

AP4

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- Four mechanics are to be assigned four of the five available jobs such that the profit is maximized. The expected profit is given below. Find out which job must be declined.

	1	2	3	4	5
A	62	78	50	111	82
B	71	84	61	73	59
C	87	92	111	71	81
D	48	64	87	77	80

- ▶ Add a dummy mechanic

	1	2	3	4	5
A	62	78	50	111	82
B	71	84	61	73	59
C	87	92	111	71	81
D	48	64	87	77	80
E	0	0	0	0	0

- ▶ Convert it to a loss matrix, by subtracting each element from the maximum element in the matrix
- ▶ Then, it gets reduced to the usual assignment problem

	1	2	3	4	5
A	49	33	61	0	29
B	40	27	50	38	52
C	24	19	0	40	30
D	63	47	24	34	31
E	111	111	111	111	111

- ▶ Subtract the minimum of the row from that row

	1	2	3	4	5
A	49	33	61	0	29
B	13	0	23	11	25
C	24	19	0	40	30
D	39	23	0	10	7
E	0	0	0	0	0

- Draw minimum number of lines to cover all zeros

	1	2	3	4	5
A	49	33	61	0	29
B	13	0	23	11	25
C	24	19	0	40	30
D	39	23	0	10	7
E	0	0	0	0	0

- ▶ Subtract the minimum from the uncovered elements

	1	2	3	4	5
A	49	40	68	0	29
B	6	0	23	5	18
C	17	19	0	33	23
D	32	23	0	3	0
E	0	7	7	0	0

- Draw minimum lines to cover zeros

	1	2	3	4	5
A	49	40	68	0	29
B	6	0	23	5	18
C	17	19	0	33	23
D	32	23	0	3	0
E	0	7	7	0	0

- Make the assignments

	1	2	3	4	5
A	49	40	68	0	29
B	6	0	23	5	18
C	17	19	0	33	23
D	32	23	0	3	0
E	0	7	7	0	0