Integer programming

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# Questions

# Formulate and solving the problem :

# Loading required package  
library(lpSolveAPI)  
getwd()

## [1] "C:/Users/shash/Dropbox/PC/Downloads"

setwd( "C:/Users/shash/OneDrive/Documents")  
# Reading the lp file  
IP <- read.lp("shashi.lp")  
#Displaying the file  
IP

## Model name:   
## X1 X2 X3 X4 X5 X6 X7   
## Minimize 775 800 800 800 800 775 750   
## Shift\_Sun 0 1 1 1 1 1 0 >= 18  
## Shift\_Mon 0 0 1 1 1 1 1 >= 27  
## Shift\_Tue 1 0 0 1 1 1 1 >= 22  
## Shift\_Wed 1 1 0 0 1 1 1 >= 26  
## Shift\_Thu 1 1 1 0 0 1 1 >= 25  
## Shift\_Fri 1 1 1 1 0 0 1 >= 21  
## Shift\_Sat 1 1 1 1 1 0 0 >= 19  
## Kind Std Std Std Std Std Std Std   
## Type Int Int Int Int Int Int Int   
## Upper Inf Inf Inf Inf Inf Inf Inf   
## Lower 0 0 0 0 0 0 0

# See if the model converges  
  
solve(IP)

## [1] 0

# What was the total cost?

# Refer to the Objective Function solution.  
get.objective(IP)

## [1] 25675

# In order to meet the required number of workers working every day, the weekly total salary must be $25,765. In other words, the total weekly wage cost is $25,675.

# Determine the best number of variables.  
get.variables(IP)

## [1] 2 4 5 0 8 1 13

# Total: $25,675.

# How many workers are available each day?

# Look at the restrictions.  
get.constraints(IP)

## [1] 18 27 24 28 25 24 19