Name(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

You may work together in teams of up to three students on this assignment as long as all students put in an equal amount of effort. No freeloaders!

**BA 353: Take Home Exam 1**

Due on Friday 2/7/20 by 2:30pm.

|  |  |  |
| --- | --- | --- |
| **Method** | **FC** | **MAD** |
| Naïve |  |  |
| MA(**12**) |  |  |
| LR |  |  |
| ES(½) |  |  |

**1) (8 points) Forecasting:** The monthly data for about 160 StoneAge parts over a three-year period are available online. Why don’t we try to forecast just **Part 31** for the next period (January of 2018/period 37)? This data is on *Row 33* of the spreadsheet from Columns F to AO. Forecast period 37 using the Naïve method, Moving Averages with **N = 12** (*not* N =2 as we’ve done in class), Linear Regression and Exponential Smoothing with α = ½ (like we did in class). Program MS Excel to do the calculations for you, don’t try to do this by hand, and ***round your final answers to one decimal place***.

According to MAD, which forecast is the best bet for period 37?

Figure out what they are then calculate the two empty cells in AT33 and AU33.

|  |  |  |
| --- | --- | --- |
|  | AT | AU |
| 33 |  |  |

The abbreviations at the top of columns BB, BC, BD and BE are other measures of error (with the MAD that you know in column BF). Use google to determine what these four other abbreviations stand for.

I added the squiggly lines in columns AP and AQ using the Excel “Sparklines” function. (*That* is how cool I am.) What patterns do these sparklines represent in both columns AR and in AQ?

**Extra Credit:** The MAD value in cell BF33 is 11.97. This is a lower value than from any of the four methods we used above. What forecasting method did they use that produced this MAD? Prove it! [Anti-hint: I don’t know the answer.]