

6/26. ~~May~~ Job Sequencing Sums.

Dec 2020, Dec 2024, Dec 2023

23) Solve the Sequencing of 4 Jobs & 6 machines.

		M ₁	M ₂	M ₃	M ₄	M ₅	M ₆
Jobs	A	19	8	8	3	11	24
	B	18	6	9	6	9	18
	C	12	5	8	5	7	15
	D	20	5	3	4	8	11

Sol

Jobs	A	B	C	D
M ₁ (machine 1)	19	18	12	20
M ₂ (machine 2)	8	6	5	5
M ₃ (machine 3)	8	9	8	3
M ₄ (machine 4)	3	6	5	4
M ₅ (machine 5)	11	9	7	8
M ₆ (machine 6)	24	18	15	11

Let's check $M_1(\min) \geq M_2(\max)$

$$12 > 8$$

$$M_1 \geq M_2$$

$$M_3 \leq M_2$$

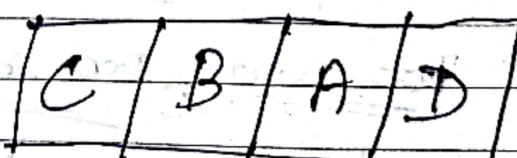
John's Condition is satisfied.

Let $G = M_1 + M_2 + M_3 + M_4 + M_5$ &

$H = M_2 + M_3 + M_4 + M_5 + M_6$

Jobs	A	B	C	D
G	49	48	37	40
H	54	48	40	31

Jobs Sequencing



[illegible]

Total time elapsed = 114 hrs.

Total time for $M_1 = 114 - 69 = 45$ hrs.

Total time for $M_2 = 12 + 13 + 13 + 12 + (114 - 74)$
 $= 12 + 13 + 13 + 12 + 40$

$M_2 = 90$ hrs.

Total time for $M_3 = 17 + 11 + 12 + 9 + (114 - 77)$
 $= 17 + 11 + 12 + 9 + 37$

$M_3 = 86$ hrs

Total time for $M_4 = 25 + 15 + 14 + 9 + (114 - 81)$
 $= 25 + 15 + 14 + 9 + 33$

$M_4 = 96$ hrs

Total time for $M_5 = 30 + 14 + 8 + 2 + (114 - 89)$
 $= 30 + 14 + 8 + 2 + 25$

$M_5 = 79$ hrs.

Total time for $M_6 = 37 + 8 + 1$

$M_6 = 46$ hrs.

X

Dec 2021

22) Solve the Sequencing problem.

Jobs	M_1	M_2	M_3	M_4
A	13	8	7	14
B	12	6	8	19
C	9	7	8	15
D	8	5	6	15

Sol

Jobs	A	B	C	D
M_1	13	12	9	8
M_2	8	6	7	5
M_3	7	8	8	6
M_4	14	19	15	15

$$\min M_1 \geq \max M_2 \quad (\text{check condition 1})$$

$$8 = 8$$

$\therefore$ John's Condition is satisfied.

$$\text{Let } G = M_1 + M_2 + M_3, \quad H = M_2 + M_3 + M_4$$

Jobs	A	B	C	D
G	28	26	24	19
H	29	33	30	26

Jobs Sequencing

D	C	B	A
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Jobs	M ₁		M ₂		M ₃		M ₄	
	In	Out	In	Out	In	Out	In	Out
D	0	8	8	13	13	19	19	34
	+8		+5		+6		+15	
C	8	17	17	24	24	32	34	49
	+9		+7		+8		+15	
B	17	29	29	35	35	43	49	68
	+12		+6		+8		+19	
A	29	42	42	50	50	57	68	82
	+13		+8		+7		+14	

Total time Elapsed = 82 hrs.

Idle time for M₁ = $82 - 42 = 40$ hrs.

Idle time for M₂ = $8 + 4 + 5 + 7 + (82 - 50)$
 $= 8 + 4 + 5 + 7 + 32$

M₂ = 56 hrs. ∴

Idle time for M₃ = $13 + 5 + 3 + \cancel{13} + (82 - 57)$
 $= 13 + 5 + 3 + \cancel{13} + 25$

M₃ = ~~53~~ 53 hrs.

Idle time for M₄ = 19 hrs.