



Forecast Components Analysis

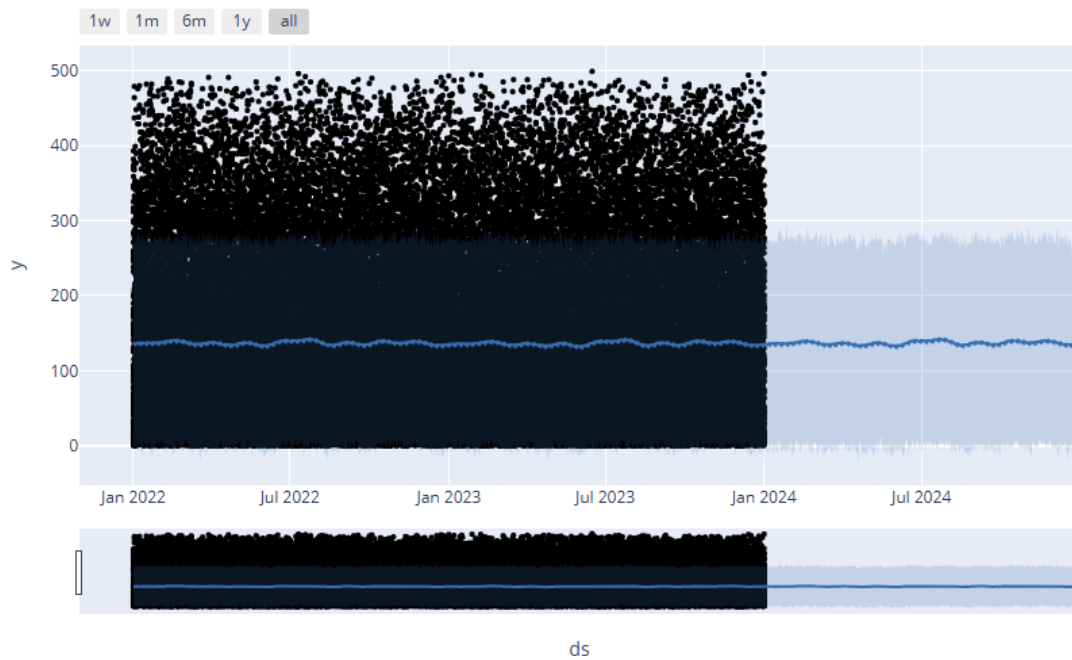
Using Facebook Prophet, the time series data was decomposed into its main components: trend, yearly seasonality, and weekly seasonality. Below is the analysis based on the latest forecast results:

1 Trend Analysis

The overall trend shows:

- A **declining phase** from early 2022 until mid-2023.
- A **gradual recovery** starting in the second half of 2023, expected to continue into 2025.
- The prediction interval broadens towards 2025, indicating **moderate uncertainty** in long-term forecasts.

This suggests a period of reduced demand or sales, followed by signs of future growth.



2 Yearly Seasonality

The yearly seasonality component reveals a **complex cyclical pattern**:

- Multiple peaks, notably:
 - In **February–March**,
 - During the **summer months** (July–August),
 - And towards **November**.
- Corresponding troughs appear throughout the rest of the year.

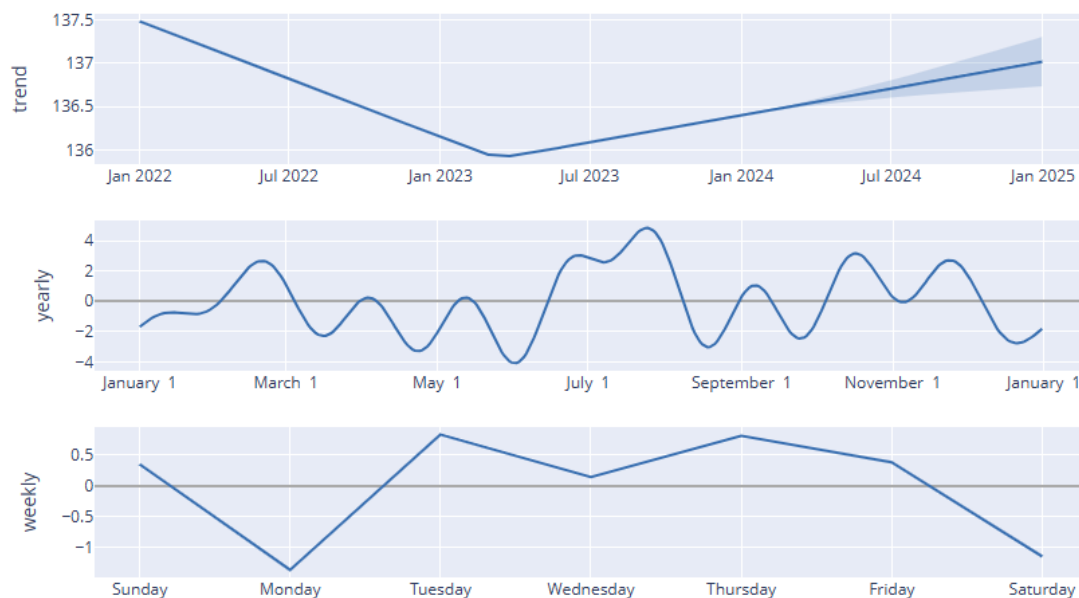
This indicates that demand is likely influenced by a combination of factors, such as promotions, seasonality effects, or sector-specific events, rather than simple annual cycles.

3 Weekly Seasonality

Analysis of weekly patterns shows:

- Higher demand or sales during **Tuesdays** and **Thursdays**, with a minor increase on **Wednesdays**.
- Reduced activity on **Saturdays** and **Mondays**.

This pattern could reflect typical business cycles, with increased mid-week transactions and lower activity at the start and end of the week.



Conclusion

The Prophet model successfully captured:

- A **downward–upward shift** in the long-term trend,
- A **multi-peak yearly cycle**,
- Clear **weekly behavior** aligned with operational patterns.

The forecasting model is suitable for planning and demand prediction in complex seasonal environments, particularly when sales patterns do not follow simple seasonal cycles.