











# Inventory Forecast Analysis

An Excel-Based Analytical Approach

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# Key Focus Areas

-  **Trend Analysis:** Understanding sales performance over time.
-  **Category Performance:** Evaluating top-performing product categories.
-  **Forecast Accuracy:** Assessing the precision of demand forecasting.
-  **Order Fulfillment:** Analyzing fulfillment efficiency and gaps.
-  **Seasonal Sales Trends:** Identifying patterns and peak seasons.
-  **Inventory Turnover Rate:** Measuring inventory cycle efficiency.
-  **Stock Alignment:** Aligning inventory levels with demand.
-  **Store Performance:** Highlighting key drivers of revenue and sales.

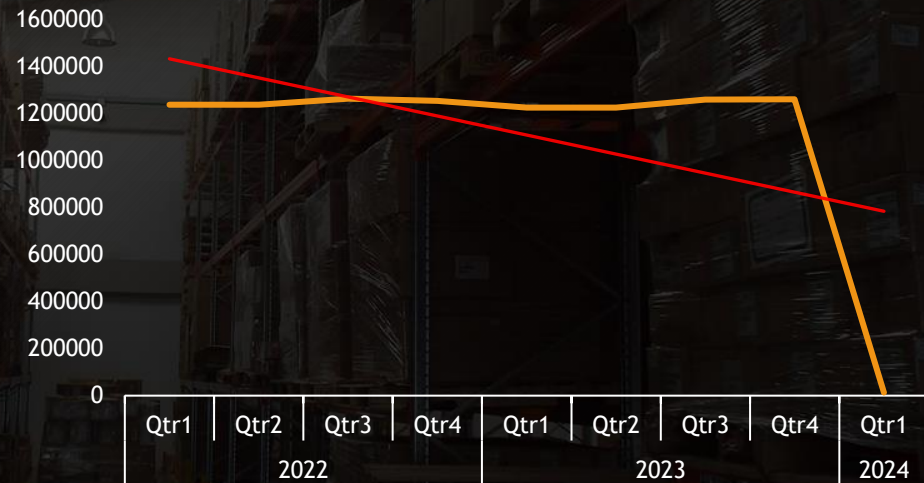


# Trend Analysis

Sales Trends Over Time

Row Labels	Sum of Units Sold
2022	4991624
Qtr1	1237063
Qtr2	1237688
Qtr3	1263154
Qtr4	1253719
2023	4970714
Qtr1	1225098
Qtr2	1225391
Qtr3	1259781
Qtr4	1260444
2024	13244
Qtr1	13244
Grand Total	9975582

Sales Trends Over Time



Trend analysis highlights consistent sales performance in 2022 and 2023 (~1.2M units/quarter). However, Q1 2024 exhibits an unprecedented decline (13,244 units), signalling potential disruptions. The negative slope in the trendline indicates systemic issues requiring immediate diagnostics, focusing on demand forecasting accuracy, supply chain efficiency, and market conditions.

# Product Category Performance

Product Category	Sum of Units Sold
<b>South</b>	
Furniture	513403
Clothing	510882
Groceries	509235
Toys	492791
Electronics	481488
<b>North</b>	
Furniture	514960
Toys	511713
Electronics	497362
Groceries	489323
Clothing	471608
<b>East</b>	
Groceries	513781
Clothing	507229
Furniture	500612
Electronics	500086
Toys	489557
<b>West</b>	
Clothing	509447
Toys	496424
Furniture	496042
Groceries	488143
Electronics	481496

## Most and Least Sold Products by Region

South: Furniture leads with the highest sales (513,403 units), while Electronics is the least sold (481,488 units). This suggests strong demand for home and office items, but Electronics may need targeted marketing.

North: Furniture dominates (514,960 units), but Clothing underperforms (471,608 units). Regional preferences might be impacting Clothing sales.

East: Groceries are the most sold (513,781 units), reflecting steady daily demand, while Toys have the lowest sales (489,557 units), possibly due to limited interest or seasonal factors.

West: Clothing performs best (509,447 units), indicating a fashion-conscious region, while Electronics underperforms (481,496 units), mirroring trends in the South.

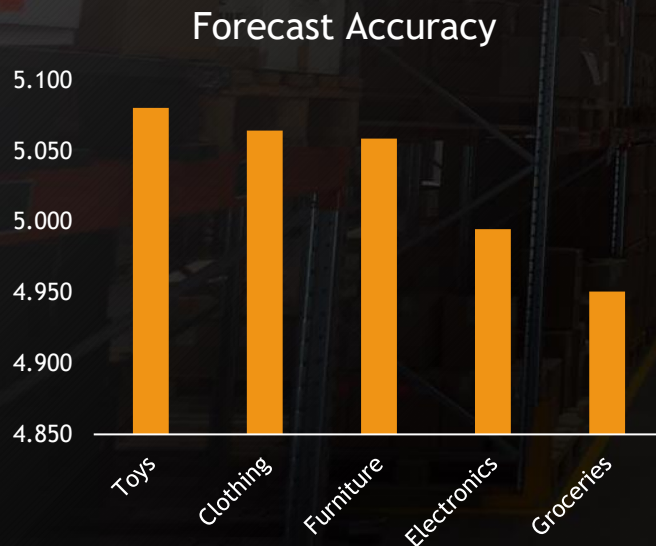
## Recommendations:

- Boost Electronics sales in South and West through promotions or better product positioning.
- Address Clothing's weak performance in the North with regional marketing campaigns.
- Leverage Furniture's strength in the South and North with optimized stock levels.
- Focus on maintaining Grocery dominance in the East by ensuring consistent supply.



# Forecast Accuracy

Row Labels	Average of Forecast Accuracy Error
Toys	5.080
Clothing	5.064
Furniture	5.059
Electronics	4.995
Groceries	4.951



## Forecast Accuracy Analysis: Key Findings

- Toys:** Highest forecast error due to unpredictable demand; needs focus on refining predictions.
- Groceries:** Lowest error, reflecting stable and predictable demand.
- Clothing & Furniture:** Moderate errors; impacted by trends and external factors.
- Electronics:** Relatively better accuracy, but scope for improvement remains.

## Recommendations

- 1.**Focus on Toys:** Incorporate seasonality, promotions, and competitor analysis.
- 2.**Replicate Grocery Success:** Apply strategies from groceries to other categories.
- 3.**Enhance Forecast Models:** Use additional variables and advanced techniques.
- 4.**Track Patterns:** Analyze errors by region and time for actionable insights.

**Outcome:** Improved forecasting accuracy will reduce costs, optimize inventory, and enhance customer satisfaction.

# Order Fulfilment Analysis

Categories	Percentage Count of Order Fulfilled
<b>Clothing</b>	
Over Fulfilled	10.38%
Under Fulfilled	9.56%
Perfectly Fulfilled	0.07%
<b>Clothing Total</b>	<b>20.01%</b>
<b>Electronics</b>	
Over Fulfilled	10.22%
Under Fulfilled	9.55%
Perfectly Fulfilled	0.10%
<b>Electronics Total</b>	<b>19.86%</b>
<b>Furniture</b>	
Over Fulfilled	10.46%
Under Fulfilled	9.59%
Perfectly Fulfilled	0.06%
<b>Furniture Total</b>	<b>20.11%</b>
<b>Groceries</b>	
Over Fulfilled	10.36%
Under Fulfilled	9.56%
Perfectly Fulfilled	0.07%
<b>Groceries Total</b>	<b>19.99%</b>
<b>Toys</b>	
Over Fulfilled	10.43%
Under Fulfilled	9.54%
Perfectly Fulfilled	0.06%
<b>Toys Total</b>	<b>20.03%</b>
<b>Grand Total</b>	<b>100.00%</b>

## Over-Fulfilled:

- All categories have approximately **10.3%-10.5% of orders over-fulfilled**.
- **Furniture (10.46%)** has the highest over-fulfilment rate, indicating potential overstocking or excessive inventory for this category.

## Under-Fulfilled:

- All categories have similar under-fulfilment rates (~9.5%-9.6%).
- **Clothing (9.56%)** and **Groceries (9.56%)** have the highest under-fulfilment rates, indicating potential stockouts or unfulfilled demand.

## Perfectly Fulfilled:

- Across all categories, perfectly fulfilled orders make up less than **0.10%**.
- This indicates significant room for improvement in aligning inventory with demand for all categories.

## Category Totals:

- The fulfilment trends are fairly consistent across all categories, with totals hovering around **20% for each category**.
- No single category stands out significantly, suggesting that fulfilment issues are systemic rather than category-specific.



# Seasonal Sales Percentages

Season-wise Regional Sales	Clothing	Electronics	Furniture	Groceries	Toys	Grand Total
Autumn	5.00%	4.94%	5.05%	5.19%	4.95%	25.13%
South	1.28%	1.24%	1.17%	1.31%	1.19%	6.20%
North	1.16%	1.27%	1.27%	1.32%	1.31%	6.32%
East	1.35%	1.23%	1.35%	1.28%	1.20%	6.40%
West	1.21%	1.20%	1.26%	1.29%	1.24%	6.20%
Winter	5.06%	4.87%	5.10%	5.06%	4.99%	25.08%
South	1.31%	1.21%	1.31%	1.33%	1.23%	6.39%
North	1.14%	1.27%	1.35%	1.14%	1.26%	6.17%
East	1.29%	1.22%	1.18%	1.38%	1.25%	6.31%
West	1.33%	1.17%	1.25%	1.21%	1.25%	6.21%
Spring	5.02%	4.93%	5.21%	4.80%	4.98%	24.94%
South	1.28%	1.17%	1.28%	1.20%	1.29%	6.22%
North	1.28%	1.22%	1.32%	1.22%	1.26%	6.30%
East	1.17%	1.26%	1.32%	1.23%	1.15%	6.12%
West	1.29%	1.28%	1.29%	1.15%	1.28%	6.29%
Summer	4.96%	4.92%	4.93%	5.00%	5.04%	24.85%
South	1.26%	1.20%	1.38%	1.26%	1.23%	6.33%
North	1.15%	1.23%	1.22%	1.23%	1.29%	6.12%
East	1.28%	1.30%	1.17%	1.27%	1.31%	6.33%
West	1.28%	1.18%	1.16%	1.25%	1.20%	6.07%
Grand Total	20.04%	19.65%	20.30%	20.05%	19.95%	100.00%

# Story on Seasonal Sales Trends

## Key Insights with Concise Recommendation:

1. **Seasonal Peaks:** Sales peak in Autumn (25.13%) and Winter (25.08%), reflecting strong seasonal demand.
2. **Regional Performance:** The West region consistently leads in sales, while the North contributes the least.
3. **Category Highlights:** Groceries and Furniture dominate sales across all seasons, with Clothing performing better in Winter.

## Recommendation:

Optimize inventory for peak seasons like Autumn and Winter, focus resources on the West region, and ensure sufficient stock for high-demand categories such as Groceries and Clothing during seasonal peaks.



# Inventory Turnover Rate

Product Category	Average of Stock Turnover Rate	Sum of Units Sold
Furniture	49.96%	2025017
Clothing	49.90%	1999166
Toys	49.81%	1990485
Groceries	49.75%	2000482
Electronics	49.58%	1960432

Stock Turnover Rate Analysis



## Inventory Turnover Rate Summary

- **Furniture (49.96%):** Highest turnover, indicating strong demand and efficient inventory.
- **Electronics (49.58%):** Lowest turnover, suggesting overstocking or slow sales.
- **Clothing, Toys, Groceries:** Balanced turnover rates (~49.8%), reflecting steady demand.

## Action Required

Maintain Furniture stock, address slow-moving Electronics, and monitor balanced categories for consistent performance.

# Stock Alignment Analysis

Count of Inventory	Column Labels		
Alignment Status			
Product Categories	Aligned	Overstock	Understock
Furniture	2	14173	524
Toys		14135	508
Clothing		14116	510
Groceries	1	14075	535
Electronics		14013	508

## Inventory Alignment Summary

**Overstock:** Highest in Furniture (14,173) and Toys (14,135), indicating overestimation in demand.

**Understock:** Most frequent in Groceries (535), risking missed sales opportunities.

**Aligned Inventory:** Rare, with only 2 cases in Furniture and 1 in Groceries.

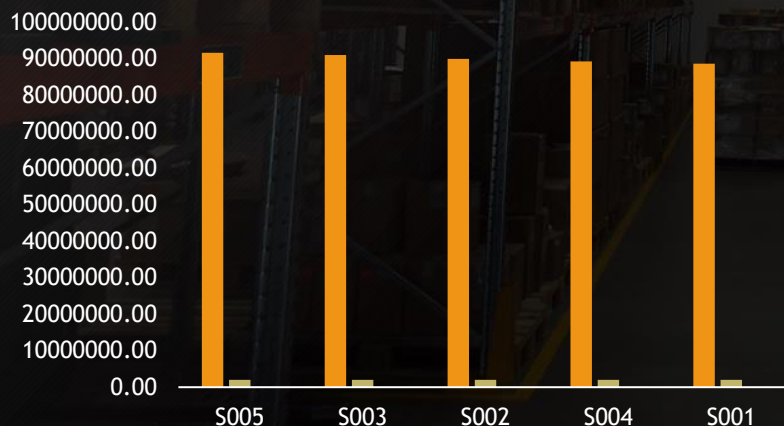
**Action:** Refine demand forecasting to reduce overstock and address understock issues, especially in Groceries, and Furniture.



# Store Performance

Store ID	Sum of Total Revenue	Sum of Units Sold	Average of Revenue per Unit
S005	91576796.32	2010176.00	45.27
S003	90962464.04	2022696.00	44.98
S002	89903187.59	1987715.00	45.07
S004	89187043.59	1979245.00	45.12
S001	88603463.37	1975750.00	45.19

Store Performance



## Store Performance Analysis

**Top Performer:** Store S005 has the highest **Average Revenue per Unit** at ₹45.27, indicating efficient pricing or a higher proportion of premium product sales.

**Lowest Performer:** Store S003 has the lowest **Average Revenue per Unit** at ₹44.98, suggesting potential pricing inefficiencies or a higher focus on low-margin products.

**Overall Revenue Leader:** Store S005 also leads in total revenue (₹91,576,796.32) and units sold (2,010,176), further solidifying its position as the best-performing store.

## Recommendations:

**Leverage S005's Strategy:** Analyze pricing or product mix strategies used by S005 to replicate success across other stores.

**Focus on S003:** Investigate reasons for lower revenue per unit and implement targeted strategies to improve profitability.

# Conclusion

This analysis reveals opportunities to optimize inventory, enhance regional and category performance, and improve operational efficiency. By leveraging these insights, we can drive growth, elevate customer satisfaction, and ensure long-term success.



A photograph of a large warehouse interior, showing high ceilings, metal shelving units, and stacks of boxes. The image is dimly lit, with a semi-transparent dark grey rectangle overlaid on the upper left portion. In the top right corner, there is a solid orange rectangle. The text 'Thank You' is written in white, sans-serif font within the dark grey area.

# Thank You

Thank you for your time!

Your partnership and insights are key to driving impactful change. Let's build success together!