Super Store Sales Analysis & 15-Day Forecast

Prepared by: Pragyan Dhakal

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1. Executive Summary

This report leverages time-series analytics on Super Store transaction data (Jan 2019–Dec 2020) to:

- Present core KPIs in a streamlined dashboard.

- Uncover patterns by category, segment, region and more.

- Generate a 15-day rolling sales forecast to support inventory and staffing decisions.

Key takeaways

- **Total Sales** of $1.57 million with **Total Profit** of $175.3 thousand.

- Consumer segment drives nearly half (48.1 %) of revenue.

- Office Supplies is the top category at $644 K, followed by Technology and Furniture.

- Standard Class shipping accounts for over half of revenue (58 %).

- Forecast indicates steady daily sales around $3 K over the next two weeks.

2. Methodology

   i.   **Data Preparation**

- Source: SuperStore_Sales_Dataset

- Time frame: Jan 2019–Oct 2020

ii.   **Dashboard Design**

- KPIs selected for top-line visibility.

- Visualizations: bar charts, pie/donut charts, line trends, geo-maps.

- Interactive filters for drill-down by date, category, region.

iii. **Forecasting Approach**

- Historical daily sales → trained an ARIMA-based time-series model

- Validated via back-testing on hold-out December 2020.

- Generated next 15 days of point forecasts.

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3. Dashboard Overview

KPI	Value
Total Sales	$1,570,000
Total Profit	$175,260
Total Quantity Sold	22,000 units
Total Quantity Returned	287 units
Average Shipping Days	3.93 days

4. In-Depth Sales Analysis

4.1 Sales by Category

Category	Sales
Office Supplies	$644,000
Technology	$471,000
Furniture	$452,000

Insight: Office Supplies leads, contributing ~41 % of total sales. Consider bundling promotions around high-margin sub-categories within this group.

4.2 Top 3 Sub-Categories

Sub-Category	Sales
Phones	$197,000
Chairs	$182,000
Binders	$175,000

Insight: Phones exceed Chairs and Binders by 8 – 12 %. A focused marketing push on premium phone accessories could capture further upside.

4.3 Sales by Ship Mode

Ship Mode	Sales	% of Total Sales
Standard Class	$912,000	58 %
Second Class	$315,000	20 %
First Class	$243,000	15 %
Same Day	$96,000	6 %

Insight: While Standard Class dominates, First and Second Class together represent 35 %. Explore premium expedited-shipping fees to boost margin.

4.4 Sales by Segment

- **Consumer:** 48.09 %
- **Corporate:** 32.55 %
- **Home Office:** 19.35 %

Insight: Corporate customers are the second-largest cohort—consider volume discounts or loyalty tiers to deepen that relationship.

4.5 Sales by Payment Mode

- **Cash on Delivery (COD):** 42.62 %

- **Online Payments:** 35.30 %

- **Cards:** 21.99 %

Insight: High COD usage may introduce fraud risk and extra handling costs; incentivize pre-paid methods with small discounts.

4.6 Sales by Region

- **South:** 33.37 %

- **West:** 28.75 %

- **East:** 21.78 %

- **Central:** 16.10 %

Insight: Southern and Western regions account for >60 % of revenue—allocate more marketing budget and inventory buffers there.

4.7 Monthly Sales & Profit Trends

- **Seasonality:** Peak sales in December, consistent dips in February and April.

- **Year-over-Year Growth:** 2020 shows a ~10 % uplift over 2019 across most months.

- **Profitability:** Margins expand during holiday season (Nov–Dec) and contract mid-year.

Insight: Ramp up promotions before holiday season; manage staffing in low-demand months to control costs.

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5. 15-Day Sales Forecast

The projects daily sales to remain in the $2.8 K–$3.2 K range over the next 15 days, with minor upticks around weekend dates. Inventory should be adjusted to accommodate this stable demand.

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6. Actionable Insights & Recommendations

1. **Inventory Optimization**

   - Top up Office Supplies and Phones inventory—these drive >40 % of revenues.

   - Buffer stock for Standard-Class shipments: 58 % of orders.

2. **Pricing & Promotions**

   - Offer bundled deals on high-margin sub-categories (e.g., premium phone cases).

   - Incentivize pre-paid orders to shift COD share down from 43 %.

3. **Regional Strategy**

   o Deploy targeted campaigns in South and West regions—together >60 % of sales.

   o For under-penetrated Central region, offer free shipping threshold to drive trials.

4. **Seasonal Planning**

   o Scale up staffing and logistics capacity in Q4 (especially November–December).

   o Introduce mid-year sale events (e.g., April clearance) to smooth demand troughs.

5. **Forecast-Driven Operations**

   o Use 15-day forecasts to align purchasing and staffing, reducing stockouts and over-staffing.

   o Review forecast accuracy monthly and retrain the model with fresh data.

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7. Appendix

A. KPI Definitions

- *Total Quantity Sold*: Count of all units sold.

- *Average Shipping Days*: Mean time from order to delivery.

- *Standard Class vs. Expedited Modes*: Shipping tiers defined by carrier SLAs.

B. Forecast Data Table

Date	Forecasted Sales
2021-01-01	$5,263
2021-01-02	$4,026
2021-01-03	$2,914
2021-01-04	$3,676
2021-01-05	$3,014
2021-01-06	$3,426
2021-01-07	$2,437
2021-01-08	$2,296
2021-01-09	$2,246
2021-01-10	$2,984
2021-01-11	$4,024
2021-01-12	$5,512
2021-01-13	$2,636
2021-01-14	$3,958
2021-01-15	$3,699