Problem 15-45

Using the following data on the five claims:

Job	Processing Time	Due Date (D_i)
1	25	36
2	29	41
3	19	28
4	24	40
5	20	31

The SPT sequence would be $3 \to 5 \to 4 \to 1 \to 2$. Using the excel template, we get:

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		Average Flowtime	Average Lateness	Average Tardiness	Number of Tardy Jobs	Maximum Tardiness
Number of Jobs	5	65.20	30.00	31.80	4	76.00

Job	Processing Time	Due Date	Sequence	Processing Time	Due Date	Flowtime	Lateness	Tardiness
1	25	36	3	19	28	19	-9	0
2	29	41	5	20	31	39	8	8
3	19	28	4	24	40	63	23	23
4	24	40	1	25	36	88	52	52
5	20	31	2	29	41	117	76	76
6								
7								
8								
9								
10								

The EDD sequence would be $3 \to 5 \to 1 \to 4 \to 2$.

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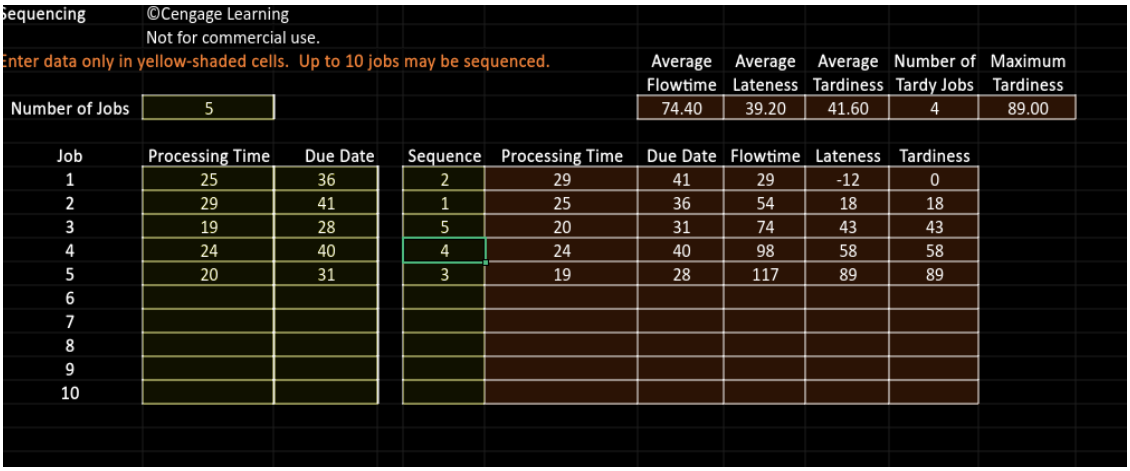
		Average Flowtime	Average Lateness	Average Tardiness	Number of Tardy Jobs	Maximum Tardiness
Number of Jobs	5	65.40	30.20	32.00	4	76.00

Job	Processing Time	Due Date	Sequence	Processing Time	Due Date	Flowtime	Lateness	Tardiness
1	25	36	3	19	28	19	-9	0
2	29	41	5	20	31	39	8	8
3	19	28	1	25	36	64	28	28
4	24	40	4	24	40	88	48	48
5	20	31	2	29	41	117	76	76
6								
7								
8								
9								
10								

Lastly, using the sequence $2 \to 1 \to 5 \to 4 \to 3$.



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Number of Jobs	5

Average Flowtime	Average Lateness	Average Tardiness	Number of Tardy Jobs	Maximum Tardiness
74.40	39.20	41.60	4	89.00

Job	Processing Time	Due Date
1	25	36
2	29	41
3	19	28
4	24	40
5	20	31
6		
7		
8		
9		
10		

Sequence	Processing Time	Due Date	Flowtime	Lateness	Tardiness
2	29	41	29	-12	0
1	25	36	54	18	18
5	20	31	74	43	43
4	24	40	98	58	58
3	19	28	117	89	89

From this, we can conclude that the SPT sequence is recommended as it minimizes average flow time and number of jobs in system.