Exersice-3.R

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### Exercise 3  
  
remove(list = ls())  
  
m = c(1,0,-1,2)  
m

## [1] 1 0 -1 2

s = c(1,0.2,0.4,-0.5,0.2,2,0.8,0,0.4,0.8,2,0,-0.5,0,0,1)  
S = matrix(s,4,4)  
S

## [,1] [,2] [,3] [,4]  
## [1,] 1.0 0.2 0.4 -0.5  
## [2,] 0.2 2.0 0.8 0.0  
## [3,] 0.4 0.8 2.0 0.0  
## [4,] -0.5 0.0 0.0 1.0

COR = cov2cor(S)  
round(COR, digits = 4)

## [,1] [,2] [,3] [,4]  
## [1,] 1.0000 0.1414 0.2828 -0.5  
## [2,] 0.1414 1.0000 0.4000 0.0  
## [3,] 0.2828 0.4000 1.0000 0.0  
## [4,] -0.5000 0.0000 0.0000 1.0

### X3 und X4 sind unkorreliert, Die beiden paare X1 X2, X2 X3 sind korreliert.   
  
# b)  
  
# i)  
  
m1 = m[3]  
S1 = S[3,3]  
  
paste("X3 ~ N(",m1,",",S1,")")

## [1] "X3 ~ N( -1 , 2 )"