QMM Assignment 2

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LP Model using R

#Installing the lpSolve library  
library(lpSolve)

## Warning: package 'lpSolve' was built under R version 4.2.3

# Set Objective function  
func.objective <- c(420,360,300,  
 420,360,300,  
 420,360,300)

#Set the Constraints  
func.constraints <-matrix(c(1,1,1,0,0,0,0,0,0,  
 0,0,0,1,1,1,0,0,0,  
 0,0,0,0,0,0,1,1,1,  
 20,15,12,0,0,0,0,0,0,  
 0,0,0,20,15,12,0,0,0,  
 0,0,0,0,0,0,20,15,12,  
 1,0,0,1,0,0,1,0,0,  
 0,1,0,0,1,0,0,1,0,  
 0,0,1,0,0,1,0,0,1) , nrow = 9,byrow = TRUE)

#Set the direction of the inequalities  
func.dir<-c("<=",  
 "<=",  
 "<=",  
 "<=",  
 "<=",  
 "<=",  
 "<=",  
 "<=",  
 "<=")

#Set the right hand side coefficients  
func.righthandside<-c(750,  
 900,  
 450,  
 13000,  
 12000,  
 5000,  
 900,  
 1200,  
 750)

#Find the value of the objective function(Z)  
lp("max",func.objective,func.constraints,func.dir,func.righthandside)

## Success: the objective function is 708000

#Values of the variables  
lp("max", func.objective, func.constraints, func.dir, func.righthandside)$solution

## [1] 350.0000 400.0000 0.0000 0.0000 400.0000 500.0000 0.0000 133.3333  
## [9] 250.0000