Forecasting Problems

Please be prepared to present and explain your findings to me at our next conversation.   The data below is what you will need to begin.

193	39.121	15362	33000	204	0.95
247	83.513	14388	45000	193	0.98
247	92.53	12183	51000	247	1
338	97.115	6441	59000	247	1.02
399	103.402	9832	56000	338	1.03
406	103.852	11435	57000	399	0.99
405	102.507	11247	53000	406	0.94
417	102.044	11330	28000	405	1.05
395	123.239	8663	36000	417	1.03
412	130.689	7551	63000	395	0.91
363	133.503	10852	41000	412	0.99
428	139.993	13103	36000	363	1.02
420	144.851	13918	37000	428	1.03
317	155.016			420	0.98
360	178.458			317	0.97
297	204.171			360	0.99
				297	1.05

1. "I have asked our accounting department to record the gross sales in (000) square meters of our SuperWrap line for the last 16 quarters.

Here are the numbers in the first column. I am confident that these figures represent our short term potential. What I want is a graph and forecast for the next two quarters. Use a TSA trend (linear regression) analysis from Excel Chart. I want to know how much variance (R-square) is accounted for and the formula for the forecast. I don't care about other methods. Just use 'Add Trend line' in Chart and use linear regression."

2. "It may be that the trend line forecast you develop for the data in the first column is not the best approach. We may find a better "fit" for this Time Series data with another model. Select and try all of the forecasting alternatives in Excel Chart 'Add Trend Line' and tell me which you would recommend as the best fit (largest R-Square). And give me any thoughts you have on the data or the forecasts."

3. "The second column of numbers from accounting represents average sales for the PREVIOUS 16 quarters (prior to the first column). I want you to suppose we are at the end of that period and trying to forecast for the next 4 quarters. Use the same Excel Chart techniques as before, selecting the best fit forecast

tool, and give me your projections for the following four quarters, the confidence you would have had in the forecasts (based on fit) and any observations arising from this analysis.

4. "The third column is 13 years of historical data measuring total industry demand (sales in $millions) as reported by a Chinese Trade Association. Chart the data and take a look at whatever forecasting methods make sense and tell me what I need to know."

5. "The fourth column is our expenditure on petrolatum and bitumen for the last 13 months. Since this is a large part of our COGS, please use _any_ methods or resources you think are appropriate to give us a sense of what we can expect over the next 24 months."

6. "Using Excel-Tools-Data Analysis-Moving Averages on Column 5, please generate a two period (interval) and three period moving averages forecast for the data set and for the next period. Then use Exponential Smoothing from Data Analysis (damping factor of .25) to forecast for the data set and for the next period."

7. "We were wondering if there might be some correlation between columns three and four. Please use Data Analysis to calculate that correlation.

8. "Column 6 is the government measure of executive confidence for each of the past 16 quarters. We were wondering if executive confidence (X) might be a decent predictor of average sales per square foot for the next period (Y+1). Can you run a simple regression analysis using Excel Data Analysis and tell us if this might be a good predictor? Please do the same for Y+2 (that is where the confidence index is used to predict sales for two periods ahead).

Just have these ready to discuss with me during our next call.