Programmieren mit R: Seminararbeit 3

Daniyar Akhmetov (5127348)
Marcelo Rainho Avila (4679876)
Xuan Son Le (4669361)

Abgabedatum: 08.02.2018

Contents

1 Part I: *Linear regression* (15 points)

```
A <- matrix(c(1, -1,
              1, 1), nrow = 2, ncol = 2, byrow = TRUE)
A
```

```
##      [,1] [,2]
## [1,]    1   -1
## [2,]    1    1
```

```
b <- c(0,3)
solve(A,b)
```

```
## [1] 1.5 1.5
```

Raw implementation 1. Read the help (solve - solve functions, t - transpose matrix, crossprod - crossproduct matrix)
2. Write function linModEst(x,y)

```
linModEst <- function(x,y) {
  ## compute (x'x)^(-1) with x'=t(x)
  temp <- crossprod(x,y = NULL)

}
```

`crossprod(x, y = NULL)` is equal to `t(x) %*% y`. Because `y = NULL` is taken to be the same matrix as x, the result will be t(x) %*%

```
x <- matrix(c(1,2,3,4),2,2,byrow = TRUE)
x
```

```
##      [,1] [,2]
## [1,]    1    2
## [2,]    3    4
```

```
t(x)
```

```
##      [,1] [,2]
## [1,]    1    3
## [2,]    2    4
```

```
identical(t(x) %*% x,crossprod(x))
```

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