TD - Week 3

October 2025

Questions

Instructions: For every problem below, show all allocations and compute the total transportation cost. Use the method specified (Northwest Corner, Least Cost, or Vogel's Approximation). If the problem is unbalanced, balance it first by adding a dummy row/column (cost = 0) and show the adjusted table.

1. (NWC) A company in Phnom Penh ships to three cities. Use **Northwest Corner Method** to find an initial feasible solution and total cost.

	Siem Reap	Battambang	Sihanoukville	Supply
W_A	4	6	8	40
W_B	5	3	7	50
W_C	6	5	9	60
Demand	30	70	50	

2. (LCM) Use the same data as Problem 1. Find an initial feasible solution using the **Least Cost Method** and compute total cost.

3. (VAM) Use the same data as Problem 1. Find an initial feasible solution using **Vogel's Approximation Method** and compute total cost.

4. (Balance + NWC) Factory–Distribution: balance if needed, then apply **Northwest Corner**

Method.

	D_1	D_2	D_3	D_4	Supply
F_1	2	3	1	4	20
F_2	5	4	8	6	40
F_3	3	6	7	5	40
Demand	25	30	15	30	

5. (LCM) For the table in Problem 4, find the initial feasible solution using the **Least Cost Method** and compute the total cost.

6. (VAM) For the table in Problem 4, find the initial feasible solution using **Vogel's Approximation Method** and compute the total cost.

7. (VAM) Two plants and three markets — find initial solution by **Vogel's Approximation Method** and total cost.

	M_1	M_2	M_3	Supply
P_1	4	8	6	50
P_2	5	3	7	70
Demand	30	60	30	

8. (Balance + LCM) Total supply 150, total demand 120. Balance by adding dummy and then apply **Least Cost Method**. (Create costs as below; dummy cost = 0.)

	A	B	C	Supply
S_1	6	9	5	70
S_2	4	8	7	80
Demand	40	50	30	

9. (LCM) Rice farms to mills — compute initial solution by **Least Cost Method** and total cost.

	M_1	M_2	M_3	Supply
F_1	8	6	10	60
F_2	9	12	13	40
F_3	14	9	16	50
Demand	50	70	30	

10. (Dummy + NWC) Unbalanced: add dummy destination (cost 0) then use **Northwest**

Corner Method to allocate and compute cost.

	D_1	D_2	D_3	Supply
S_1	5	7	6	80
S_2	8	4	3	100
Demand	70	60	30	

11. (VAM) Warehouses to customers: obtain initial feasible solution via **Vogel's Approximation Method** and compute total cost.

	C_1	C_2	C_3	C_4	Supply
W_1	4	6	8	13	45
W_2	5	11	9	7	35
W_3	10	12	4	8	40
Demand	20	30	40	30	

12. (LCM) Find initial feasible solution by **Least Cost Method** and compute cost:

	D_1	D_2	D_3	Supply
S_1	10	2	20	15
S_2	12	7	9	25
Demand	10	15	15	

13. (VAM) Manufacturer plants to warehouses — solve with **Vogel's Approximation Method** and compute total cost.

	W_1	W_2	W_3	Supply
P_1	16	20	12	200
P_2	14	8	18	300
P_3	26	24	16	250
Demand	150	350	250	

14. (NWC) Use the **Northwest Corner Method** to obtain an initial solution and compute

cost:

	P_1	P_2	P_3	Supply
D_1	2	3	1	50
D_2	5	4	7	60
D_3	3	6	5	40
Demand	30	70	50	

15. (LCM) Fertilizer plants to warehouses — apply **Least Cost Method** and compute total cost.

	W_1	W_2	W_3	Supply
P_1	3	1	7	100
P_2	2	6	5	200
P_3	8	3	9	150
P_4	6	5	4	250
Demand	150	200	350	

16. (VAM) Small-integer case: use **Vogel's Approximation Method** and compute total cost.

	D_1	D_2	D_3	D_4	Supply
S_1	19	30	50	10	7
S_2	70	30	40	60	9
S_3	40	8	70	20	18
Demand	5	8	7	14	

17. (NWC) Balanced ▫ use **Northwest Corner Method** and compute cost:

	X	Y	Z	Supply
A	6	4	8	80
B	5	9	3	60
C	7	2	6	60
Demand	70	90	40	

18. (LCM) Solve with **Least Cost Method** and compute initial cost:

	C_1	C_2	C_3	C_4	Supply
S_1	3	5	9	2	60
S_2	4	1	8	7	80
S_3	6	2	5	3	60
Demand	50	40	60	50	

19. (VAM) Distribution to stores — find VAM initial solution and cost:

	$Store1$	$Store2$	$Store3$	Supply
$Depot1$	2	7	4	90
$Depot2$	5	1	3	60
$Depot3$	6	4	2	50
Demand	80	60	60	

20. (LCM) Final calculation problem: compute initial feasible solution via **Least Cost Method** and total cost.

	$D1$	$D2$	$D3$	$D4$	Supply
$S1$	11	5	9	6	100
$S2$	7	8	4	12	120
$S3$	3	6	10	2	80
Demand	90	70	60	80	