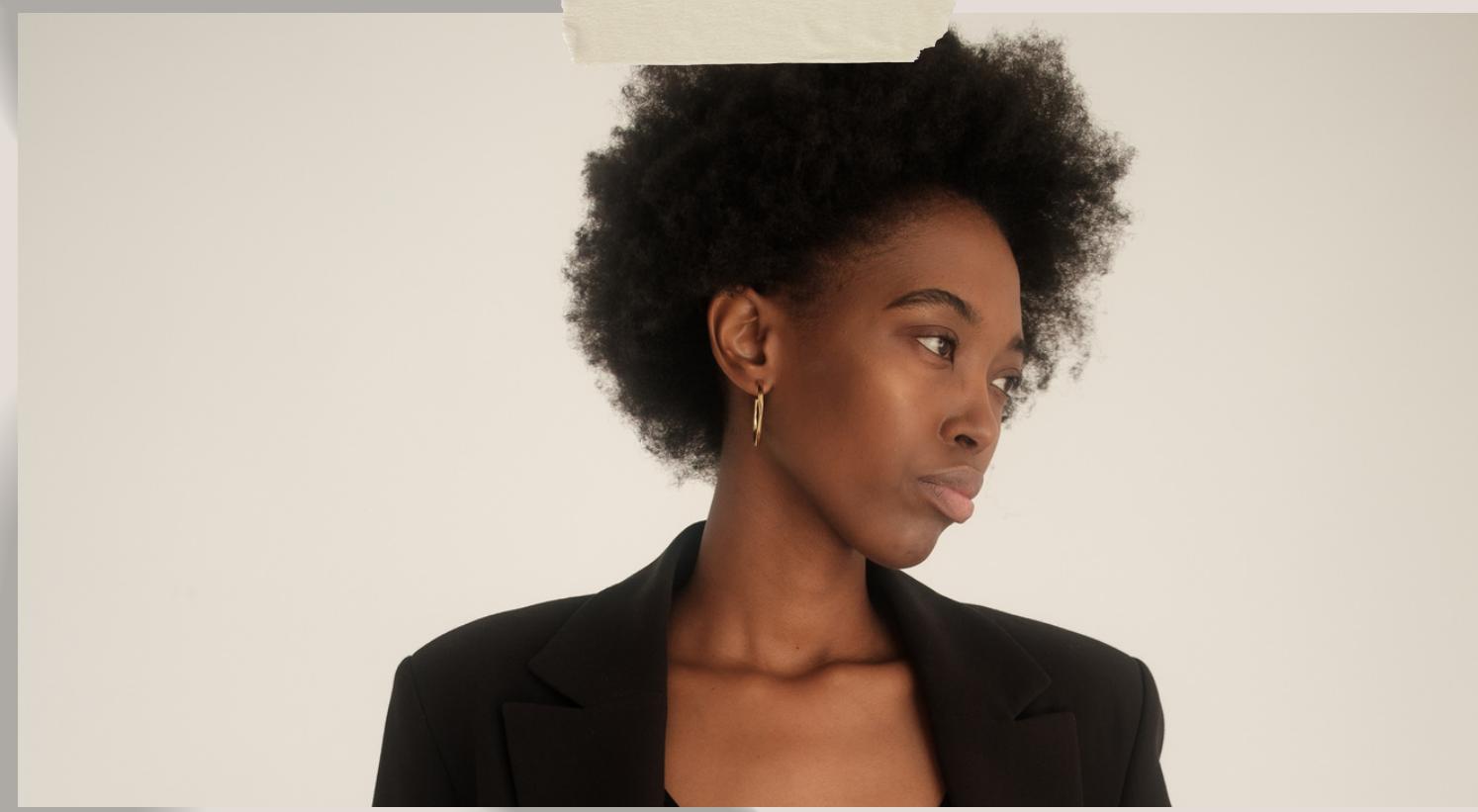


Optimizing H&M Inventory Through Data Analytics

By Jieda Wang

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PROJECT OVERVIEW

Brief Background

- **Challenge:** Manual, time-consuming process to decide how much to order of each article.
- **Current Method:** Buyers estimate sales per article and market, leading to potential inaccuracies.

Objective

- **Innovation:** Use machine learning to automate sales predictions and order quantities.
- **Goal:** Enhance efficiency, accuracy, and sustainability in inventory management.



Analytical Framework

Data Sources

- 5 csv files: Actual Sales, Article Hierarchy, Model Predictions, and Price & Cost.

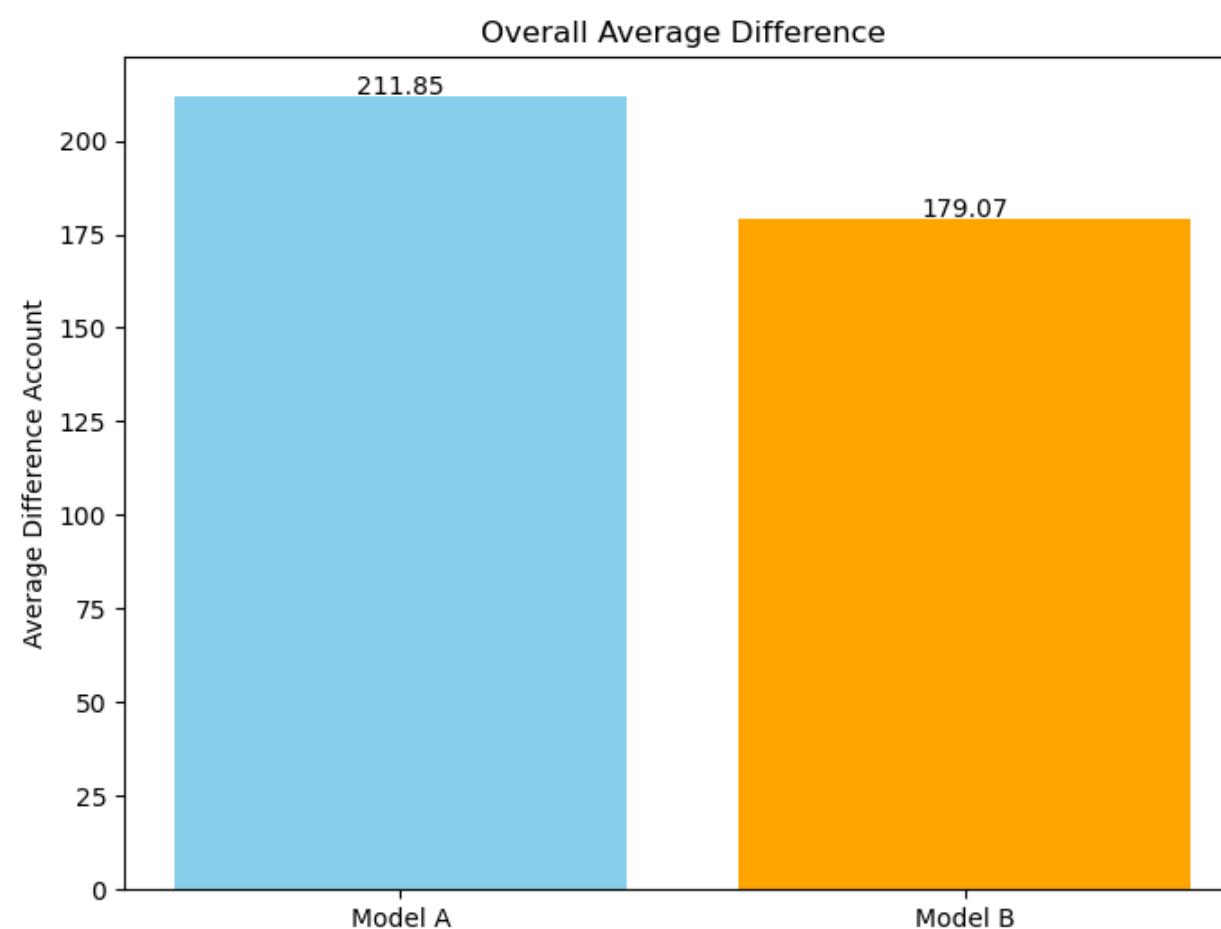
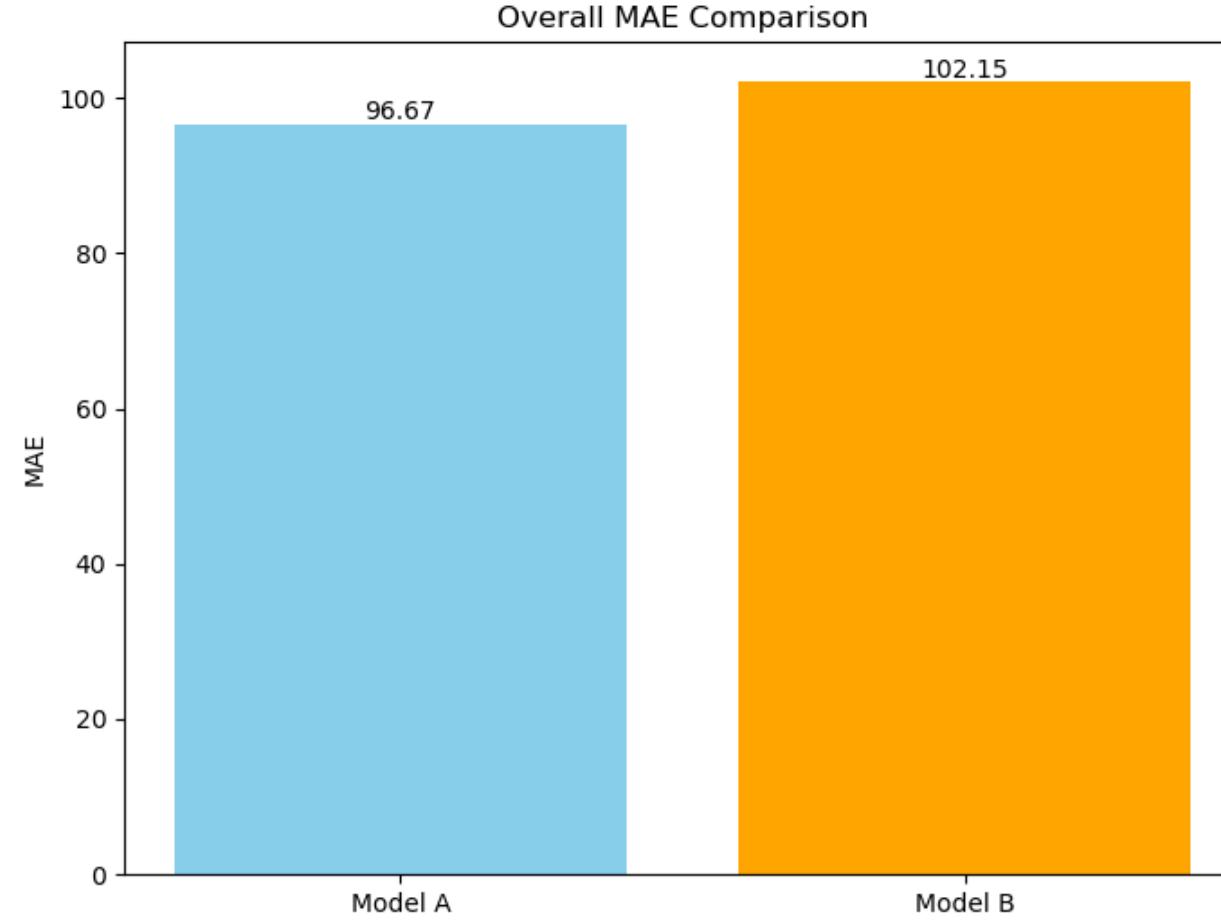
Analytical Phases

- Phase 1: Sales Predictions
- Phase 2: Order Suggestions

Market	RMSE Model A	RMSE Model B	MAE Model A	MAE Model B
BE	279.054868	373.341860	191.117320	259.447588
CA	55.112532	67.047296	34.476325	41.857244
DE	242.270873	291.961097	148.736934	182.535889
GB	101.137653	83.010060	65.450142	53.485806
JP	84.792202	78.778071	44.198259	39.306093
SE	80.715632	71.937141	39.070782	33.899947
CN	145.779804	125.792453	88.595966	73.207357
PL	118.673830	96.352336	72.636408	59.867587
US	267.976236	220.341626	184.911500	143.356500

Quarterly Cumulative Profit Comparison

Quarter	Cumulative Profit A	Cumulative Profit B
18-Q1	9.076189e+08	9.322179e+08
18-Q2	1.126321e+09	1.152696e+09
18-Q3	1.203976e+09	1.227991e+09
18-Q4	1.211181e+09	1.234754e+09
19-Q1	1.211220e+09	1.234791e+09



Sales Predictions Analysis

Objective Recap

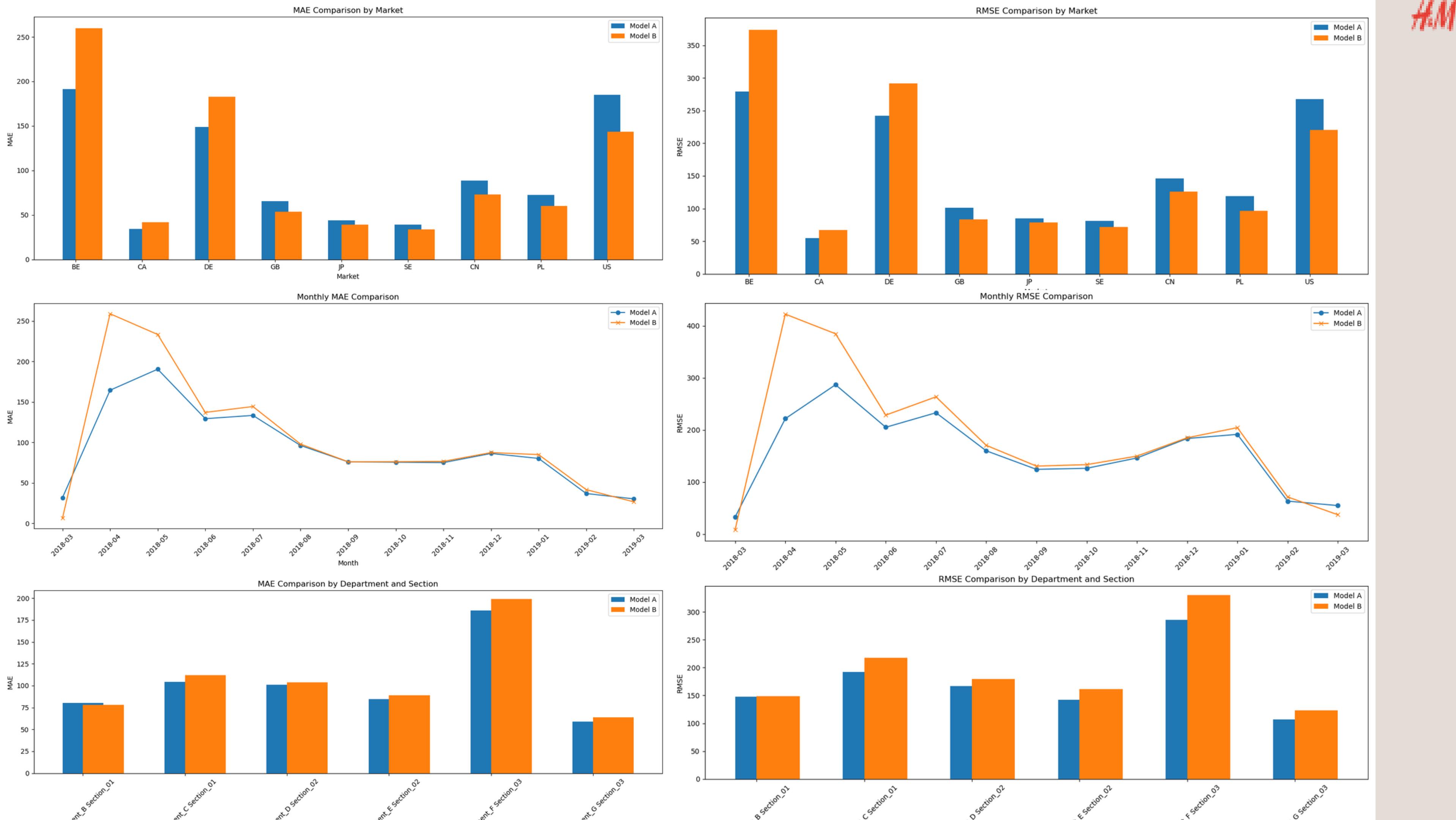
Identify the model with superior sales forecasting accuracy.

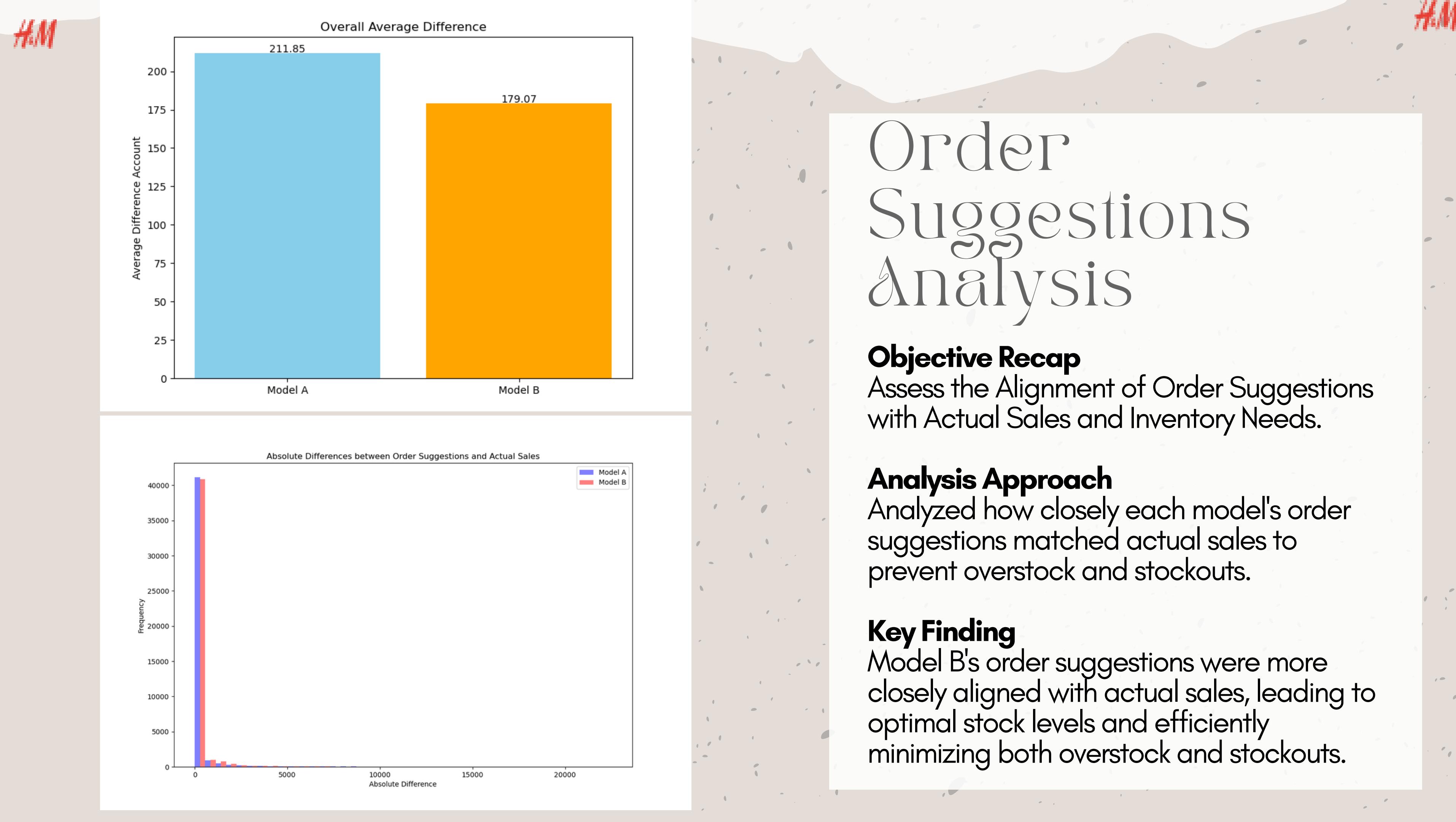
Methodology Highlights

Utilized RMSE and MAE to measure forecast accuracy.

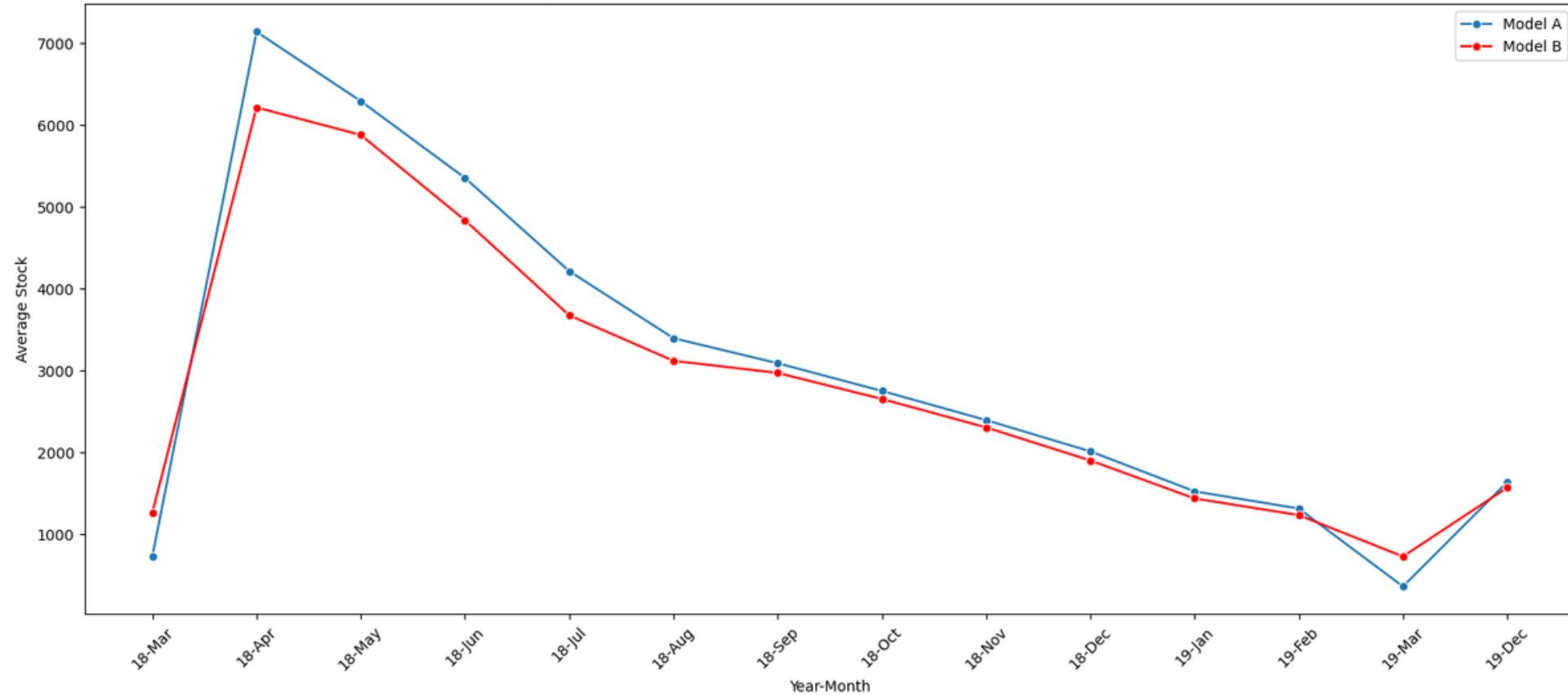
Key Insight

Model A demonstrates superior accuracy in sales forecasting across key metrics, outperforming Model B in most scenarios.

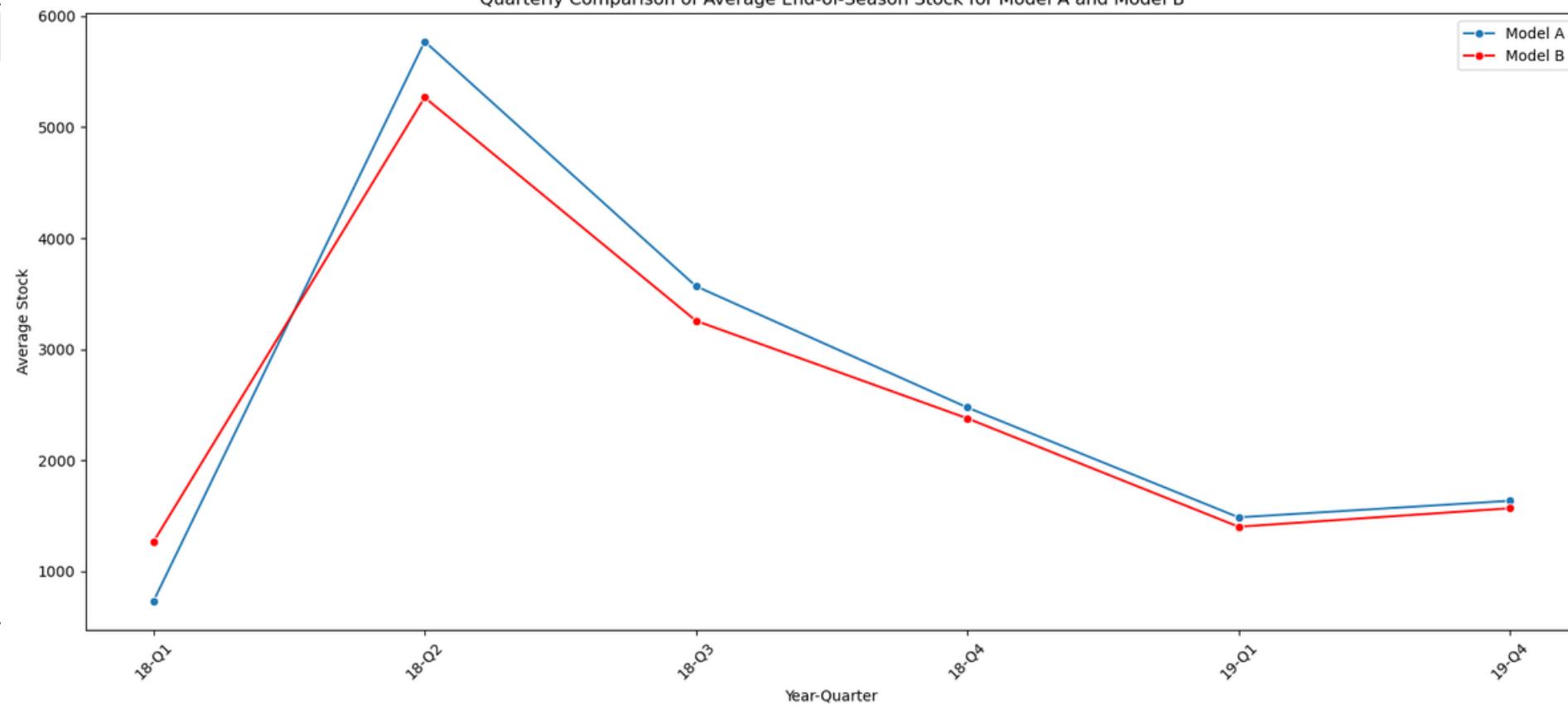




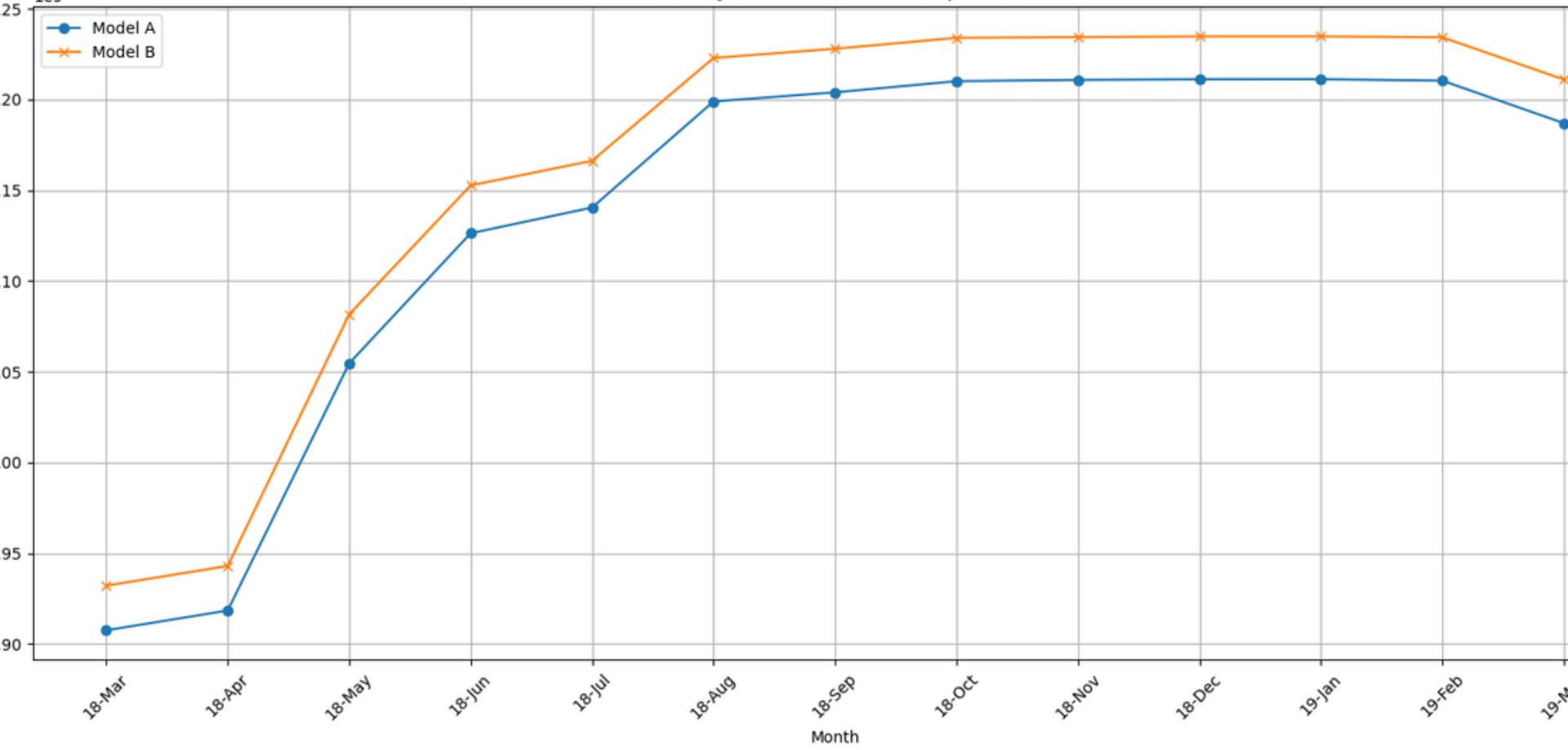
Monthly Comparison of Average End-of-Season Stock for Model A and Model B



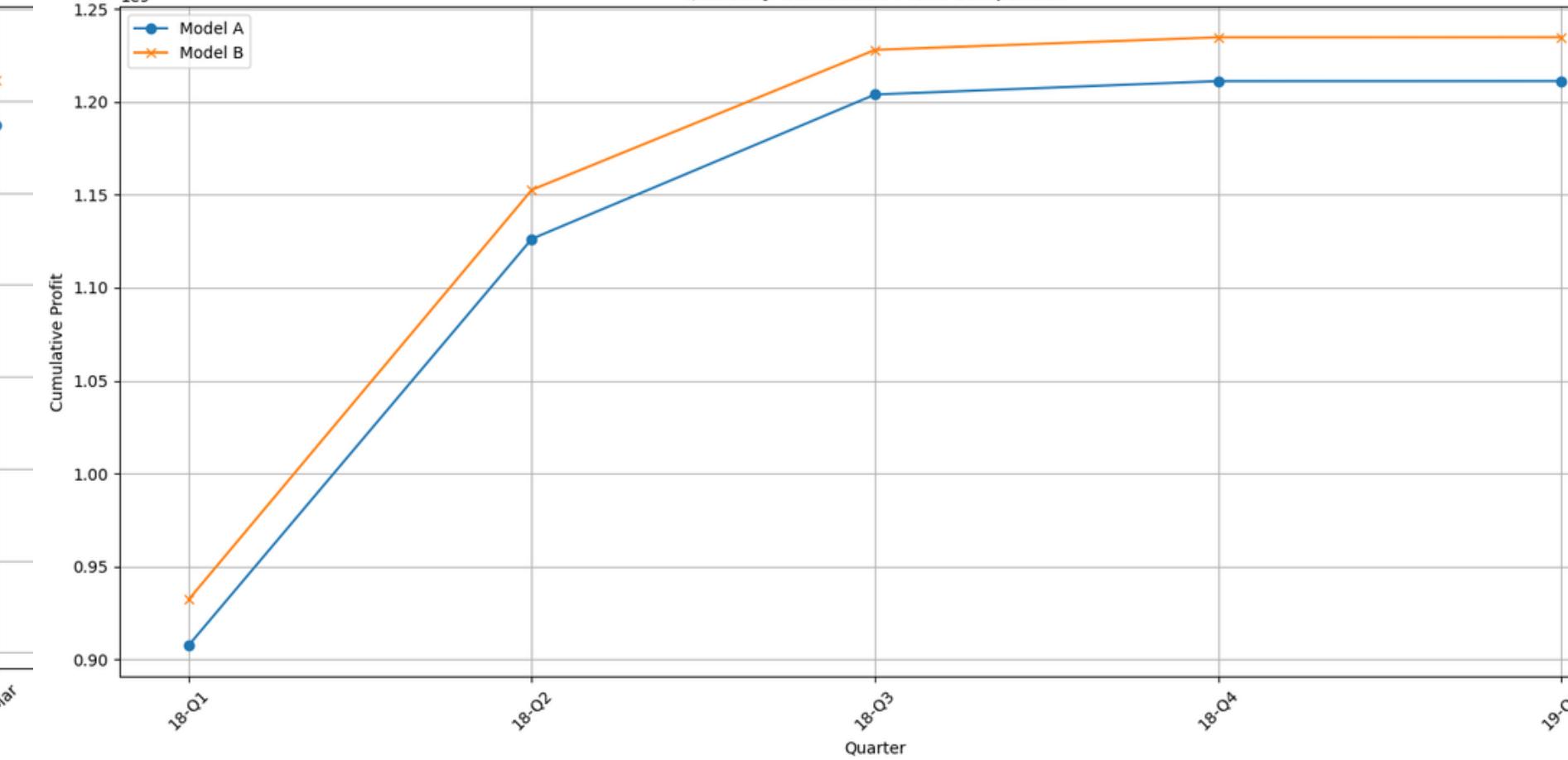
Quarterly Comparison of Average End-of-Season Stock for Model A and Model B



Monthly Cumulative Profit Comparison



Quarterly Cumulative Profit Comparison



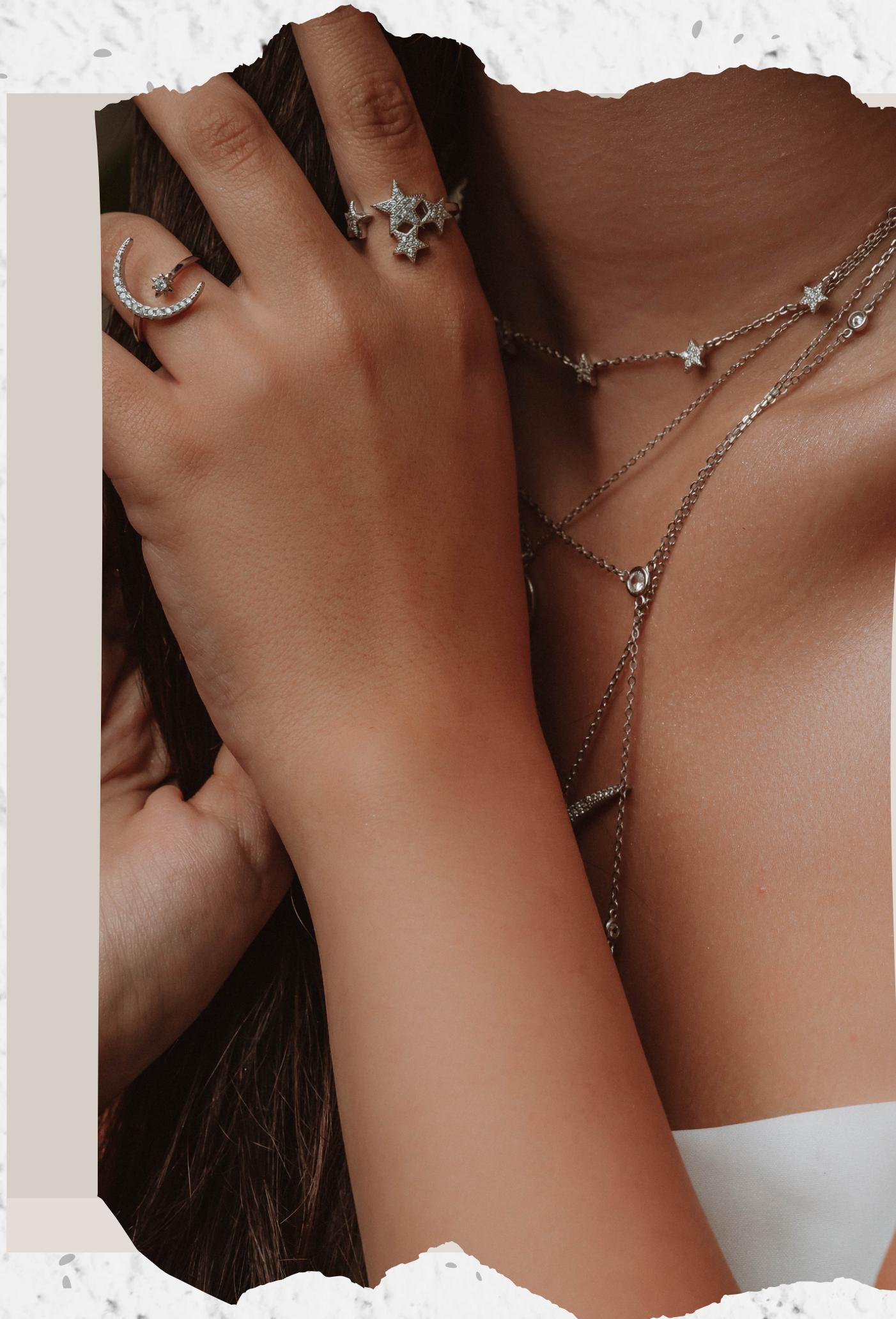
Recommendations

Preferred Model

- Using both Model A and Model B.

Justification

- **Model A for Sales Predictions:** Superior accuracy ensures reliable forecasts, minimizing the risk of underestimating market demand.
- **Model B for Order Suggestions:** More aligned order suggestions lead to optimal inventory levels, reducing the risks of overstock and stockouts.
- **Hybrid Approach:** Leverage Model A's predictive accuracy and Model B's operational efficiency for a comprehensive solution.

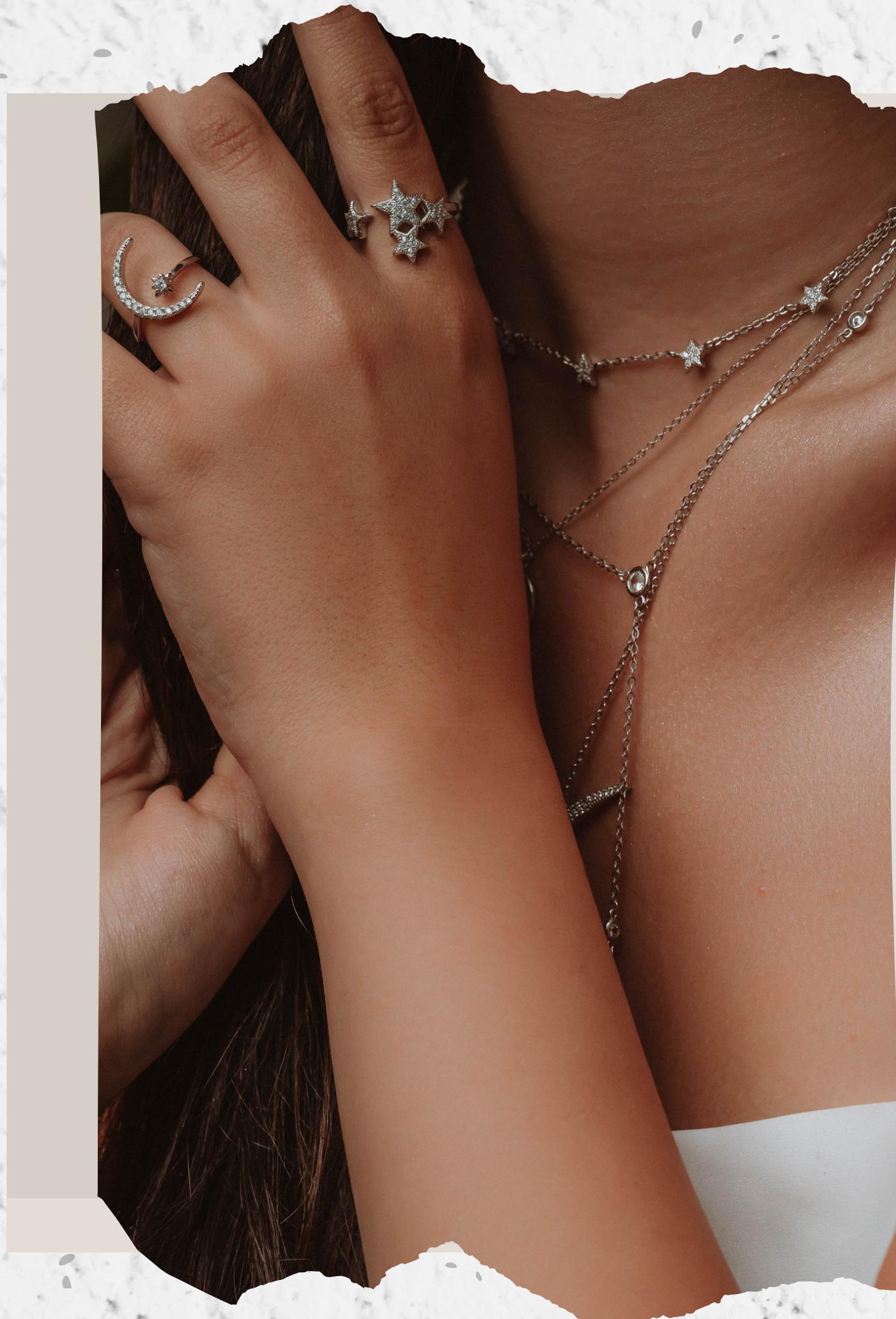


Strategic Implications

Efficiency through Precision: Use Model A to adapt quickly to market demands with accurate sales predictions.

Optimized Inventory Management: Employ Model B to fine-tune order quantities, minimizing waste and ensuring product availability.

Sustainability & Profitability: The dual-model approach aligns with sustainability goals by reducing overproduction and enhances profitability through better stock management.



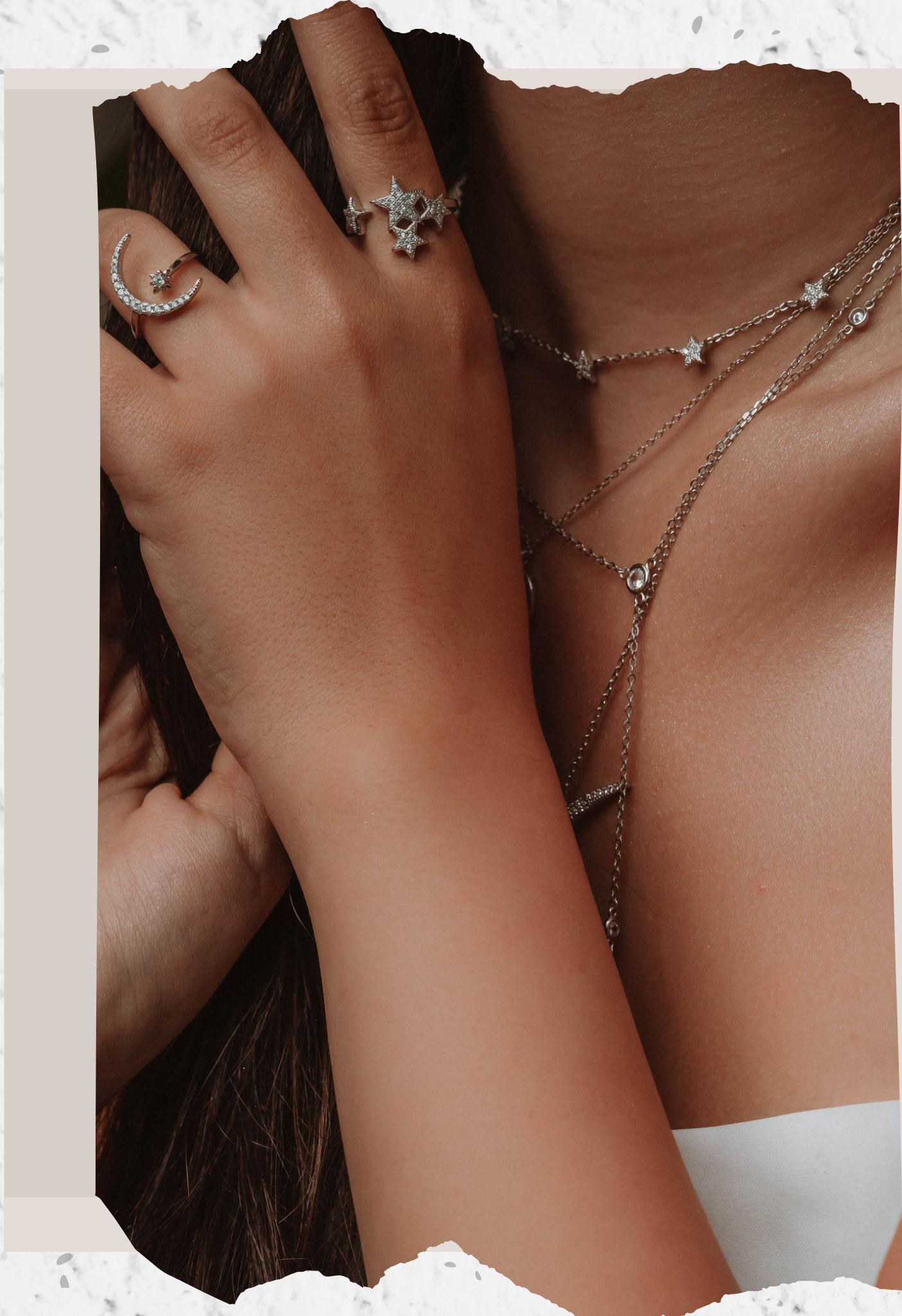
Next Steps

Model Integration: Develop a framework for integrating Model A's predictions with Model B's order suggestions.

Regional Customization: Explore opportunities to tailor model deployment based on regional market dynamics.

Continuous Improvement: Implement a cycle of continuous monitoring, feedback, and model refinement to adapt to changing market conditions.

Pilot Program: Launch a pilot program to test the hybrid model approach in selected markets.





H.M

Q & A



Thank You For Watching

+61-0413641233
Jieda Wang

Jiedaawang@gmail.com
www.linkedin.com/in/jieda-wang-431334283