Task p. 23-1 / Anwendung S. 23-1

FK

automatic

Working directory

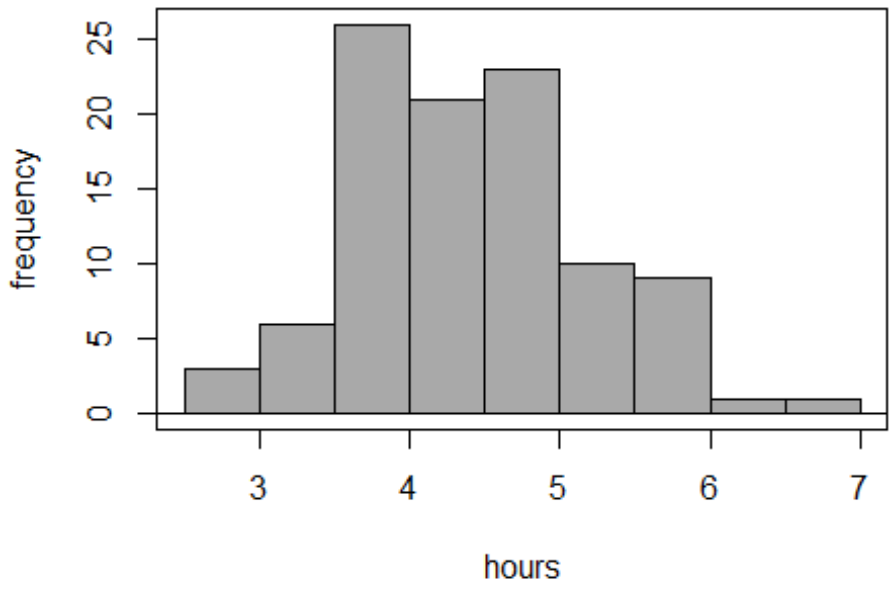
```
> setwd("D:/kronthafranz/Documents/01Lehre/06Quantitative Forschungsmethoden dt en")
```

Load data

```
> load("D:/kronthafranz/Documents/01Lehre/06Quantitative Forschungsmethoden dt en/03Testing Normal Distribution/marathon_100.RData")
```

Histogram

```
> with(marathon_100, Hist(hours, scale="frequency", breaks="Sturges", col="darkgray"))
```



Excess kurtosis and skewness

```
> library(abind, pos=16)
```

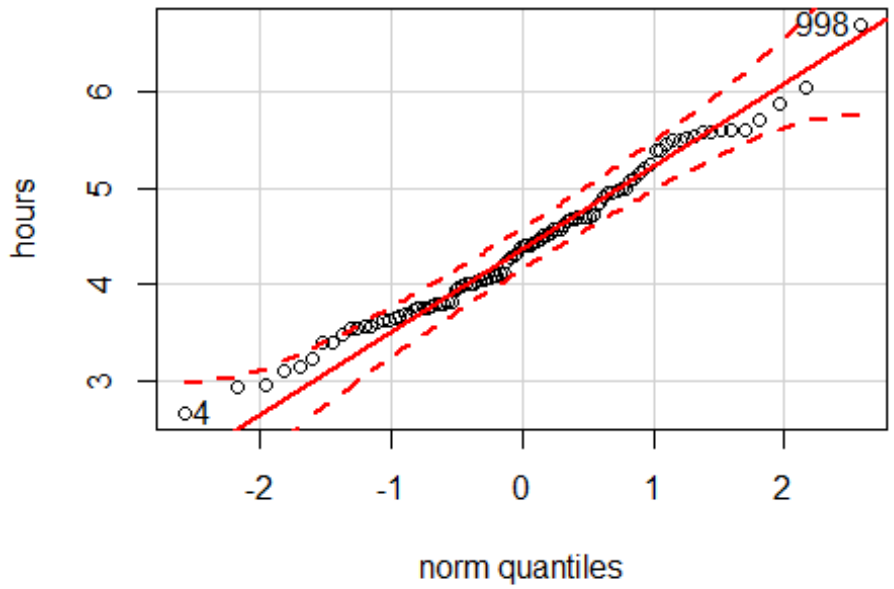
```
> library(e1071, pos=17)

> numSummary(marathon_100[,"hours", drop=FALSE], statistics=c("skewness",
"kurtosis"), quantiles=c(0,.25,.5,.75,1), type="2")

  skewness   kurtosis   n
 0.3187331 -0.2497075 100
```

Quantile comparison plot

```
> with(marathon_100, qqPlot(hours, dist="norm", id.method="y", id.n=2,
labels=rownames(marathon_100)))
```




```
998   4
100   1
```

Shapiro-Wilk test

```
> normalityTest(~hours, test="shapiro.test", data=marathon_100)


    Shapiro-Wilk normality test

data:  hours
W = 0.98319, p-value = 0.2334
```

Summary

Altogehter we conclude that the variable is normally distributed, i.e it comes from a normally distributed population