

IE375 Spring 2024 Homework I – Comments

To start, I would like to emphasize two of the sentences written in the front page of the homework:

“All methods can be applied to a given data set, but it is important you realize why and how a method is selected for a given data set”.

Here, in the assignment, you were given a single method. <<<<<<<<<<<<<the ideal is to select demand models which seems to be fairly representing the data set. Hence, the initial step is always the analysis of the data. As you will notice in the following parts, an incorrectly selected model will always show itself in the analysis. If you have realized that this was the case, any comments you made was used to accumulate bonus points. Under standard conditions, you are expected to be critical to your work (even to the question/situation you are given) and realize the inconsistencies.

“Note that, once routine (technical) parts are learned, you can always “automate” the procedures. Hence, for computations you can excel (or a similar spreadsheet program)”.

You were asked to automate the procedures. For those who failed to do so, of course lost some grades.

Note that you were expected to follow the procedures explained in the question and elsewhere. Any diversion from the description will end up with loss of points. The following items were graded in detail – each item is provided if they required any technical knowledge or just follow the procedure type work.:

Birth Month – Procedure to follow

ID Number – Procedure to follow

Data Division – Technical knowledge and procedure to follow (Note on Forecasting)

Holt's Method – Technical knowledge

Measure Selection – Procedure to follow

Optimal Parameters – Technical knowledge and procedure to follow (Note on Forecasting)

Personalized Forecaster – Your end-product

Forecasting 2021 - Technical knowledge

Forecast Error - Technical knowledge

Comment on Inaccuracy - Technical knowledge (Bonus)

Tracking Signal Figure - Technical knowledge (Only for groups of three)

Comments - Technical knowledge (Only for groups of three)

Reporting is an integral part of such assignments. It is important as you need to convey your solution in an understandable way. Some of the submissions simply lacked any description and some bare minimum. On the other hand, reporting is always important as it is an indication of understanding, as well as describing.

The following forecasters are listed, as they are the ones which are obtained by doing everything correctly (or almost correctly) – (only two decimal places are shown - rounded)

ALPHA	BETA	S_0	G_0
0.90	0.10	8.87	1.09
1.00	0.05	9.11	1.07
0.95	0.05	9.85	1.11
1.00	0.05	9.08	1.07
1.00	0.05	8.75	1.11
0.95	0.10	8.87	1.09
0.95	0.10	7.65	1.23
0.95	0.05	7.61	1.23
0.30	0.05	8.75	1.11

Note that the last group decided that they should not be using alpha values which are higher than 0.30 hence limited the optimization. Actually, this is a correct approach as higher alpha values simply implies that the demand model selected is not valid. Hence, that restriction is placed in the optimization. However, as expected, the forecast errors will be pretty large. On the other hand, alpha value which is 1 (or practically 1) implies that you are not using any of the historical data. This is also not reasonable – all directing to the fact that the demand model selected to represent the demand data is not an appropriate one.

On the other hand, when we look the forecasters (as formulas), they more or less look alike indicating that the effect of the different data partitions for initialization is not very significant. This would be the case in general.

These are the statistics related to the grades:

Note that 90 corresponds to a full grade. Any grade above 90 means that they have received a bonus.

Mean: 71.01 (out of 90)
Std. Deviation: 17.61 (out of 90)
Max: 100 (out of 90)
Min: 29 (out of 90)
Number of students: 61
Frequency Distribution:

Range	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-+
Freq.	0	0	2	2	0	9	18	15	11	4