END3032 – SYSTEMS SIMULATION

Laboratory Practice #3

The Furniture Factory Problem

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Problem Definition

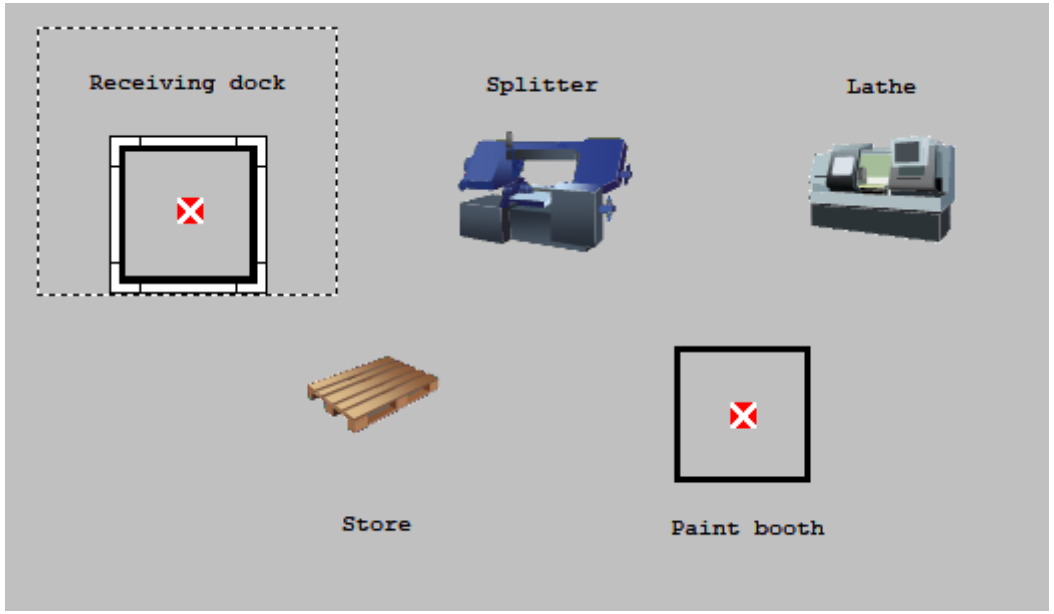
- Wooden logs are received at the receiving dock of the furniture factory at the rate of 1 every 10 minutes.
- Logs go to the splitter, where three pieces are made from each log. The splitting time is normally distributed with a mean of 4 minutes and a standard deviation of 1 minute.
- Individual pieces go to the lathe, where they are turned for another Triangular (3, 6, 9) minutes and made into rounds.
- The rounds go on to a paint booth, where they are converted into painted logs. Painting takes 5 minutes according to an exponential distribution.
- Painted logs go to the store.
- Consider a material handling time of 1 minute between each process.
- Make a simulation model and run the simulation for 1000 hours.

Implementation on ProModel

- Define the locations

Locations

Icon	Name	Cap.	Units	DTs...	Stats	Rules...
	Receiving_dock	INF	1	None	Time Series	Oldest
	Splitter	1	1	None	Time Series	Oldest
	Lathe	1	1	None	Time Series	Oldest
	Paint_booth	1	1	None	Time Series	Oldest
	Store	1	1	None	Time Series	Oldest



Implementation on ProModel

- Define the entities

Entities

Icon	Name	Speed (fpm)	Stats
	Logs	150	Time Series
	Piece	150	Time Series
	Rounds	150	Time Series
	Painted_log	150	Time Series

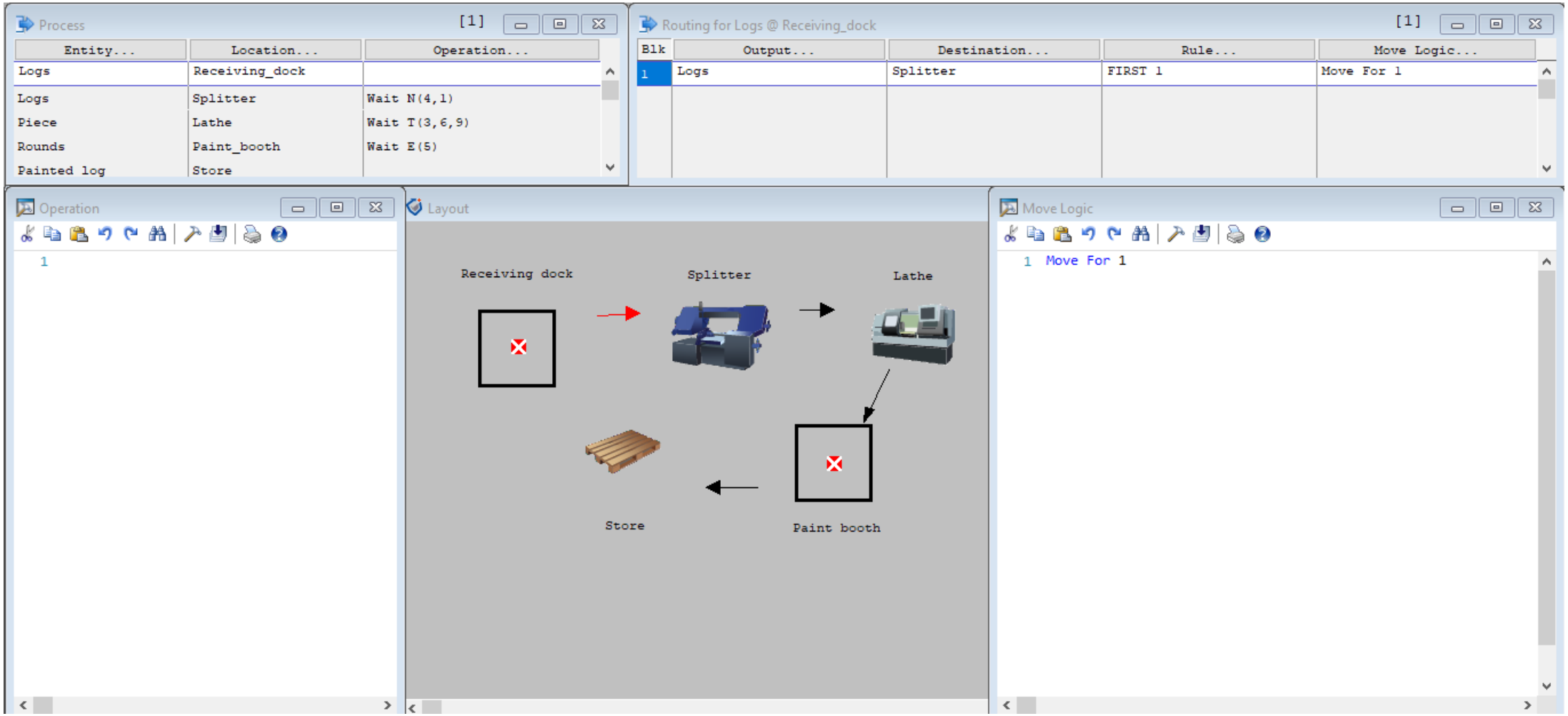
- Set entity arrivals

Arrivals

Entity...	Location...	Qty Each...	First Time...	Occurrences	Frequency
Logs	Receiving_dock	1	0	INF	10

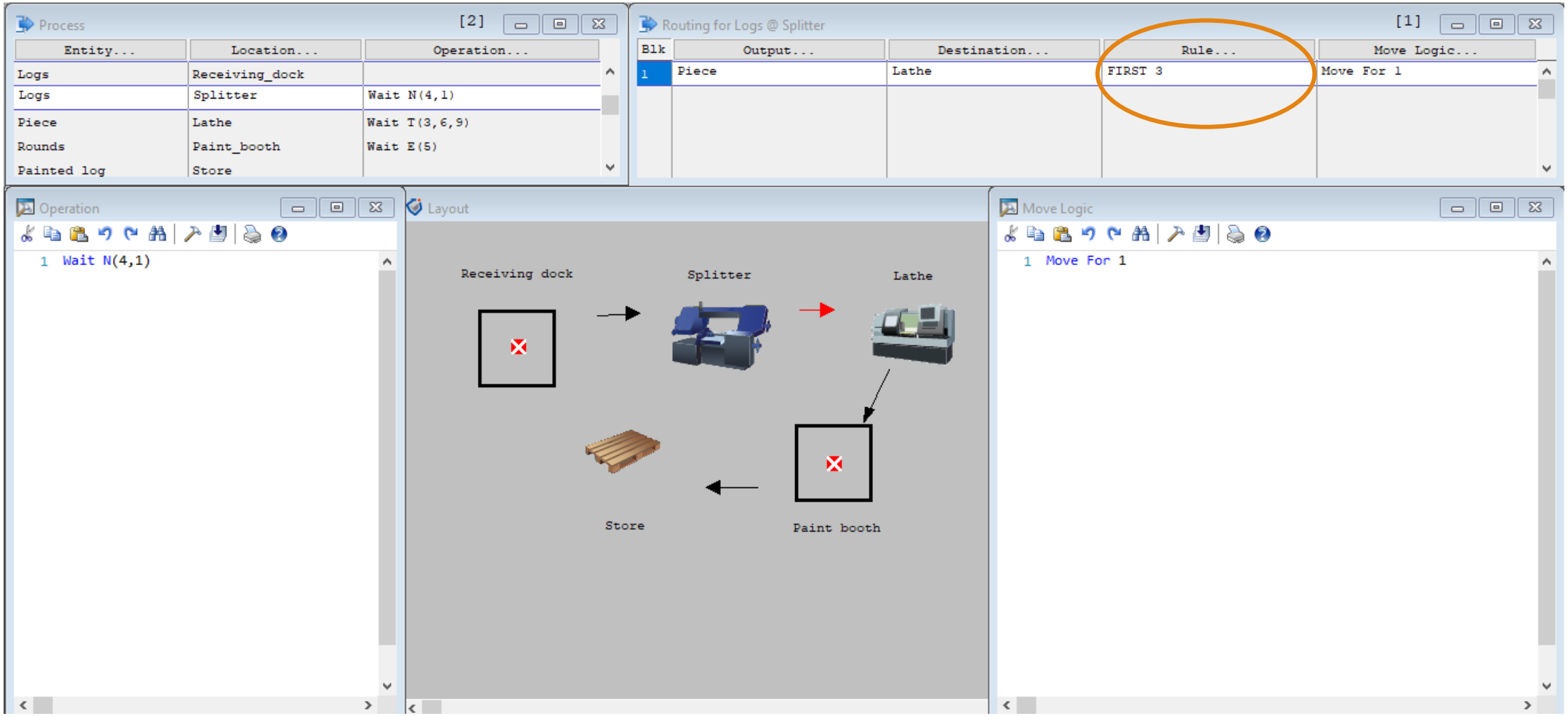
Implementation on ProModel

- Processing: Receiving dock → Splitter



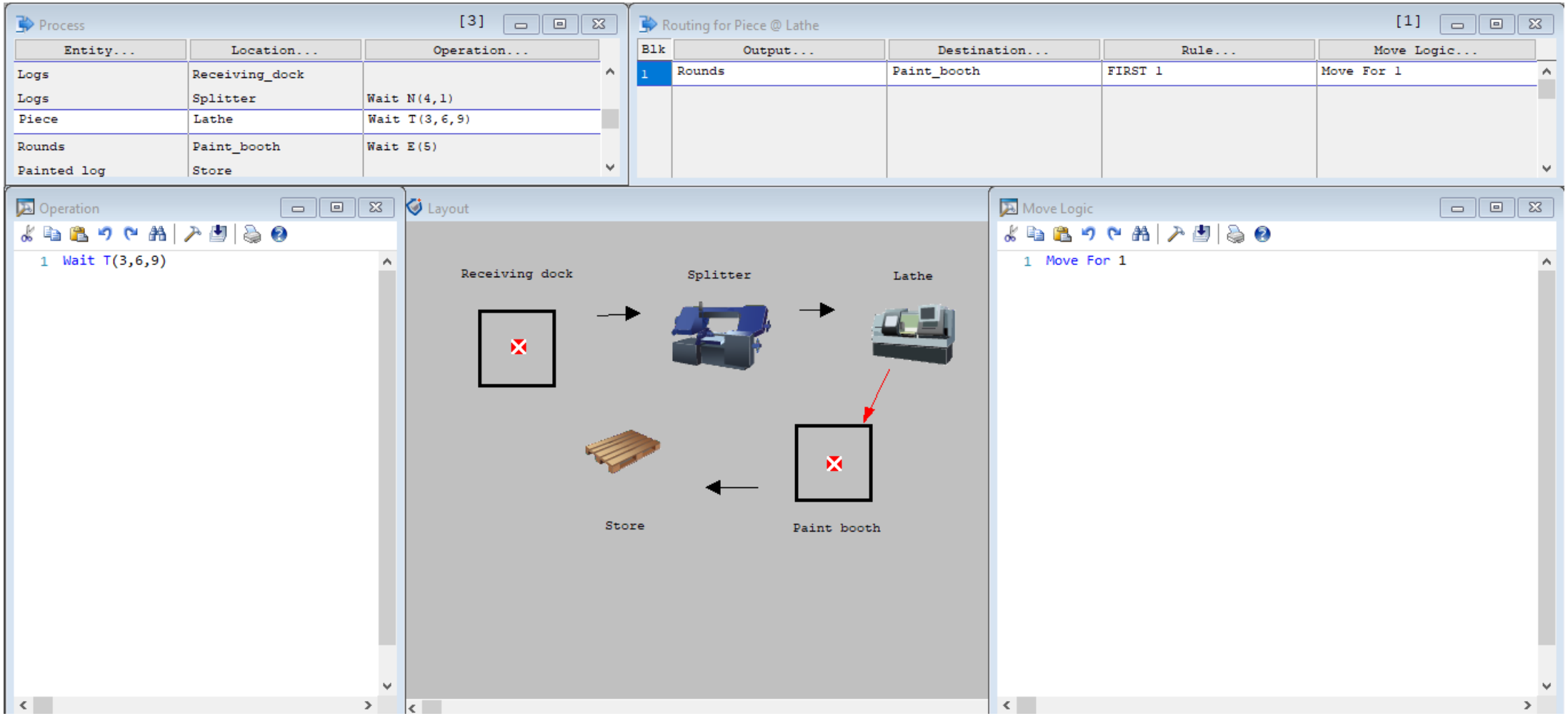
Implementation on ProModel

- Processing: Splitter→Lathe



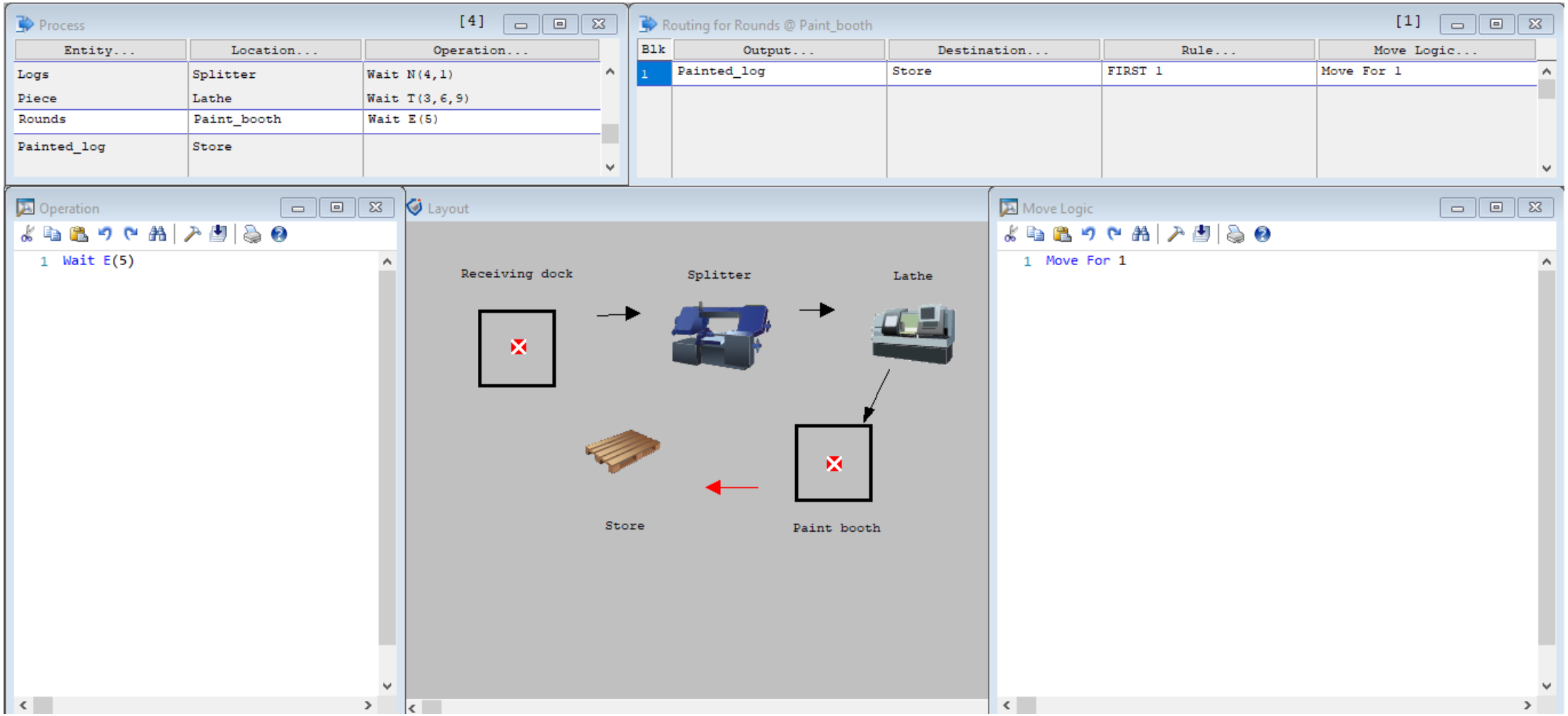
Implementation on ProModel

- Processing: Lathe → Paint booth



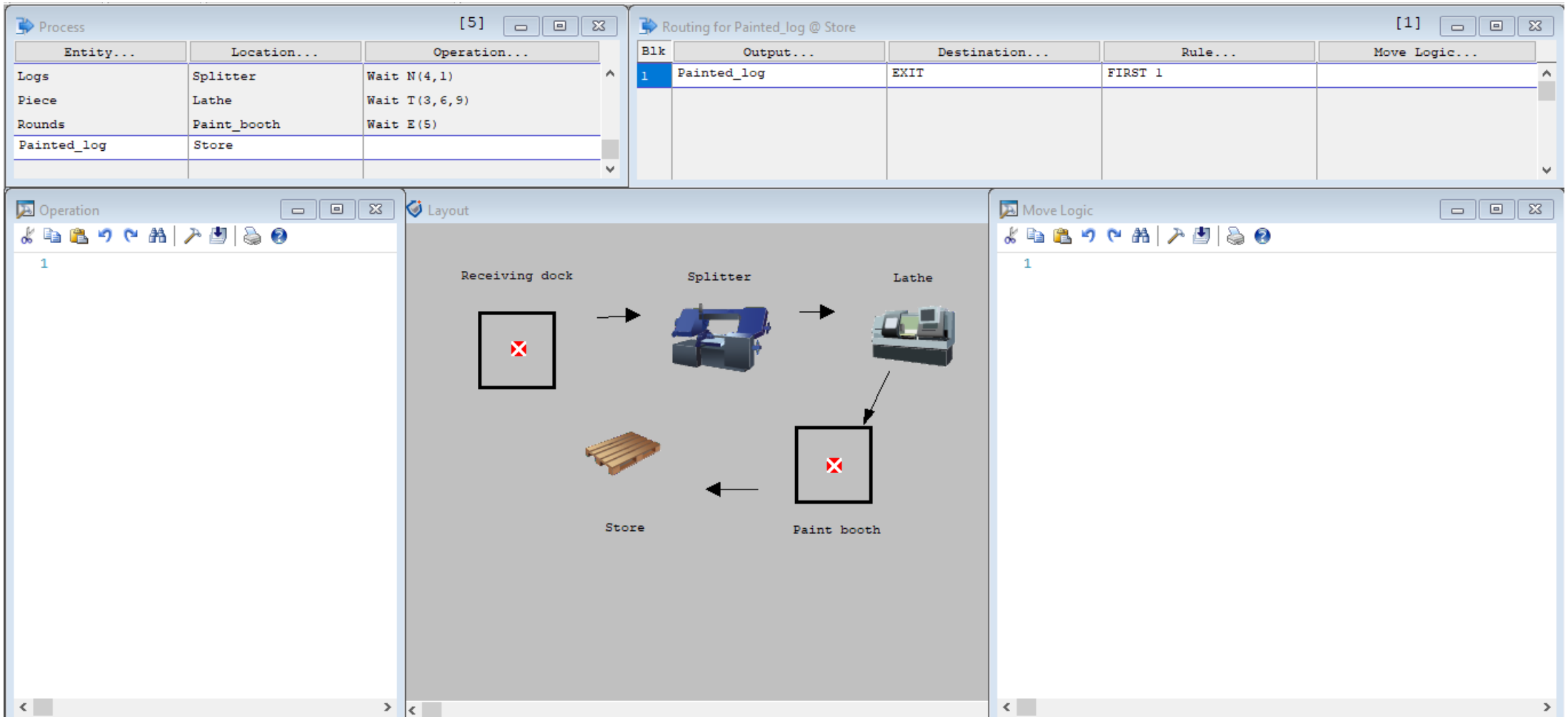
Implementation on ProModel

- Processing: Paint booth → Store



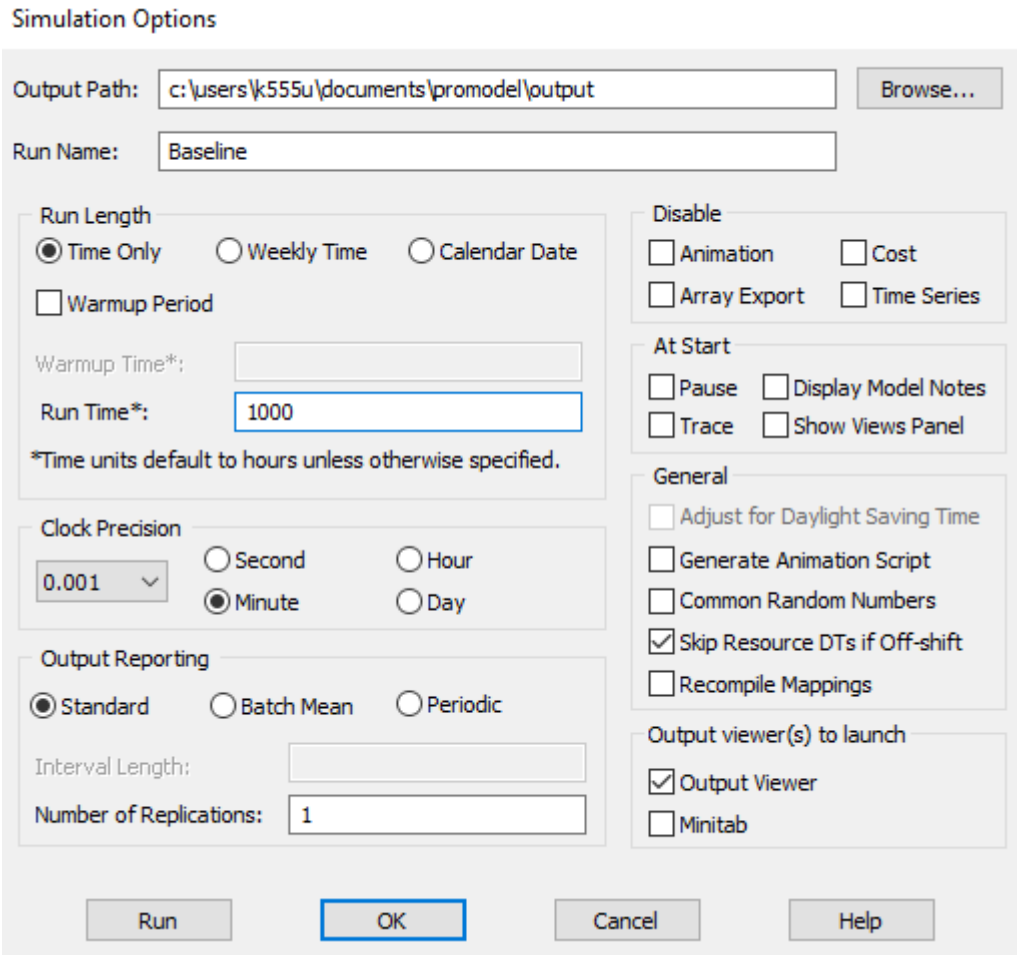
Implementation on ProModel

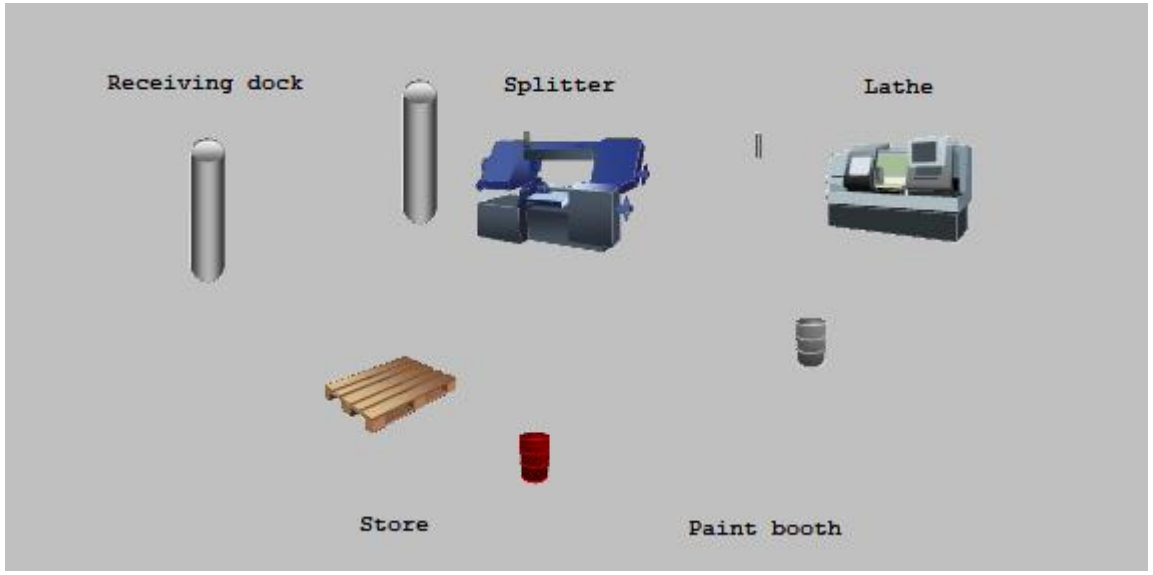
- Processing: Store →Exit



Implementation on ProModel

- Run the simulation for 1000 hours and get the results





Thanks!...

Questions?

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