Exploration 12A: Learning and Production at Presario

The data from C12 Learning.xls is taken from the Presario Company. This company manufactures small industrial products. The data show the length of time it took Presario to produce different batches of a new product for a customer. Clearly, the times tend to decrease as Presario gains experience with the production of this item. This indicates that the relationship between the time to complete a batch and the number of the batch is not a linear. We are going to explore this relationship.

1. First construct new variables for the logarithm of the batch number and the logarithm of the time to complete a batch.

2. Create the following scatterplots:

|  |  |
| --- | --- |
| **Dependent Variable** | **Independent Variable** |
| Time | Batch |
| Log(Time) | Batch |
| Time | Log(Batch) |
| Log(Time) | Log(Batch) |

Which of these graphs represents the most linear relationship? On what criterion (or criteria) are you judging this?

3. For each combination of variables, construct the regression model and determine the summary measures. Notice that for two of these models, the regression output will produce incorrect values for the summary measures. Which of these models is the best based on the summary measures? How does this compare with your choice of best model from the graphical approach in part (2)?