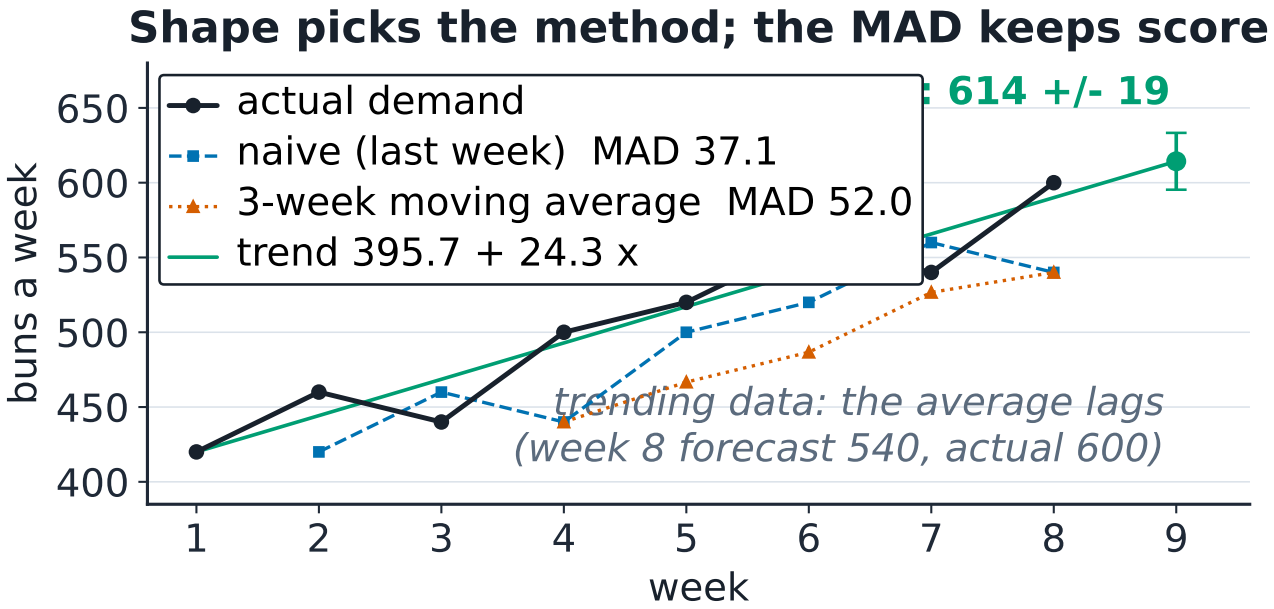
Exercise walk-through

10.4 Forecasting

University Business

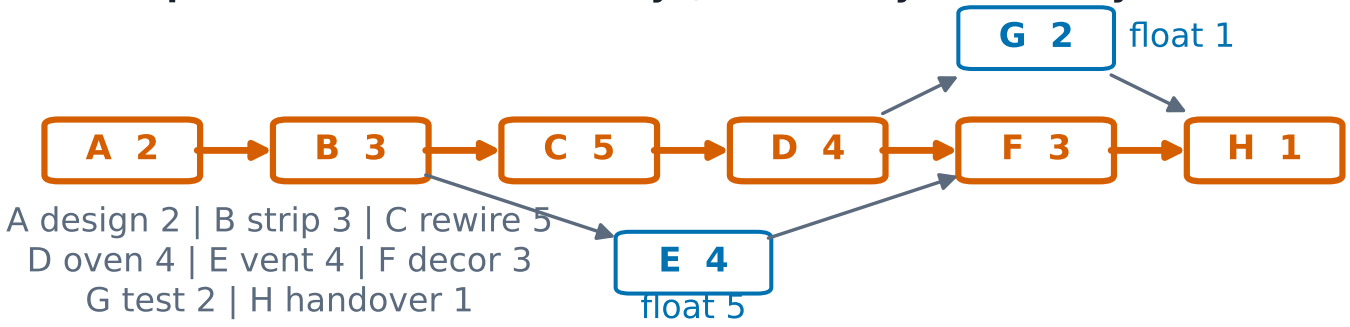
Forecasting: shape picks the method



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

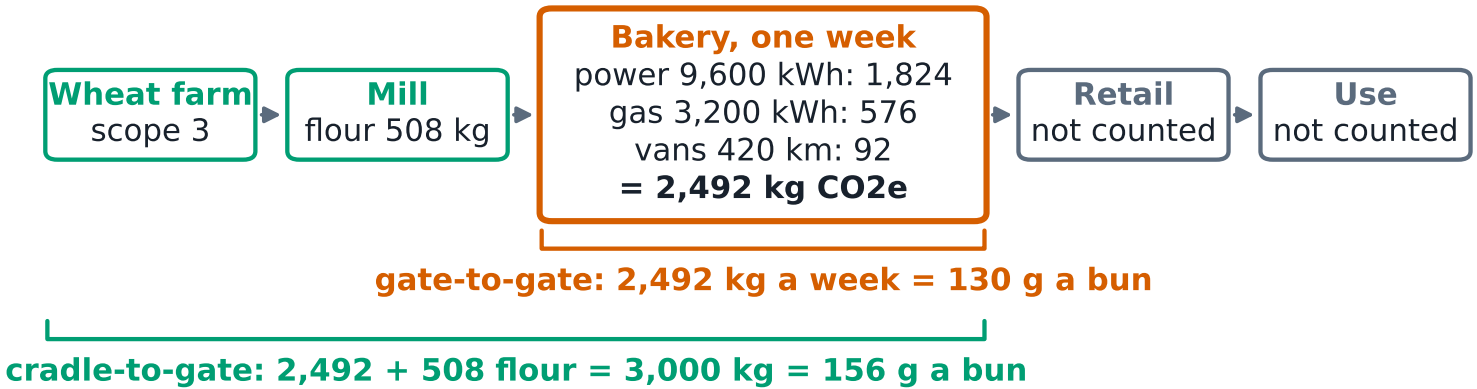




Critical path 18 days; at day 10, CPI 0.824 and EAC 72,800.

Sustainability in operations: the boundary is the claim

Same bun, two footprints: the boundary is the claim



renewable tariff at 0.06 kg/kWh cuts electricity 1,824 to 576: the site week halves to 1,244; the flour does not move

2,492 kg a week gate-to-gate; 3,000 kg with the flour counted.

Exercises 2.1·2.3

2.1 Naive forecasts for weeks 2-6, the errors and the MAD. [3]

2.2 Three-week moving averages for weeks 4-6, the errors and the MAD. [4]

2.3 Exponential smoothing, $\alpha = 0.5$, seed 300: forecasts for weeks 2-7 and the MAD over weeks 2-6. [4]

Exercises 2.1·2.3

2.1 Naive forecasts for weeks 2-6, the errors and the MAD. [3]

2.1

- Forecasts 300, 330, 320, 360, 350; errors 30, -10, 40, -10, 40.
- $MAD = 130/5 = 26.0$.

2.2 Three-week moving averages for weeks 4-6, the errors and the MAD. [4]

2.2

- 316.7, 336.7, 343.3 against 360, 350, 390.
- Errors 43.3, 13.3, 46.7; $MAD = 103.3/3 = 34.4$.

2.3 Exponential smoothing, $\alpha = 0.5$, seed 300: forecasts for weeks 2-7 and the MAD over weeks 2-6. [4]

2.3

- 300, 315, 317.5, 338.75, 344.4; week 7: 367.2.
- Errors 30, 5, 42.5, 11.25, 45.6; $MAD = 26.9$.

exercises.lol exercises.com.cn

Exercise 2.4

2.4 The least-squares trend (slope to two decimals) and its week-7 forecast. Which method would you quote, and why? [4]

Exercise 2.4

2.4 The least-squares trend (slope to two decimals) and its week-7 forecast. Which method would you quote, and why? [4]

2.4

- $\hat{y} = 286.7 + 15.71x$; week $7 = 396.7$.
- The series trends about 16 a week; the average (34.4) and smoothing (26.9) lag it - quote the trend, with the naive MAD 26 as the band.