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
```