Assignment 2

keerthi Tiyyagura

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library(lpSolve)#Calling the library

f.obj<-c(420,360,300,420,360,300,420,360,300)#Coefficients from the Objective Function,Z;

f.con<-matrix(c(1,1,1,0,0,0,0,0,0,  
 #Coefficients from the Capacity constraints of Plant1  
 0,0,0,1,1,1,0,0,0,#Plant2  
 0,0,0,0,0,0,1,1,1,#Plant3  
 1,0,0,1,0,0,1,0,0,  
 #Coefficients from the Sales Forecasts constraints of size Large  
 0,1,0,0,1,0,0,1,0,#Medium  
 0,0,1,0,0,1,0,0,1,#Small  
 20,15,12,0,0,0,0,0,0,  
 #Coefficients from Storage Space Constraints of Plant1  
 0,0,0,20,15,12,0,0,0,#Plant2  
 0,0,0,0,0,0,20,15,12,#Plant3  
 900,900,900,-750,-750,-750,0,0,0,  
 #Coefficients of To avoid the employees layoff constraints  
 0,0,0,450,450,450,-900,-900,-900,  
 450,450,450,0,0,0,-750,-750,-750),nrow=12,byrow=TRUE)

f.dir<-c("<=","<=","<=","<=","<=","<=","<=","<=","<=","=","=","=")#Inequality and equality signs from the total constraints

f.rhs<-c(750,900,450,900,1200,750,13000,12000,5000,0,0,0)  
#Right hand side Coefficients of total constraints

lp("max",f.obj,f.con,f.dir,f.rhs)

## Success: the objective function is 696000

#final value of Z

lp("max",f.obj,f.con,f.dir,f.rhs,int.vec = 1:9)$solution

## [1] 530 160 0 0 688 140 1 8 405

#Variables final values