|  |  |
| --- | --- |
| Week(t) | Sales(t) |
| 1 | 17 |
| 2 | 21 |
| 3 | 19 |
| 4 | 23 |
| 5 | 18 |
| 6 | 16 |
| 7 | 20 |
| 8 | 18 |
| 9 | 22 |
| 10 | 20 |
| 11 | 15 |
| 12 | 22 |
|  |  |

Help is needed with Questions 2 through 4

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Question 1 is already completed. See attached Excel file.\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1. Use ordinary least squares for forecasting. Generate the regression equations: sales(t) = a +bt by using the data analysis add-in in Excel. You will generate values for a and b such that the sum of squared errors is a minimum. That is, the sum from t=1,…..12 of (sales(t)-sales(t))^2 is a minimum. The least squares formula that is used is derived from differential calculus and the a,b found are such that the sum of squared errors can be no smaller with any other values for a and b.

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1. Find values for a and b for the same time series such that you minimize the sum from t=1,…..12 of |sales(t)-sales(t)|. To do this you must formulate a linear program. Thus **you may not use the “abs” function in Excel**. Create/solve the model in Excel and also write down the linear program in algebraic form.
2. Find values for a and b for the same time series such that you minimize the maximum (overall t=1,…..12) |sales(t) – sales(t)|. To do this you must formulate a linear program. Thus **you may not use the “abs” function in Excel**. Create/solve the model in Excel and also write down the linear program in algebraic form.
3. Comment on the use of these three different objectives in questions 1,2, and 3 and why a company might use each of the three objectives.