

AP2

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- Find an optimal assignment

	T1	T2	T3	T4
P1	5	7	11	6
P2	8	5	9	6
P3	4	7	10	7
P4	10	4	8	3

- ▶ Find the minimum element of each row
- ▶ Subtract that minimum for from the respective row

	T1	T2	T3	T4
P1	0	2	6	1
P2	3	0	4	1
P3	0	3	6	3
P4	7	1	5	0

- ▶ Find the minimum element of each column
- ▶ Subtract that minimum for from the respective column

	T1	T2	T3	T4
P1	0	2	2	1
P2	3	0	0	1
P3	0	3	2	3
P4	7	1	1	0

- ▶ Draw a set of lines to cover all the zero values
- ▶ Do it with a minimum number of lines

	T1	T2	T3	T4
P1	0	2	2	1
P2	3	0	0	1
P3	0	3	2	3
P4	7	1	1	0

- ▶ Subtract the smallest number of the uncovered elements to each number
- ▶ Add the smallest element to the number at the intersection of the lines

	T1	T2	T3	T4
P1	0	1	1	0
P2	4	0	0	1
P3	0	2	1	2
P4	8	1	1	0

- Again find the minimum number of lines to cover all zeros

	T1	T2	T3	T4
P1	0	1	1	0
P2	4	0	0	1
P3	0	2	1	2
P4	8	1	1	0

- ▶ Subtract the minimum from the uncovered elements

	T1	T2	T3	T4
P1	0	0	0	0
P2	5	0	0	2
P3	0	1	0	2
P4	8	0	0	0

- ▶ Now, we find that the minimum number of lines required to cover the zeros is equal to the number of rows
- ▶ Hence, an optimal assignment can be made now

	T1	T2	T3	T4
P1	0	0	0	0
P2	5	0	0	2
P3	0	1	0	2
P4	8	0	0	0

- ▶ Assign the task that has 0 as its entry
- ▶ Exactly one task must be assigned to one process
- ▶ There can be multiple ways to assign, but the total cost will be the same (23 for this problem)

	T1	T2	T3	T4
P1	0	0	0	0
P2	5	0	0	2
P3	0	1	0	2
P4	8	0	0	0