

## Assignment Instructions: Module 6 - The Transportation Model

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In transportation model problem, our objective is to minimize the cost. This matrix represents the transportation costs from two suppliers to four destinations (one dummy). You get the values of matrix by adding the unit production cost and unit shipping cost of each of the warehouses. We create one dummy warehouse to equalize the monthly production capacity and monthly demand.

Loading the lpSolve Package.

```
library(lpSolve)
```

```
## Warning: package 'lpSolve' was built under R version 4.2.3
```

Creating the Cost Matrix.

```
costs<-matrix(c(622,614,630,0,
                641,645,649,0),nrow = 2,byrow = TRUE)
costs
```

```
##      [,1] [,2] [,3] [,4]
## [1,]  622  614  630    0
## [2,]  641  645  649    0
```

Defining Constraints.

```
row.signs<-rep("<=",2)
row.rhs<-c(100,120)
col.rhs<-c(80,60,70,10)
col.signs<-rep(">=",4)
```

Solving the Transportation Problem.

```
lptrans<-lp.transport(costs,"min",row.signs,row.rhs,col.signs,col.rhs )
```

## Displaying the Solution.

```
lptrans$solution
```

```
##      [,1] [,2] [,3] [,4]  
## [1,]    0  60  40    0  
## [2,]   80    0  30   10
```

## Displaying the Objective Value.

```
lptrans$objval # This line displays the objective value, which is the minimum total transportation cost
```

```
## [1] 132790
```

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