Chapter 8

16-2. Provide an example of a business decision that requires (1) a short-term forecast, (2) a medium-term forecast, and (3) a long-term forecast.

16-25. Examine the following quarterly data:

t	1	2	3	4	5	6	7	8	9	10	11	12
y_t	2	12	23	20	18	32	48	41	35	52	79	63

a. Compute the four-period moving averages for this set of data.
b. Compute the centered moving averages from the moving averages of part a.
c. Compute the ratio-to-moving-averages values.
d. Calculate the seasonal indexes. Normalize them if necessary.
e. Deseasonalize the time series.
f. Produce the trend line using the deseasonalized data.
g. Produce seasonally adjusted forecasts for each of the time periods 13, 14, 15, and 16.

16-34. The following table represents two years of data:

Year 1		Year 2	
1st quarter	242	1st quarter	272
2nd quarter	252	2nd quarter	267
3rd quarter	257	3rd quarter	276
4th quarter	267	4th quarter	281

a. Prepare a single exponential smoothing forecast for the first quarter of year 3 using an alpha value of 0.10. Let the initial forecast value for quarter 1 of year 1 be 250.
b. Prepare a single exponential smoothing forecast for the first quarter of year 3 using an alpha value of 0.25. Let the initial forecast value for quarter 1 of year 1 be 250.
c. Calculate the MAD value for the forecasts you generated in parts a and b. Which alpha value provides the smaller MAD value at the end of the 4th quarter in year 2?