

***Directions:***

**ACTIVITY: Demand Forecasting Worksheet**

Complete the following problems. **Assignment is worth 30 points.**

1. In January, a car dealer predicted February demand for 142 Ford Mustangs. Actual February demand was 153 autos. Using a smoothing constant chosen by management of α = .20, the dealer wants to forecast March demand using the exponential smoothing model.
   1. If the smoothing constant is changed to .30, what is the new forecast?
2. Vinod Malhotra is trying to decide how many wait staff he will need to support his restaurant operations for the next month. First, he needs to identify a suitable forecasting model to estimate next month’s demand. He is considering three alternative models. Calculate next month’s demand for all 3 models.

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| Month | Actual Demand |
| January | 2630 |
| February | 2264 |
| March | 2736 |
| April | 2503 |

1. Model 1: Four-month moving average
2. Model 2: Four-month weighted moving average with weights = .1, .2, .3, and .4
3. Model 3: Exponential smoothing with α= 0.7
4. Room registrations in The Peabody Hotel in Memphis have been recorded for the past 9 years. To project future occupancy, management would like to determine the mathematical trend of guest registration. This estimate will help the hotel determine whether future expansion will be needed. You will need to forecast year 11 registrations using a regression equation relating registrations to time (e.g., a trend equation).

*a = 14.545 b = 1.135 t = 11*