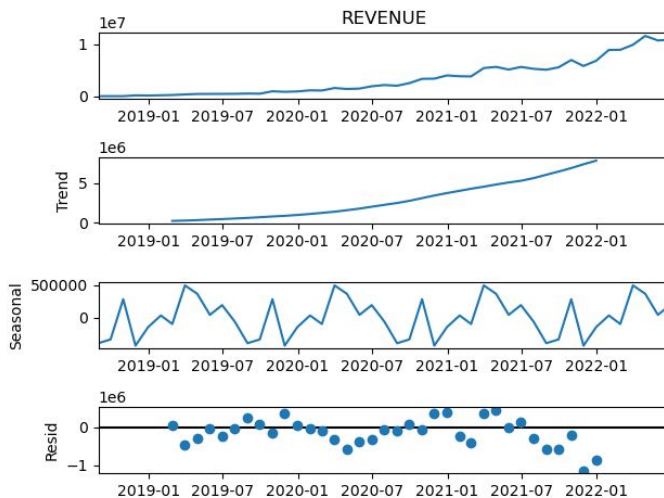


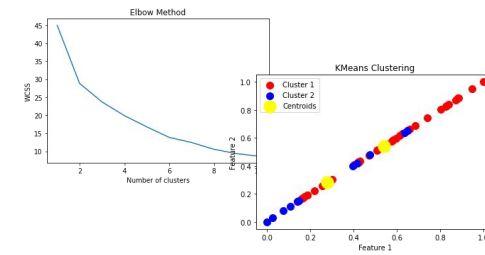
### Insight:

1. Overall the trend for revenue and shipping is increasing.
2. Seasonal behavior as one year.
3. Only 11 clients are stationary based on test.
4. Most revenue and shipping happens at weekday.
5. 12 clients never have shipping at weekends.

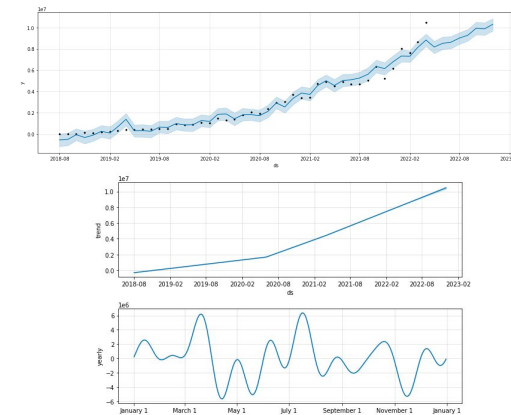


	MAPE_month_sarimax	MAPE_month_lstm	MAPE_bench
Jacob Stein INC	7.972744	6.918982	7.165434
Cody Brown INC	19.510209	8.935904	4.639363
Larry Morales INC	58.715116	61.802230	62.102242
Jessica Hendricks INC	94.696997	31.062644	63.266635
Brian Moore INC	25.430722	9.982421	11.109226
Scott Baker INC	28.650632	27.628733	19.473378
Ruth Hoffman INC	13.477103	16.361867	24.231201
Daniel George INC	20.486906	19.179697	26.508224
Brian Maxwell INC	110.374355	60.700045	49.712862
Cory Cooper INC	70.533399	46.054998	68.505843
James Sandoval INC	26.700684	40.474236	32.345972
Brian Lester INC	34.306373	44.392711	33.453352
Anne Davis INC	62.614401	19.447703	30.136273
Miss Amanda Harris MD INC	13.456136	20.941823	11.207137
Amy Dunn INC	30.076377	22.180738	24.260741
Kimberly Best INC	20.450604	24.204772	44.204464

Model selection based on MAPE for each client



We cluster clients based on their shipping and revenue patterns. The clients are divided into two clusters.



The Prophet graph shows that the model's predictions align well with the actual values and the confidence intervals are tight. The trend graph shows a steady increase in revenue, while the yearly graph indicates fluctuating revenue throughout the year, with a peak in the first quarter and a drop in the fourth quarter.

Use SARIMAX, LSTM, PROPHET methods to forecast revenues

Team members: Yu Luo, Benxi Pang