Assignment 3

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## The Transportation Model

library(lpSolve)

## Define the cost matrix, production capacity, and demand:

cost\_matrix <- matrix(c(22, 14, 30, 16, 20, 24), nrow = 2, byrow = TRUE)  
production\_capacity <- c(100, 120)  
demand <- c(80, 60, 70)

## Solve the transportation problem:

solution <- lp(direction = "min",  
 objective.in = c(cost\_matrix),  
 const.mat = rbind(diag(2), matrix(1, nrow = 3, ncol = 2)),  
 const.dir = c(rep("<=", 2), rep("=", 3)),  
 const.rhs = c(production\_capacity, demand))

## Extract and print the optimal solution and minimum cost:

optimal\_solution <- solution$solution  
print(optimal\_solution)

## [1] 0.00 0.00 0.00 0.75 0.00 0.00

min\_cost <- solution$objval  
print(min\_cost)

## [1] 15