STAT-FInal-Exam-code.R

saiup

2022-12-16

##B  
  
Y <- matrix(c(95000, 109000, 98000, 96000, 107000, 114000), ncol = 1, byrow = TRUE)  
Y

## [,1]  
## [1,] 95000  
## [2,] 109000  
## [3,] 98000  
## [4,] 96000  
## [5,] 107000  
## [6,] 114000

X <- matrix(c(1, 2000,1, 2100, 1, 2050, 1, 2040, 1, 2200, 1, 1900), ncol = 2, byrow = TRUE)  
X

## [,1] [,2]  
## [1,] 1 2000  
## [2,] 1 2100  
## [3,] 1 2050  
## [4,] 1 2040  
## [5,] 1 2200  
## [6,] 1 1900

##C  
  
t(X) %\*% X

## [,1] [,2]  
## [1,] 6 12290  
## [2,] 12290 25224100

solve(t(X) %\*% X)

## [,1] [,2]  
## [1,] 83.9404326 -4.089850e-02  
## [2,] -0.0408985 1.996672e-05

##D  
t(X) %\*% Y

## [,1]  
## [1,] 619000  
## [2,] 1267640000

##A  
  
beta <- solve(t(X) %\*% X) %\*% t(X) %\*% Y  
beta

## [,1]  
## [1,] 114550.083195  
## [2,] -5.557404

##f(X)= 114550.083195-5.557404x  
sse <- (t(Y) %\*% Y) - (t(beta) %\*% t(X) %\*% Y)  
sse

## [,1]  
## [1,] 309286522

##SSE=309286522