1.1 CASE ASSIGNMENT #3

BRIGHT FUTURE Co.

Instructions

Bright Future is a manufacturing company producing several components for computers, tablets, etc. Two of its products, i.e., Product A and B, are particularly important to them since they account a large portion of the company's sale.

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1 APPENDIX

2 CASE WORK

Using the demand data given below, prepare a quarterly demand forecast for the next four quarters for each product.

- Make sure to plot the data (for both products) and interpret the graphs.
- Include graphs in your report.
- Need to justify your selection of the forecasting method(s) and show all your calculations in detail.

Quarter	Product A (Demand)	Naïve	Simple Moving AVG -2	Simple Moving AVG-3
1	150			
2	168	150		
3	171	168	159	
4	180	171	170	163
5	192	180	176	173
6	200	192	186	181
7	220	200	196	190.667
8	270	220	210	204
9	236	270	245	230
10	246	236	253	242
11	250	246	241	250.667
12	265	250	248	244
13	270	265	258	253.667
14	285	270	268	261.667
15		**285**	**278**	**273.333**
16		**268**	**282**	**276.111**
17		**272**	**280**	**278.148**
18		**274**	**281**	**275.864**

Quarter	Product B (Demand)	Naïve	Simple Moving AVG -2	Simple Moving AVG-3
1	80			
2	95	80		
3	82	95	87.50	
4	76	82	88.50	85.67
5	84	76	79.00	84.33
6	97	84	90.50	80.67
7	80	97	88.50	85.67
8	82	80	81.00	87.00
9	84	82	83.00	86.33
10	98	84	91.00	82.00
11	83	98	90.50	88.00
12	85	83	84.00	88.33
13	86	85	85.50	88.67
14	99	86	92.50	84.67
15		**99**	**95.75**	**90.00**
16		**89**	**94.13**	**91.67**
17		**90**	**94.9375**	**93.56**
18		**91**	**94.5313**	**91.74**

Forecasting methods: Time-Series Forecasting: **Product A -** Naïve & Moving Average (2, 3)

Product B – Naïve & Moving Average (2,3)

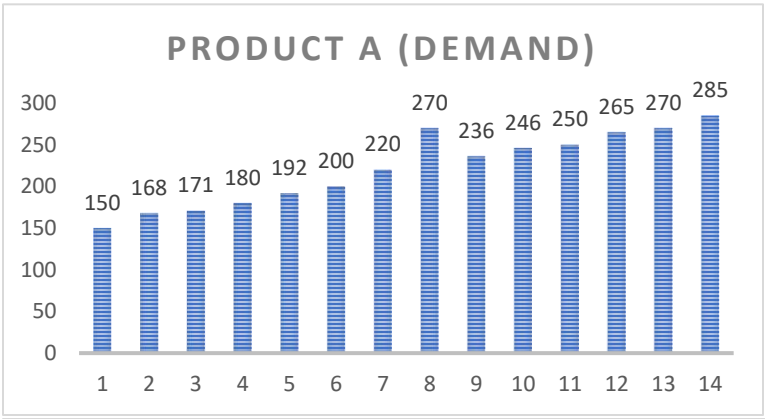
Formula Justification and Conclusion:

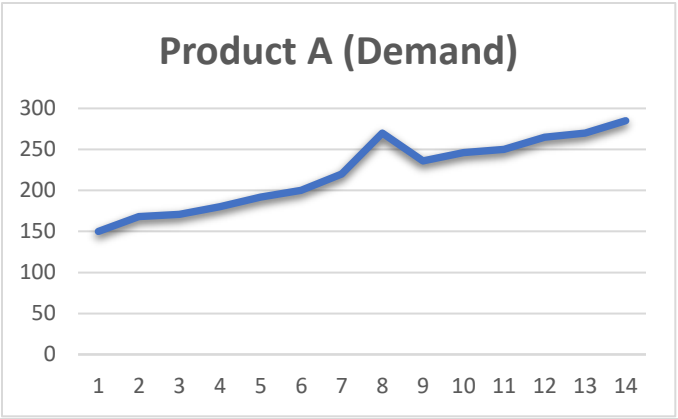
First and foremost, BRIGHT FUTURE Co. has provided us hard data on Product A and Product B. This data can be considered as a projection of historical sales data thus requiring that we utilize a quantitative forecasting method.

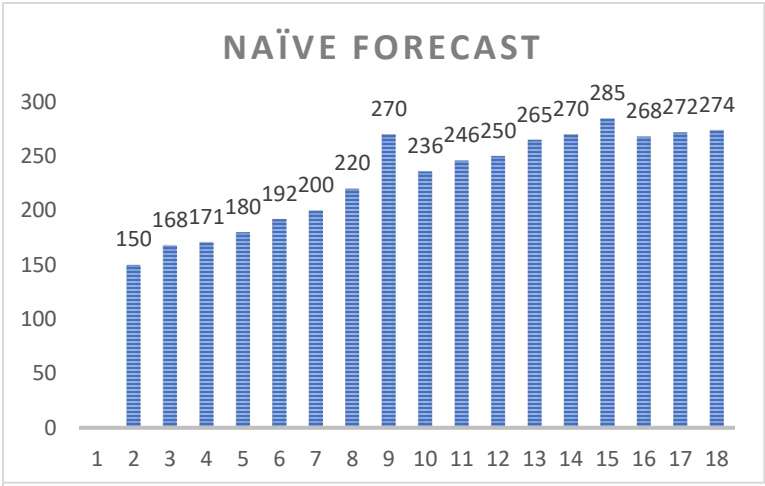
Once I observed the data in graphical and plot form, I can identify individual trends between the products. Product A is displaying a long-term upward trend within the data. During the 8th quarter Product A experienced irregular variation as orders jumped significantly due to severe weather which inspired an abnormal increase in sales. Disregarding this irregular variation, I believe that Product A will continue to display an overall increasing sales pattern into the future. Product B on the other hand is clearly displaying cycles while maintaining a slightly positive linear movement. Product B seems to maintain a stable path into the future with slight increases beyond the cyclical fluctuation that the graphs are displaying.

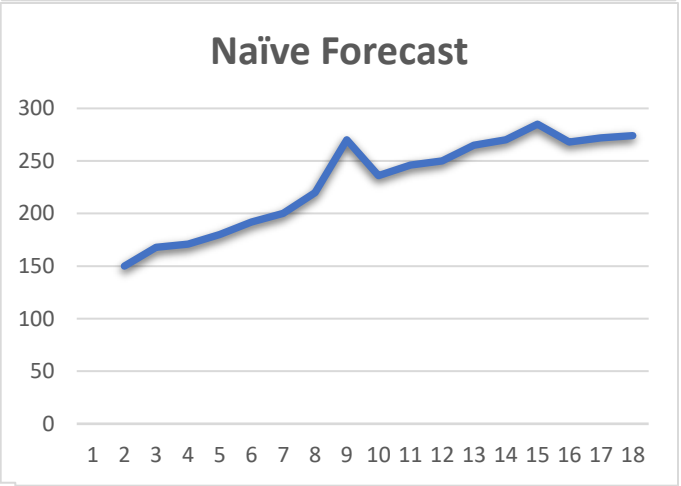
With all data considered and graphics analyzed, both products are displaying identifiable patterns within their sequence of observation. I believe that it was most appropriate to analyze the data by using the Naïve and moving average time-series forecasting methods in order to grasp an understanding of the direction of potential sales for Product A and Product B entering quarters 15-18.

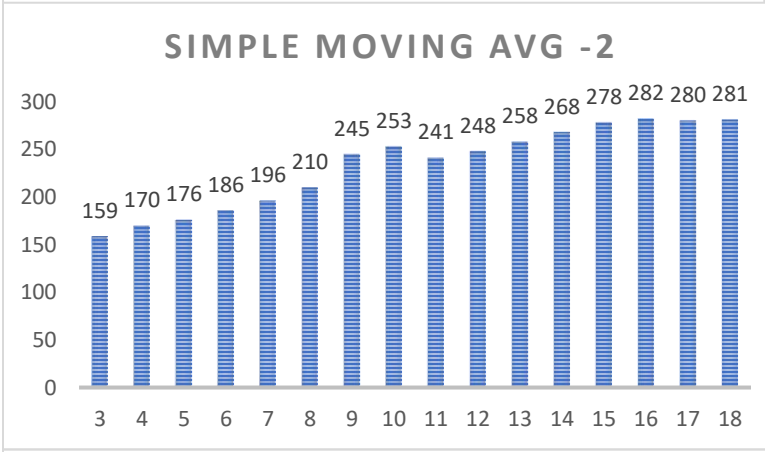
3 PRODUCT A FORECAST PLOTS & GRAPHS

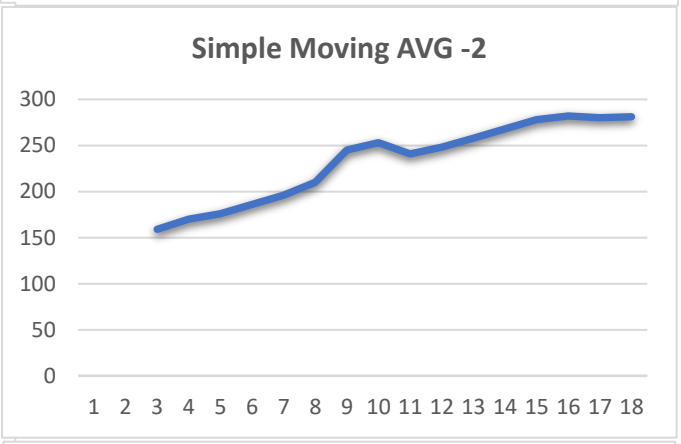


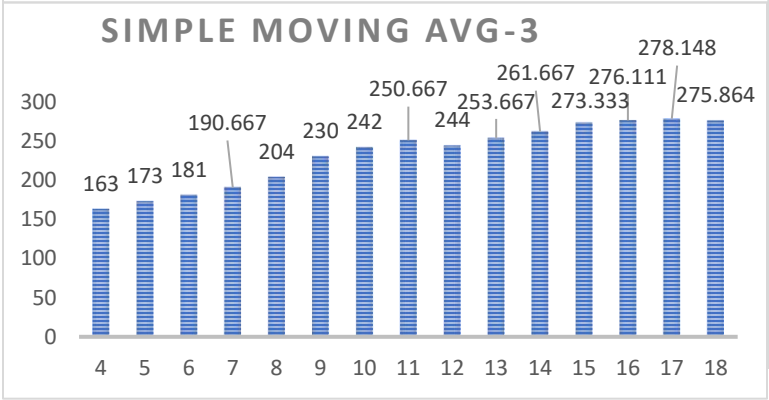


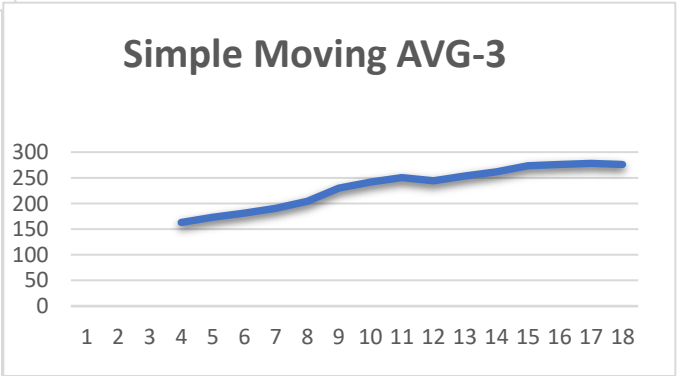




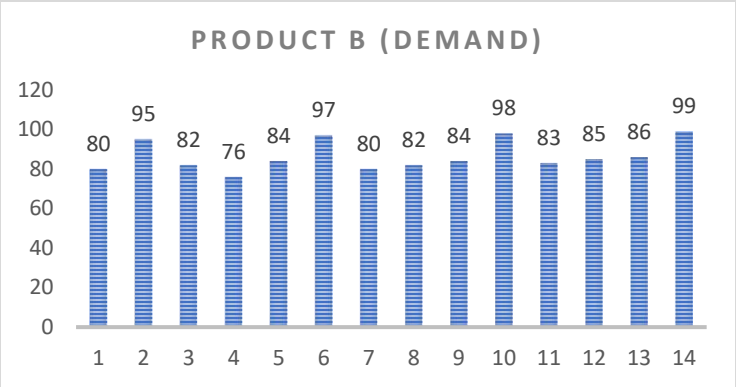


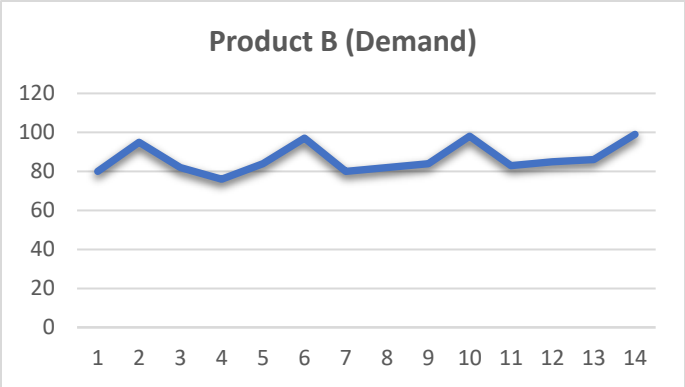


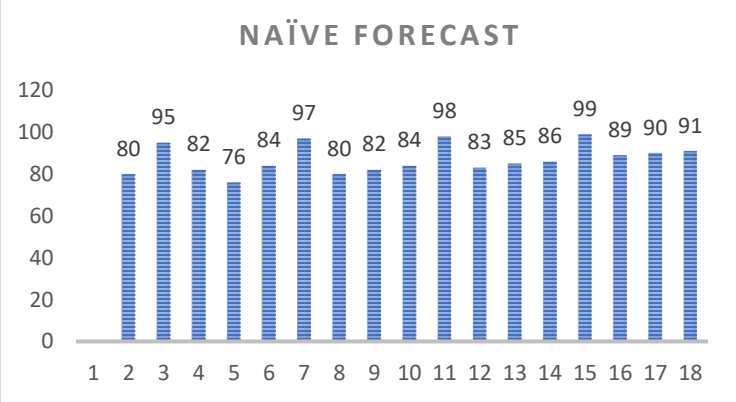


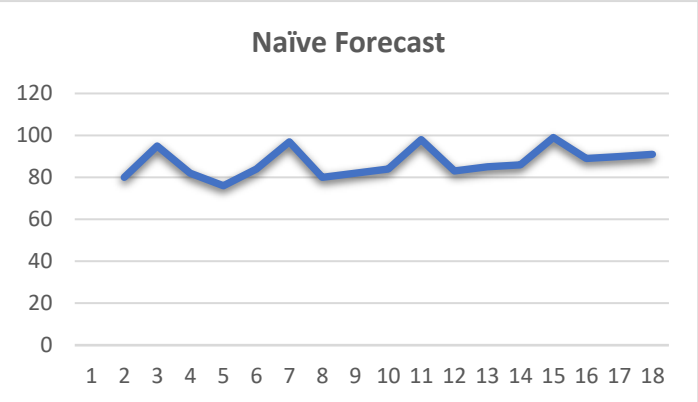


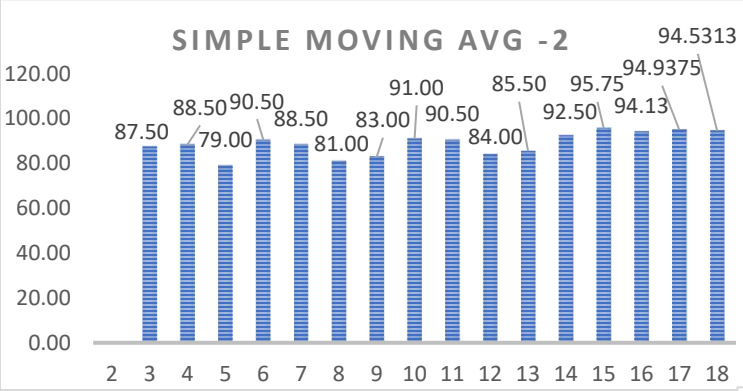
4 PRODUCT B FORECAST PLOTS & GRAPHS

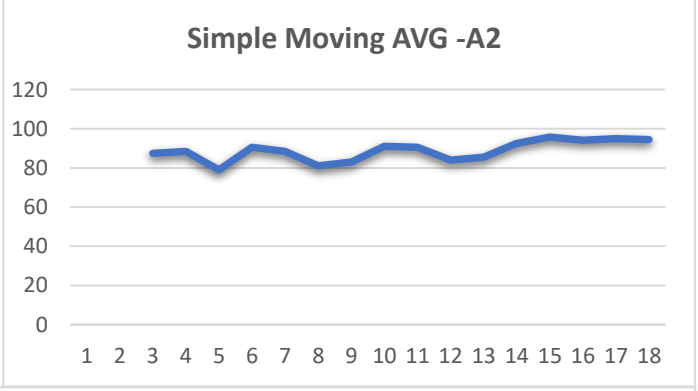


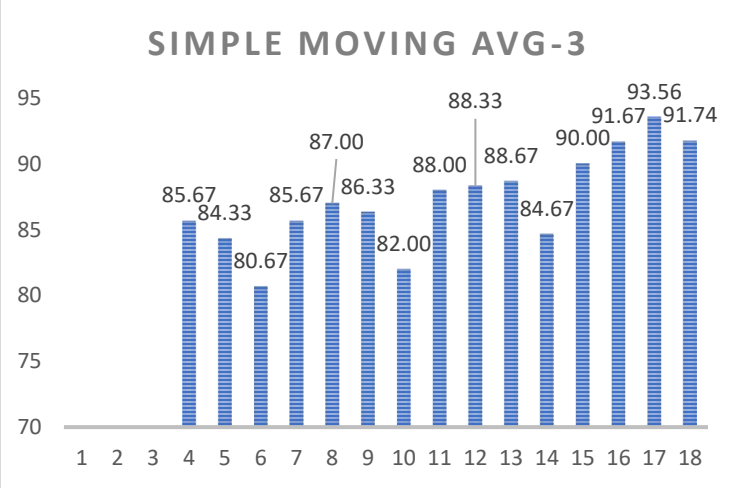


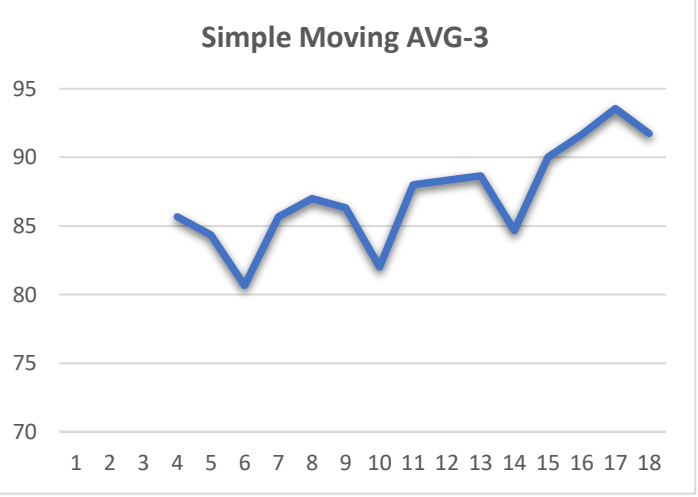




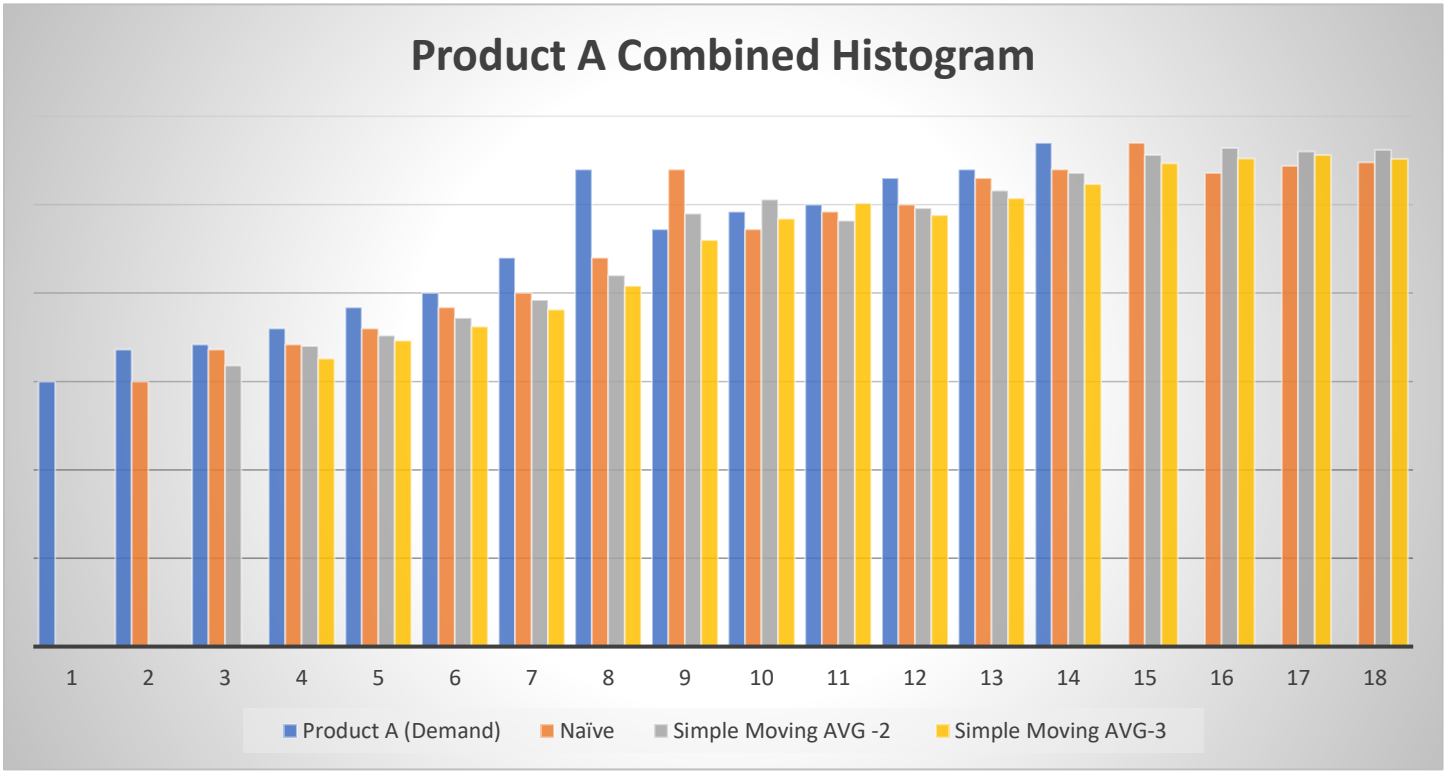


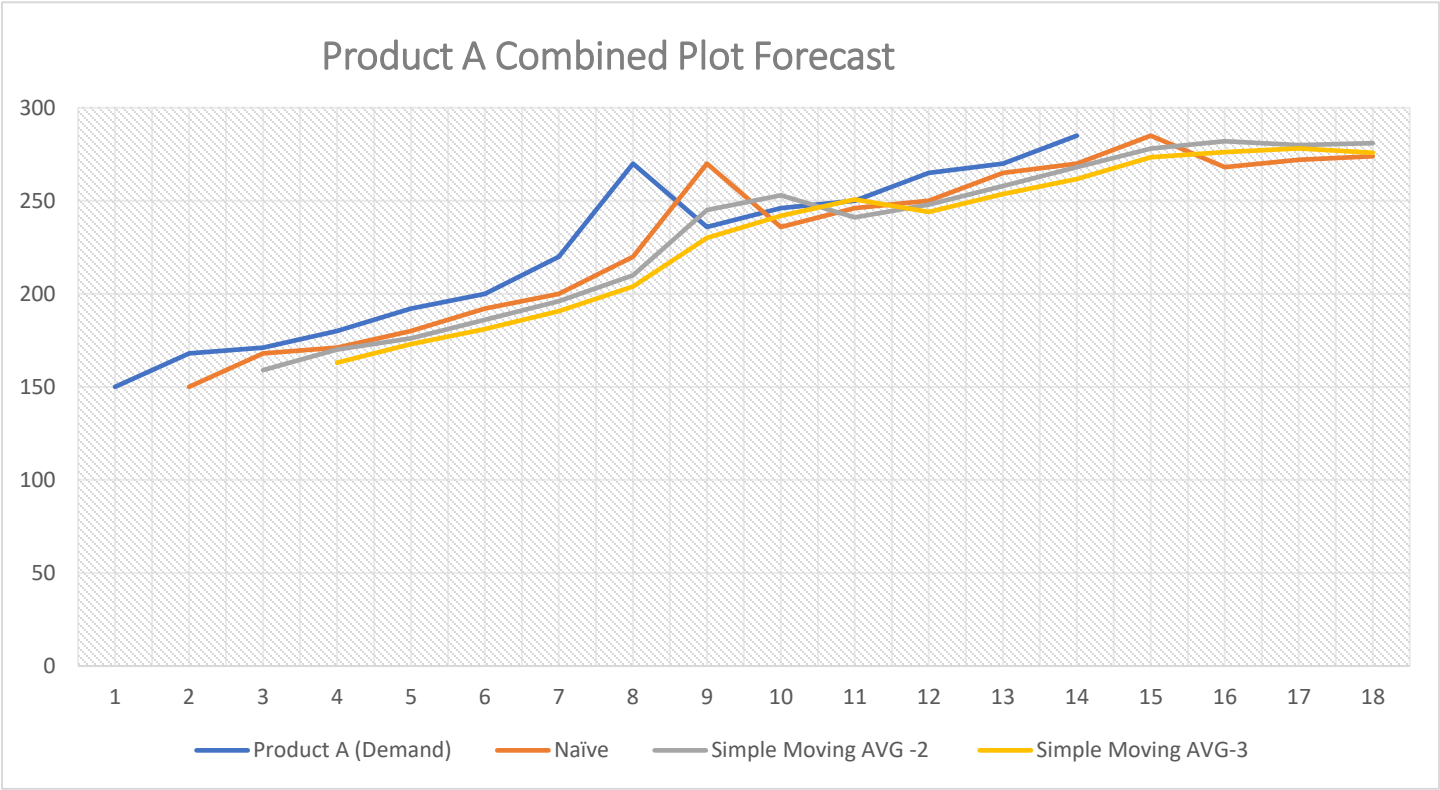




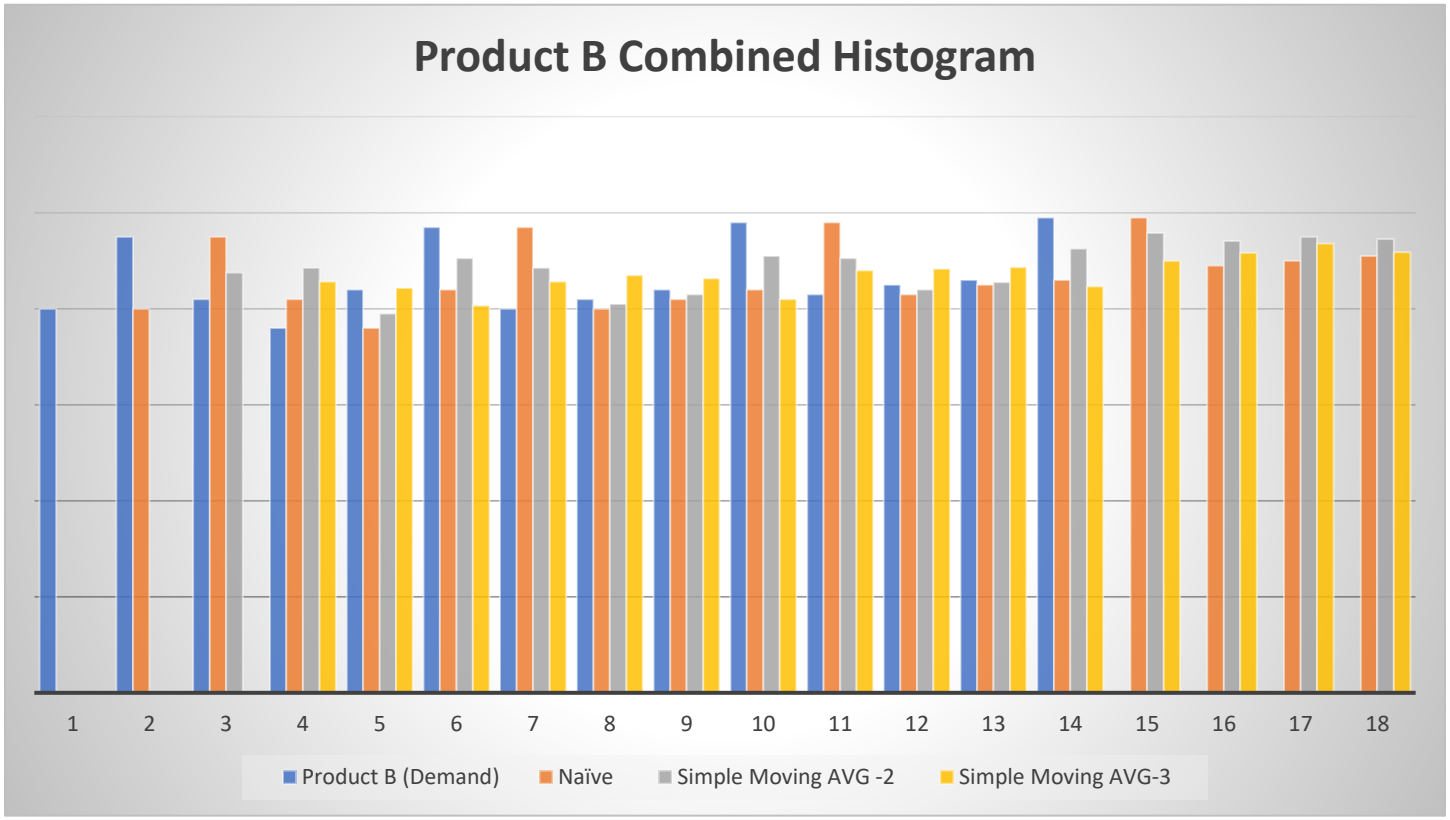


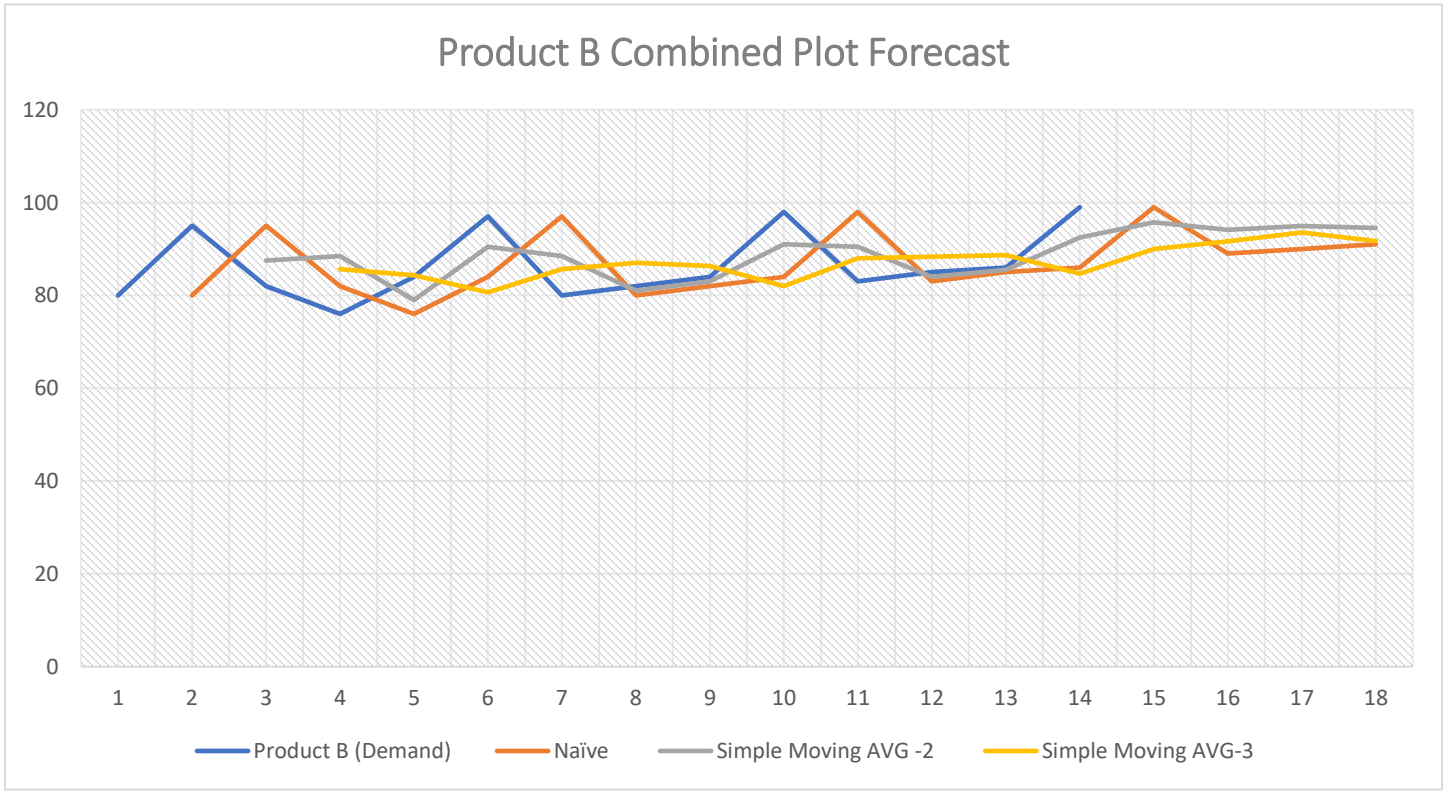
5 PRODUCT A COMBINED GRAPHICS





6 PRODUCT B COMBINED GRAPHICS





7 MATH CALCULATIONS

Quarter	Product A (Demand)	Naïve		Simple Moving AVG -2		Simple Moving AVG-3
1	150					
2	168	150				
3	171	168		159		
4	180	171		170		163
5	192	180		176		173
6	200	192		186		181
7	220	200		196		191
8	270	220		210		204
9	236	270		245		230
10	246	236		253		242
11	250	246		241		251
12	265	250		248		244
13	270	265		258		254
14	285	270		268		262
15		**285**	**(270+285)/2=**	**278**	**(265+270+285)/3=**	**273**
16		**268**	**(285+278)/2=**	**282**	**(270+285+273)/3=**	**276**
17		**272**	**(278+282)/2=**	**280**	**(285+273+276)/3=**	**278**
18		**274**	**(282+280)/2=**	**281**	**(273+276+278)/3=**	**276**

Quarter	Product B (Demand)	Naïve		Simple Moving AVG -2		Simple Moving AVG-3
1	80					
2	95	80				
3	82	95		87.50		
4	76	82		88.50		85.67
5	84	76		79.00		84.33
6	97	84		90.50		80.67
7	80	97		88.50		85.67
8	82	80		81.00		87.00
9	84	82		83.00		86.33
10	98	84		91.00		82.00
11	83	98		90.50		88.00
12	85	83		84.00		88.33
13	86	85		85.50		88.67
14	99	86		92.50		84.67
15		**99**	**(99+92.5)/2 =**	**95.75**	**(85+86+99)/3=**	**90.00**
16		**89**	**(92.5+95.75)/2 =**	**94.13**	**(86+99+90)/3=**	**91.67**
17		**90**	**(95.75+94.13)/2=**	**94.94**	**(99+90+91.67)/3=**	**93.56**
18		**91**	**(95.13+94.94)/2=**	**94.54**	**(90+91.67+93.56)/3=**	**91.74**