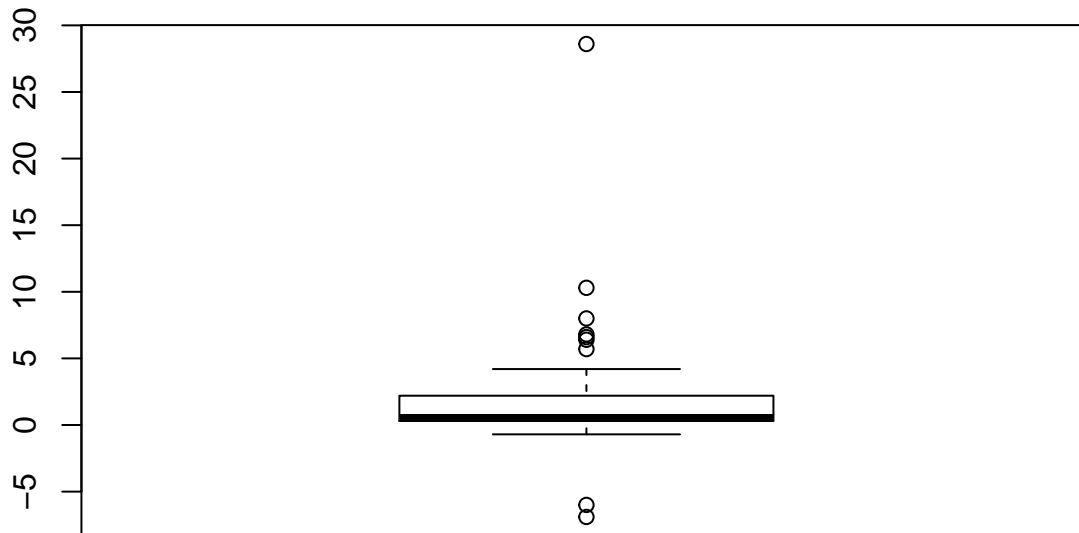
```
boxplot(ger_comp[,c(4, 7)])
```



```
boxplot(ger_comp[,6], xlab="Assets")
```



```
boxplot(ger_comp[,5], xlab="Profits")
```



Profits

```
cor(ger_comp[,c(4:7)])
```

```
##           Sales...billion.. Profits...billion..
## Sales...billion..           1.0000000         0.6805149
## Profits...billion..         0.6805149         1.0000000
## Assets...billion..          0.2559285         0.1154498
## Market.Value...billion.     0.6646189         0.5910285
##           Assets...billion.. Market.Value...billion.
## Sales...billion..          0.2559285         0.6646189
## Profits...billion..         0.1154498         0.5910285
## Assets...billion..          1.0000000         0.2135856
## Market.Value...billion.     0.2135856         1.0000000
```

b)

```
house_prices = data.frame(read.csv(file="./HousePricesAroundtheWorld.csv", sep=";"), c(1, 2, 4))
credit_growth = data.frame(read.csv(file="./CreditGrowth.csv", sep=";"), c(3))
```

```
head(credit_growth)
```

```
## [1]  5.1975566 -0.2359744  3.3754044 -9.1513990  3.8178986  8.5873016
```

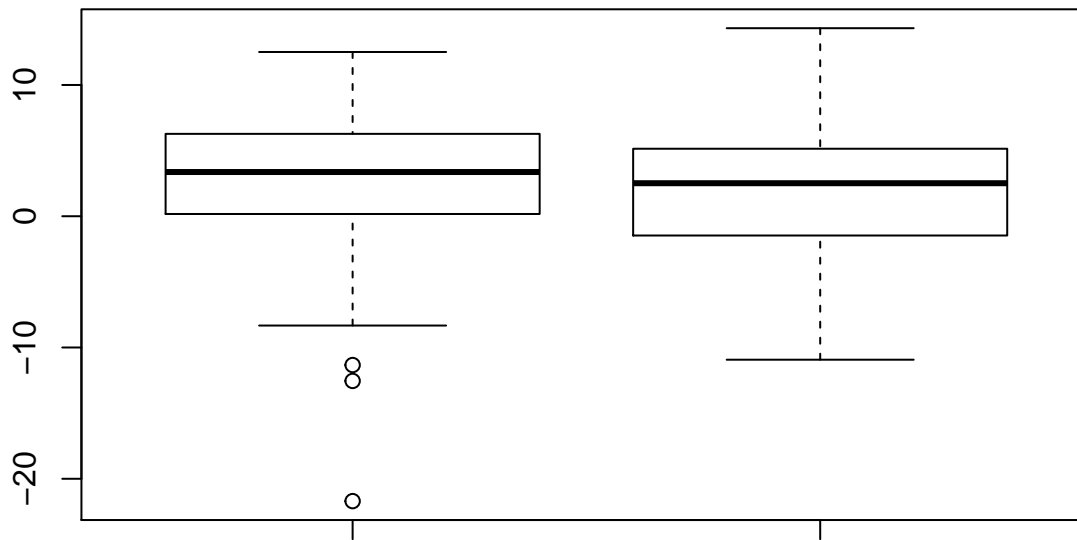
```
combined = cbind(house_prices, credit_growth)
```

```
head(combined)
```

```
##   country Continent real.house.price.growth..annual.percent.change
## 1 Australia Australia                2.121578
## 2 Austria   Europe                 6.496545
## 3 Belgium   Europe                 0.742640
## 4 Brazil    America               -21.702630
## 5 Canada    America                10.490940
## 6 China     Asia                  6.225660
```

```
## credit_growth
## 1 5.1975566
## 2 -0.2359744
## 3 3.3754044
## 4 -9.1513990
## 5 3.8178986
## 6 8.5873016
```

```
boxplot(combined[,c(3, 4)])
```



real.house.price.growth..annual.percent.change credit_growth

```
cor(combined[,c(3, 4)])
```

```
## real.house.price.growth..annual.percent.change 1.0000000
## credit_growth 0.3724553
## real.house.price.growth..annual.percent.change 0.3724553
## credit_growth 1.0000000
```