## Quantitative Methods Exercise 7

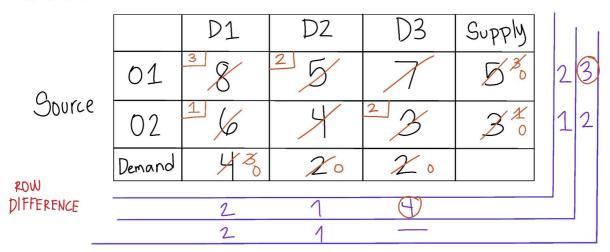
Name: Clarissa V. Dominguez

Solve the transportation problem below. Obtain the initial basic feasible solution using the Vogel's Approximation Method and determine if the solution is optimal using MODI-UV method.

			Destination		
		D1	D2	D3	Supply
	01	8	5	7	5
Source	02	6	4	3	3
	Demand	4	2	2	8 8

## VOGELS APPROXIMATION METHOD SOLUTION;

COLUMN
DIFFERENCE



$$COST - (3 \times 8) + (2 \times 5) + (1 \times 6) + (2 \times 3) = 46$$

## Phase 2: Modi - U.V Method

	V1= 8	<b>√₂</b> = 5	V <sub>3</sub> = 5
N'= 0	3 8	5	7
N2=-2	1 6	7	23

$$n+m-1=2+3-1=4$$
 problem is not obegenerate.

no of allocated cells = 4

for occupied cells:

Cij=Ui+Vj

For unoccupied/unallocated cells:

$$dij = cij - (v_1 + v_2)$$

$$dij = 7 - (o+5) = 2$$

$$diz = 4 - (-2+5) = 1$$

Since dij>0, We have an optimal solution

... the optimal transportation cost is equal to  $(3\times8) + (2\times5) + (1\times6) + (2\times3) = 46$