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:

a. Prepare a three period moving average forecast for the data.
b. Prepare a three-period weighted-moving-average forecast using weights of w_1 = 0.5, w_2= 0.3 and w_3=0.2.
c. 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:

a. Alpha = 0.1 and initial forecast = 130
b. Alpha = 0.3 and initial forecast = 130
c. 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

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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.

a. Interpret quarter relative, Q3 = 0.75.

b. Forecast demands for periods 15 and 16.

Problem 4. Given the demand data that follow

a. Prepare a naïve forecast for periods 2 to 10.
b. Determine each forecast error, and use those values to obtain **2s** control limits.
c. 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