OR Mini Project

Q1) If a company is spending Rs1000 of transportation of its units to four warehouses from three factories Find an initial base solution using north-west solution

		Warehouses				
		W_1	W_2	W_3	W_4	Factory Capacity
Factory	F_1	90	30	50	10	7
	F_2	70	30	40	60	9
	F_3	40	8	70	20	18
	Warehouse Capacity	5	8	7	14	

→ The problem is balanced as the total factory capacity and warehouse requirement is equal.

So, the initial feasible solution is as follows:

		Warehouse.				
		W_1	W_2	W_3	W_4	Factory Capacity
Factory.	F1	90	30	50	10	7
	F2	70	30	40	60	9
	F3	40	8	70	20	18
		5	8	7	14	34

Now, we perform north-west corner rule on our table.

		Warehouse W_1	W_2	W_3	W_4	Capacity
Factory	F_1	90 [5]	30 [2]	50	10	7-2-0
	F_2	70	30 [6]	40 [3]	60	9-3-0
	F_3	40	8	70 [4]	20 [14]	18-14-0
	Requirement	5 0	8 0 0	7 4 0	14 0	

Here, we have initial feasible solution follows

		Warehouse W_1	W_2	W_3	W_4	Capacity
Factory.	F_1	90 [5]	30 [2]	50	10	7
	F_2	70	30 [6]	40 [3]	60	9
	F_3	40	8	70 [4]	20 [14]	18.
	Requirement	5	8	7	14.	

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Total Cost =

$$(5 \times 90) + (2 \times 30) + (6 \times 30) + (3 \times 40) + (4 \times 70) + (14 \times 20)$$

$$= 450 + 60 + 180 + 120 + 28 + 280$$

$$= 1370$$