AP3

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- Four trucks are to be parked in four vacant spaces. The distances to be moved to park in those spaces are given in the table. Assign the trucks to spaces so that the total distance moved is minimized.

	1	2	3	4
A	4	7	3	7
B	8	2	5	5
C	4	9	6	9
D	7	5	4	8
E	6	3	5	4
F	6	8	7	3

- The given problem is unbalanced since the number of tasks and machines are unequal
- So we add some dummy columns with zero cost

	1	2	3	4	5	6
A	4	7	3	7	0	0
B	8	2	5	5	0	0
C	4	9	6	9	0	0
D	7	5	4	8	0	0
E	6	3	5	4	0	0
F	6	8	7	3	0	0

- Subtract the minimum from each column and write the result

	1	2	3	4	5	6
A	0	5	0	4	0	0
B	4	0	2	2	0	0
C	0	7	3	6	0	0
D	3	3	1	5	0	0
E	2	1	2	1	0	0
F	2	6	4	0	0	0

- Strike out the zero elements
- Number of lines drawn is equal to the number of rows
- Hence, an optimal assignment can be made

	1	2	3	4	5	6
A	~~0~~	~~5~~	~~0~~	~~4~~	~~0~~	~~0~~
B	~~4~~	~~0~~	~~2~~	~~2~~	~~0~~	~~0~~
C	~~0~~	~~7~~	~~3~~	~~6~~	~~0~~	~~0~~
D	3	3	1	5	0	0
E	2	1	2	1	0	0
F	~~2~~	~~6~~	~~4~~	~~0~~	~~0~~	~~0~~

- Select the zero elements such that each truck receives one parking space

	1	2	3	4	5	6
A	0	5	[0]	4	0	0
B	4	[0]	2	2	0	0
C	[0]	7	3	6	0	0
D	3	3	1	5	0	[0]
E	2	1	2	1	[0]	0
F	2	6	4	[0]	0	0