



Quiz

Forecasting, Measuring Forecast Accuracy, and Monitoring Forecasts

Problem 1. (*From Schroeder modified*) In the Atlanta area, the number of daily calls for repair of Speedy copy machines has been recorded as follows:

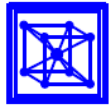
- Prepare a three period moving average forecast for the data.
- Prepare a three-period weighted-moving-average forecast using weights of $w_1 = 0.5$, $w_2 = 0.3$ and $w_3 = 0.2$.
- Which of these two forecasts is better using MAD?

October	Calls
1	132
2	170
3	95
4	110
5	120
6	135
7	190
8	95

Problem 2. Using the data in Problem 1, prepare exponentially smoothed forecasts for the following cases:

- Alpha = 0.1 and initial forecast = 130
- Alpha = 0.3 and initial forecast = 130
- Which of these two forecasts is better using MAPE?

October	Calls
1	132
2	170
3	95
4	110
5	120
6	135
7	190
8	95



Problem 3. A furniture manufacturer wants to predict quarterly demand for a product for periods 15 and 16. The series consists of both trend and seasonality. The trend portion of demand is projected using equation $F_t = 124 + 7.5t$. Quarter relatives are $Q1 = 1.20$, $Q2 = 1.10$, $Q3 = 0.75$ and $Q4 = 0.95$.

- Interpret quarter relative, $Q3 = 0.75$.
- Forecast demands for periods 15 and 16.

Problem 4. Given the demand data that follow

- Prepare a naïve forecast for periods 2 to 10.
- Determine each forecast error, and use those values to obtain $2s$ control limits.
- If the demand in the next two periods turns out to be 125 and 130, can you conclude that the forecasts are in control?

Period	Demand
1	118
2	117
3	120
4	119
5	126
6	122
7	117
8	123
9	121
10	124