BUSINESS ANALYTICS: EXERCISE SHEET No.2 (WiSe2018-19)

QUESTION 4 - TIME SERIES DECOMPOSITION - 10 POINTS

(Type B) Using the time-series below. Given that the seasonality is at every 12 months, peform an additive decompostion. After decomposing show how to revert to the original data. How decomposing is useful? Plot the data, trend, seasonality and remainder. (Reccomended and allowed the use of code).

Month	Production-Rate
1	2.112
2	1.932
3	2.162
4	2.13
5	2.227
6	2.124
7	2.184
8	2.152
9	2.062
10	2.121
11	2.03
12	2.091
1	2.109
2	1.996
3	2.173
4	2.163
5	2.233
6	2.142
7	2.182
8	2.129
9	2.138
10	2.215
11	2.156
12	2.212.

Month (Continuation)	Production-Rate
1	2.177
2	2.028
3	2.361
4	2.358
5	2.417
6	2.314
7	2.386
8	2.366
9	2.258
10	2.351
11	2.263
12	2.303
1	2.341
2	2.081
3	2.344
4	2.314
5	2.432
6	2.317
7	2.309
8	2.271
9	2.185
10	2.363
11	2.283
12	2.38

QUESTION 5 - HOLT'S LINEAR TREND MODEL 10 POINTS

(Type B) Using Holts Linear Trend Method predict months 6, 7 and 8 ($\alpha = 0.5$, $\beta^* = 0.2$) using months from 1 to 5 from the data below. Peform an exponential smoothing for the same task and compare the results from both methods with RMSE afterwards. Plot your predictions and

results.

Month	Data
1	713
2	667
3	762
4	784
5	837
6	817
7	767
8	722

WARNING!

If we detect **Plagiarism** on your solution, you will receive no points for it. If a second plagiarism attempt is detected, you might fail the class or be expelled from your program.

You are allowed to discuss solutions, but if you work on a group, you must indicate on your sheet with whom are you working with.

Group submissions earn 0 points.

BONUS POINTS!

Submission grades represent 100% of this bonus. For each 11% of your total grade you will earn 0.5 bonus points on the final exam up to a maximum of 4 points.

HOW TO SUBMIT?

Inside the Samelzonplatz Campus, there is a post-box cluster to the right corridor from the entrance. Look for the "Business Analytics Post-Box" (we will set it up on Monday). For security you must also submit on our learnweb page: `https://www.uni-hildesheim.de/learnweb2018/course/search.php?search=3108` (password: 3108). If you submit your physical version you will get it back with correction markings. Submitting on learnweb will guarantee that you will receive your grade (in case you forget to post it or it goes missing).

Keep in mind that your solution sheets are important documents, so make sure they are clean and organized. Non-readable sheets will not be graded.

WRITE YOUR NAME, ID, AND TUTORIAL GROUP.

REMEMBER TO KEEP A COPY OF YOUR SOLUTION FOR YOURSELF!