Hungarian Method

Cost Matrix

	1	2	3	4
A	20	25	22	28
B	15	18	23	17
C	19	17	21	24
D	25	23	24	24

1) Row Reduction — find minimum from each row and subtract from that row

0	5	2	8	Row min = 20
0	3	8	2	Row min = 15
2	0	4	7	Row min = 17
2	0	1	1	Row min = 23.

2) Column Reduction – find minimum from each column and subtract from that column (from Row Reduced Matrix)

0	5	1	7
0	3	7	1
2	0	3	6
2	0	0	0
Colm min 0	Colm min 0	Colm min 1	Colm min 1

3) Try to Cover Max no. of zeroes with min no. of lines

0	5	1	7
0	3	7	1
2	0	3	6
2	0	0	0

3 lines (must be 4 for 4x4)

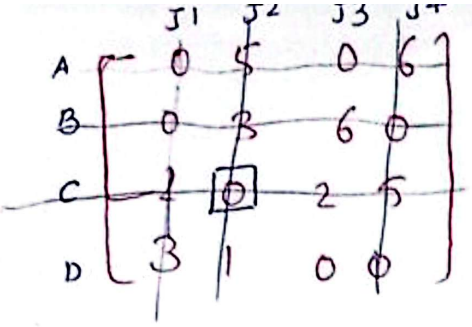
Note; If no. of lines not equal to n (nxm) do optimization else if no. of lines are equal to n (nxm) directly assign the Jobs from optimized matrix.

4) Determine the smallest entry not covered by any line.
- Subtract that from uncovered rows
- Add to the covered columns.

-1	4	0	6
-1	2	6	0
1	-1	2	5
2	0	0	0

0	5	0	6
0	3	6	0
2	0	2	5
3	1	0	0

Repeat 3
no. of lines = 4
optimal matrix.



C → J2 R3 and C2 excluded

A → J1 C1 and R1 excluded.

B → J4 C4 and R2 excluded.

D → J3

A1 + B4 + C2 + D3

Total Cost of Assignment. ⇒ 20 + 17 + 17 + 24 = 78