Assignment 3

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## Module 6 - The Transportation Model

# Load the lpSolve library  
library(lpSolve)  
  
# Define the transportation cost matrix  
transportation\_cost <- matrix(c(22, 14, 30, 16, 20, 24), nrow = 2, byrow = TRUE)  
  
# Define the production capacities for each plant  
production\_capacities <- c(100, 120)  
  
# Define the demand for each warehouse  
warehouse\_demand <- c(80, 60, 70)  
  
# Solve the transportation problem  
transportation\_solution <- lp(direction = "min",  
 objective.in = c(transportation\_cost),  
 const.mat = rbind(diag(2), matrix(1, nrow = 3, ncol = 2)),  
 const.dir = c(rep("<=", 2), rep("=", 3)),  
 const.rhs = c(production\_capacities, warehouse\_demand))  
  
# Extract the solution  
optimal\_transportation\_plan <- transportation\_solution$solution  
  
# Print the optimal transportation plan  
print(optimal\_transportation\_plan)

## [1] 0.00 0.00 0.00 0.75 0.00 0.00

# Print the minimum cost  
min\_transportation\_cost <- transportation\_solution$objval  
print(min\_transportation\_cost)

## [1] 15