

AP2

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- Find an optimal assignment

	1	2	3	4	5
A	10	5	13	15	16
B	3	9	18	13	6
C	10	7	2	2	2
D	7	11	9	7	12
E	7	9	10	4	12

- Reduce the rows

	1	2	3	4	5
A	5	0	8	10	11
B	0	6	15	10	3
C	8	5	0	0	0
D	0	4	2	0	5
E	3	5	6	0	8

- ▶ Reduce the columns

	1	2	3	4	5
A	5	0	8	10	11
B	0	6	15	10	3
C	8	5	0	0	0
D	0	4	2	0	5
E	3	5	6	0	8

- Cover the zeros

	1	2	3	4	5
A	5	0	8	10	11
B	0	6	15	10	3
C	8	5	0	0	0
D	0	4	2	0	5
E	3	5	6	0	8

- ▶ Subtract minimum from all uncovered elements and add the minimum element to the intersections

	1	2	3	4	5
A	7	0	8	12	11
B	0	4	13	10	1
C	10	5	0	2	0
D	0	2	0	0	3
E	3	3	4	0	6

- Cover the zero elements

	1	2	3	4	5
A	7	0	8	12	11
B	0	4	13	10	1
C	10	5	0	2	0
D	0	2	0	0	3
E	3	3	4	0	6

- ▶ The number of lines to cover the zeros is same as the number of rows
- ▶ Hence, an optimal assignment can be made by selecting the zero elements

	1	2	3	4	5
A	7	0	8	12	11
B	0	4	13	10	1
C	10	5	0	2	0
D	0	2	0	0	3
E	3	3	4	0	6

which means Employee 2 does Job A, 1 is assigned B, 5 does C, 3 does D and 4 does E.

It has a total cost of $5 + 3 + 2 + 9 + 4 = 23$