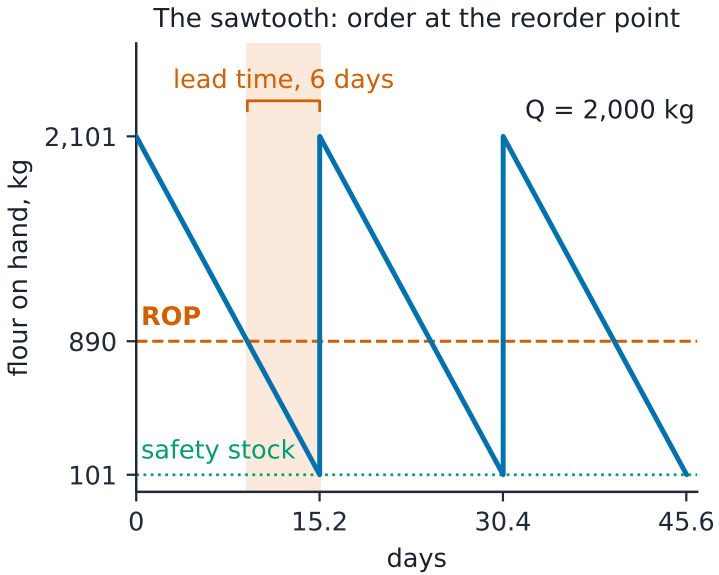
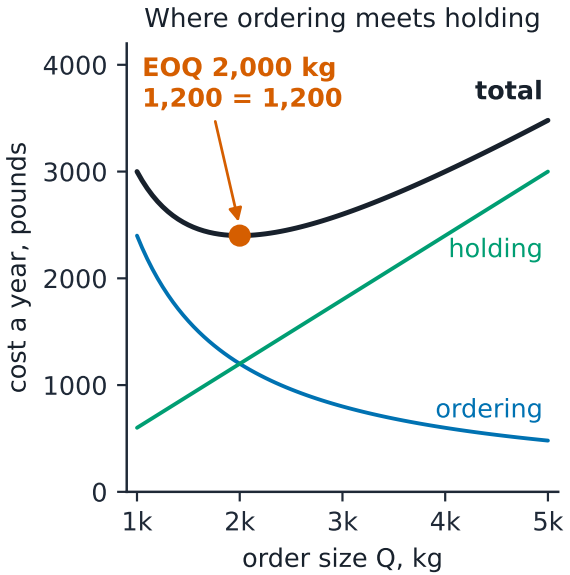
Exercise walk-through

10.1
Processes and capacity

University Business

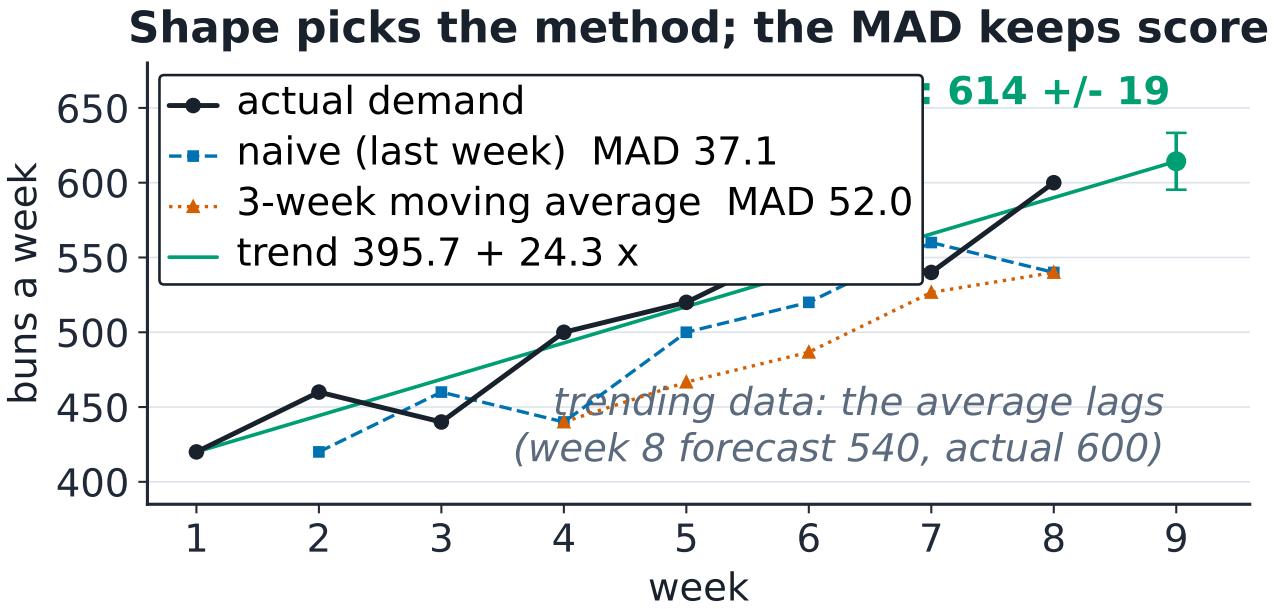
Inventory: where ordering meets holding





EOQ 2,000 kg; reorder at 890 with 101 kg of **safety stock**.

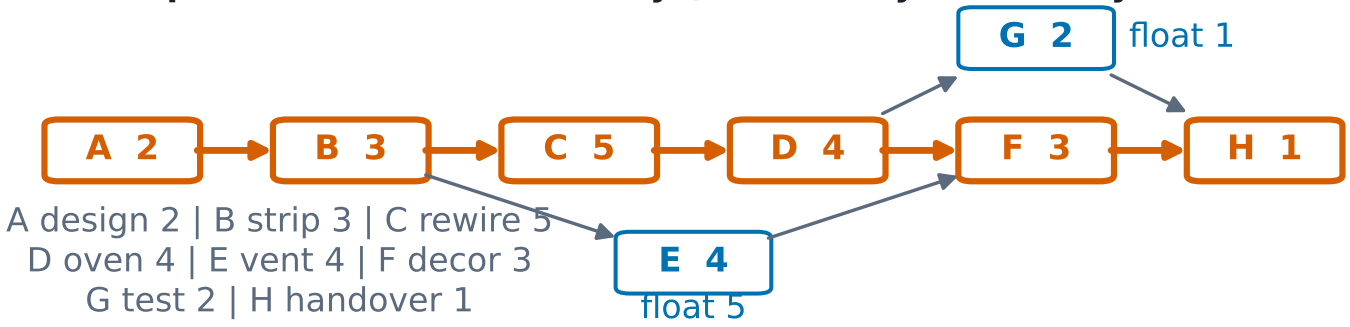
Forecasting: shape picks the method



The trend line beats the averages: week 9 forecast 614 +/- 19.

Project management: the critical path is the project

Critical path A-B-C-D-F-H = 18 days; crash C by 2 and D by 1 to reach 15





Critical path 18 days; at day 10, CPI 0.824 and EAC 72,800.

Exercises 2.1·2.2

2.1 A pastry line: roll 10 min (1 table), fill 16 min (2 slots), bake 24 min (2 batches), cool 30 min (4 racks). Capacity of each station, the bottleneck, and the cycle time. [4]

2.2 Demand is 4 batches an hour. Utilisation of each station. [4]

Exercises 2.1·2.2

2.1 A pastry line: roll 10 min (1 table), fill 16 min (2 slots), bake 24 min (2 batches), cool 30 min (4 racks). Capacity of each station, the bottleneck, and the cycle time. [4]

2.1

- Roll $60/10 = 6.0$; fill $60 \times 2/16 = 7.5$; bake $60 \times 2/24 = 5.0$; cool $60 \times 4/30 = 8.0$ batches an hour.
- Bottleneck bake at 5.0; cycle time $60/5 = 12$ min.

2.2 Demand is 4 batches an hour. Utilisation of each station. [4]

2.2

- Roll $4/6 = 66.7\%$; fill $4/7.5 = 53.3\%$.
- Bake $4/5 = 80\%$; cool $4/8 = 50\%$.

Exercises 2.3·2.4

2.3 Flow time through the four stations, and the work in progress at 4 batches an hour by Little’s law. [3]

2.4 A second oven is bought. Where is the bottleneck now, how much does the line gain per hour, and in pastries at 90 a batch? [4]

Exercises 2.3·2.4

2.3 Flow time through the four stations, and the work in progress at 4 batches an hour by Little's law. [3]

2.3

- Flow time $10 + 16 + 24 + 30 = 80$ min $= 1.33$ h.
- $WIP = 4 \times 1.33 = 5.3$ batches.

2.4 A second oven is bought. Where is the bottleneck now, how much does the line gain per hour, and in pastries at 90 a batch? [4]

2.4

- Bake becomes $60 \times 4/24 = 10$; the bottleneck moves to roll at 6.0.
- Gain $6.0 - 5.0 = 1.0$ batch an hour $= 90$ pastries an hour - not the doubling the oven's price suggests.

exercises.lol exercises.com.cn