MSMS 206 : Practical 08

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🎯 **Question :** Obtain an initial basic feasible solution of the following transportation problem :

	D_1	D_2	D_3	D_4	a_i
O_1	19	30	50	12	7
O_2	70	30	40	60	10
O_3	40	10	60	20	18
b_j	5	8	7	15	

➔ <u>Transportation Problem</u>

```r
library(lpSolve)
```

```r
supply <- c(7, 10, 18)
demand <- c(5, 8, 7, 15)
```

```r
cost_matrix <- matrix(c(19, 30, 50, 12,
                        70, 30, 40, 60,
                        40, 10, 60, 20), nrow = 3, ncol = 4, byrow = TRUE)
```

```r
solution <- lp.transport(cost.mat = cost_matrix,
                         direction = "min",
                         row.signs = rep("=", nrow(cost_matrix)),
                         row.rhs = supply,
                         col.signs = rep("=", ncol(cost_matrix)),
                         col.rhs = demand)
```

✎ *The allotment matrix is*

```r
solution$solution
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    5    0    0    2
## [2,]    0    3    7    0
## [3,]    0    5    0   13
```

✏️ The cost for the above allotment is

```
solution$objval
```

```
## [1] 799
```