Lab02-22

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```
###LAB02####

library("gtools")
```

```
## Warning: package 'gtools' was built under R version 4.0.5
```

```
m <- 2
n <- 4
v <- c(2,1,1,8,1,1,2,4)
b <- c(6,4)
A <- matrix(v, nrow = 2, byrow = TRUE)
AI <- cbind(A, diag(m))
print(AI)
```

```
##      [,1] [,2] [,3] [,4] [,5] [,6]
## [1,]    2    1    1    8    1    0
## [2,]    1    1    2    4    0    1
```

```
calcula_sb <- function(M,J,b){
  aux <- M[ , J]
  solucion <- rep(0, m+n)
  if(det(aux) == 0){ return(F) }

  solucion[J] <- solve(aux, b)

  return(solucion)
}

calcula_sb(AI, c(1,2), b)
```

```
## [1] 2 2 0 0 0 0
```

```
ncom <- choose(m+n, m)
combinations(n+m, m) -> C
C
```

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

```
##  [3,]    1    4
##  [4,]    1    5
##  [5,]    1    6
##  [6,]    2    3
##  [7,]    2    4
##  [8,]    2    5
##  [9,]    2    6
## [10,]    3    4
## [11,]    3    5
## [12,]    3    6
## [13,]    4    5
## [14,]    4    6
## [15,]    5    6
```

```r
for (i in 1 : nrow(C)) {
  sb <- calcula_sb(AI, C[i, ], b)
  print(sb)
}
```

```
## [1] 2 2 0 0 0 0
## [1] 2.6666667 0.0000000 0.6666667 0.0000000 0.0000000 0.0000000
## [1] FALSE
## [1]  4  0  0  0 -2  0
## [1] 3 0 0 0 0 1
## [1]  0  8 -2  0  0  0
## [1] 0.0 2.0 0.0 0.5 0.0 0.0
## [1] 0 4 0 0 2 0
## [1]  0  6  0  0  0 -2
## [1] 0.0000000 0.0000000 0.6666667 0.6666667 0.0000000 0.0000000
## [1] 0 0 2 0 4 0
## [1]  0  0  6  0  0 -8
## [1]  0  0  0  1 -2  0
## [1] 0.00 0.00 0.00 0.75 0.00 1.00
## [1] 0 0 0 0 6 4
```