BUSINESS DATA MANAGEMENT

Capstone Project Mid-term Report

Optimizing Sales and Problems faced by Ethnic Fashion Brand

Submitted By

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Executive Summary :

This report presents a comprehensive analysis of the data obtained from Adornia, an ethnic fashion brand based at Noida, Uttar Pradesh. showcasing the originality of the organization through relevant links and an attached letter of authorization. The metadata section contains the link to the dataset, along with detailed explanations of each column, ensuring clarity in understanding the data structure.The aim of this analysis is to provide insights and solutions to the identified challenges faced by the business.

The challenges identified for Adornia include variations in sales, high product returns and intense market competition.A number of analytical techniques were employed, each with a specific reason for use. Data preprocessing and cleaning provided a solid basis for analysis, and descriptive statistics yielded further insights into customer and product behavior. Distribution analysis successfully segmented products and customers, and trend analysis revealed strong sales trends over time.

Major findings on sales trends, consumer behavior, and product performance were emphasized. A comprehensive analysis, backed by specific recommendations for Adornia, will be part of the final submission to improve operational effectiveness and spur business growth.

By embracing the suggested strategies and testing other data needs, Adornia can become more competitive, expand revenue, and reduce reliance on a single sales channel. This research provides an evidence-based platform for decision-making and strategy formulation and gives Adornia facts to propel growth, profitability, and long-term sustainability in the midst of heightened competition.

Proof of Originality :

- Organization's Name : Adornia
- Type of Organization : B2C (Business-to-Consumer)
- Organization's Location : First Floor, A, 20, Sector 5, Noida, Uttar Pradesh 201301
- Founder's Name : Gaurav Dwivedi
- Phone: +91 9621319991

- Email: support@adornia.co.in

- Number of Employees : 15-25 (approx)

- Quarterly Turnover : Rs. 30-35 Lakhs (approximately)

- Working Day/Time : MON - SAT / 9 AM to 7 PM

ADORNIA

GSTN:-09AAICN9819MIZL

Authorization Letter

To whomsoever it may concern

We hereby authorize Mr. Kushal Tiwari (Roll No: 23F3000514), a student at the Indian Institute of Technology Madras, to collect and analyze data from our organization as part of his capstone project for the Business Data Management course.

We kindly request that the data provided be used solely for academic purposes related to this project. It should remain confidential and must not be shared, published, or disclosed to any third party without our prior written consent. We trust Mr. Tiwari to handle this information responsibly and in accordance with ethical and data protection guidelines.

We appreciate his efforts in conducting this project with us and wish him success in his academic endeavors.

Yours faithfully,

Gaurav Dwivedi
(ADORNIA)

Date: 01/03/2025

First Floor, A, 20, Sector 5, Noida, Uttar Pradesh 201301
support@adornia.co.in

Image 1 : Authorization Letter from organization

Image 2 : Adornia Office (front view)

Image 3 : Apparel stitching area

Image 4 : Adornia Office (Inside View)

- Interview Video : 🎬 Interview.with.gaurav.mp4
- Some more photographs : 📷 Photographs
- Authorization Letter : 📕 Authorization_Adornia.pdf

Metadata:

Data Link: ☒ Combined_sales7.xlsx

Description: The data collected by me is of primary type, which was gathered directly through one-to-one interactions with the owner. As the data had been previously saved on a platform named Unicommerce, it was further exported to an Excel sheet for additional analysis, which was done using Excel, Python, and supporting libraries.

Data collected time frame: 7 Month (Aug 2024 to Feb 2025)

Dataset Dimensions: The dataset contains 40 columns and 5,861 rows.

Columns:

1. **Shipping Details:** Shipping Address ID, City, State, Country, Pincode
2. **Billing Details:** Billing Address ID, City, State, Country, Pincode
3. **Invoice Details:** Invoice Code, Invoice Created Date
4. **Order Details:** Category, Item SKU Code, Item Type Name, Color
5. **Sales Channel:** Channel Name, Gift Wrap (Yes/No)
6. **Taxation:** HSN Code, GST Type Code, GSTIN
7. **Pricing:** MRP, Selling Price, Cost Price, Total Price
8. **Discounts & Payments:** Discount, Prepaid Amount, Subtotal
9. **GST Breakdown:** CGST, SGST, IGST, UTGST, CESS & respective rates
10. **Shipping Method:** Courier, Shipping Method, Tracking Status
11. **Order Status:** Sale Order Status, Shipping Courier Status
12. **Product Codes:** SKU Name, Seller SKU Code

Table 1: A Snapshot of how the data looks like

Descriptive Statistics:

Descriptive statistics entails summarizing and presenting information to give a brief and meaningful manner to express its dominant characteristics. It contains figures such as **averages,ranges and standard deviations** that enable us to grasp the key points of the data, variability, and distribution.

During the data cleaning and preprocessing process out of **132 columns 44 relevant columns** were retained, columns with null value, repeated values and irrelevant data were removed.

```
df.describe()
```

	Shipping Address Id	Shipping Address Pincode	Billing Address Id	Billing Address Pincode	HSN Code	MRP	Total Price	Selling Price	Cost Price	Prepaid Amount	...	
count	5.860000e+03	5860.000000	5.860000e+03	5860.000000	5817.0	5672.000000	5860.000000	5860.000000	0.0	5860.000000	...	586
mean	1.907992e+07	395816.746416	1.907992e+07	395816.746416	62045300.0	5329.806241	3424.919261	3424.919261	NaN	347.200625	...	2
std	1.091280e+06	218087.939499	1.091280e+06	218087.939499	0.0	1311.621781	919.108663	919.108663	NaN	1030.519872	...	7
min	1.703789e+07	110001.000000	1.703789e+07	110001.000000	62045300.0	1599.000000	879.000000	879.000000	NaN	0.000000	...	
25%	1.826779e+07	201306.000000	1.826779e+07	201306.000000	62045300.0	4299.000000	2639.000000	2639.000000	NaN	0.000000	...	
50%	1.891841e+07	400064.000000	1.891841e+07	400064.000000	62045300.0	4999.000000	3330.000000	3330.000000	NaN	0.000000	...	
75%	2.010297e+07	560024.000000	2.010297e+07	560024.000000	62045300.0	6499.000000	4199.000000	4199.000000	NaN	0.000000	...	
max	2.095199e+07	855101.000000	2.095199e+07	855101.000000	62045300.0	12999.000000	8999.000000	8999.000000	NaN	7450.000000	...	40

Average total unit price of sales is **₹3,424.92** with a **median** of **₹3,330**, which implies that half of the sales transactions are below this figure and half above. It suggests a fairly balanced distribution of sales, with a slight bias towards higher-priced items. The **standard deviation of ₹919.10** suggests a moderate dispersion of sales prices, that is, a mix of low- and high-end products in the inventory. Further, the **range** of total price is from **₹879 to ₹8,999**, highlighting the diversity in pricing and confirming that high-value products contribute significantly to overall revenue.

The average selling price of ₹3,424.92 is much lower than the **average maximum retail price (MRP) of ₹5,329.80,** suggesting a strong reliance on markdowns and discounts to boost sales. The **range in MRP**, from **₹1,599 to ₹12,999**, indicates a varied pricing strategy that serves both high-end and budget-conscious customers. In addition, the **median selling price of ₹3,330** being lower than the MRP supports the use of discounts in widespread application on various products. This highlights the importance of an adaptive pricing

strategy that seeks to maximize discount percentages, thus achieving a balance between revenue and margins.

Median prepaid amount is ₹347.20 with the **highest prepaid transaction being ₹7,450,** which means that although there are customers who pay in advance, most customers continue to choose Cash on Delivery (COD). Low **25th percentile and median (₹0.00)** of prepaid amounts support that **most orders are not prepaid**. This creates a window of opportunity for targeted marketing campaigns to incentivize prepaid payment by offering rewards or discounts for online payment, **which would help lower return rates and enhance cash flow**.

Detailed Explanation of Analysis Methods with Justification:

1) Data Cleaning & Preprocessing

Explanation:

Data cleansing ensures accuracy and consistency by resolving missing values, removing redundancy, and enforcing standardization of data formats. Outliers in price fields (Selling Price, Total Price) were checked using statistical techniques to avoid biased conclusions. These procedures result in credible analysis and sound conclusions.

Justification:

Preprocessing eliminates inconsistencies, preparing the dataset for analysis. Without it, sales data errors would mislead decision-making. A clean dataset improves data integrity, allowing accurate trend detection and pricing strategy assessment.

2) Descriptive Statistics for Sales Analysis

Explanation:

Descriptive statistics show significant measures of sales like mean ₹3,424.92, median ₹3,330, and standard deviation ₹919.10. They are employed to analyze price variations, average

values of sales, and patterns of revenue. Percentiles reflect product demand at different price levels.

Justification:

This method provides a quick but detailed snapshot of sales without sophisticated modeling. It reveals trends in prices, identifies demand concentration, and allows for discounting. Without it, deeper analysis would be context-free, and therefore decision-making would be less fact-based.

3) Distribution Analysis

Explanation:

Distribution analysis helps identify the frequency of sales from different channels and the best-selling products of Adornia. By analyzing the transactions per SKU and channel, we can see the most effective sales platforms and top-selling products. This helps us track sales distribution across different touchpoints, which helps optimize marketing and inventory planning.

Justification:

This technique is vital to determining top-selling sales channels and lead products, allowing for better decision-making. It allows for the effective distribution of resources, optimal stock levels, and channel-specific marketing campaign optimization to achieve maximum revenue and customer coverage.

4) Trend Analysis

Explanation:

Trend analysis detects sales trends over time by observing sales changes in revenue, demand, and seasonality. It is done by graphing sales data for months or quarters to identify growth patterns, peak seasons, and off-seasons. Moving averages and year-over-year statistics show whether sales are rising, level, or falling.

Justification:

Trend analysis optimizes inventory, marketing, and price by forecasting peak demand, streamlining stock levels, and facilitating targeted promotions. It offers anticipatory decision-making, avoids stockouts and overstocks, and maximizes revenue through data-based forecasting, making the business as a whole more efficient.

5) Correlation Analysis

Explanation:

Correlation analysis is applied to quantify the association between two quantitative variables, like discount and price. Through this analysis technique, trends in pricing practices, responses of customers, and sales outcomes can be ascertained. Positive correlation implies that both variables increase at the same time, whereas negative correlation implies that one variable increases while the other decreases.

Justification:

The technique is useful in gauging the influence of various variables on sales without supposing causality. It is more sophisticated than trend analysis with respect to measuring relationships and is used for fine-tuning price and discount schemes to generate the maximum revenue.
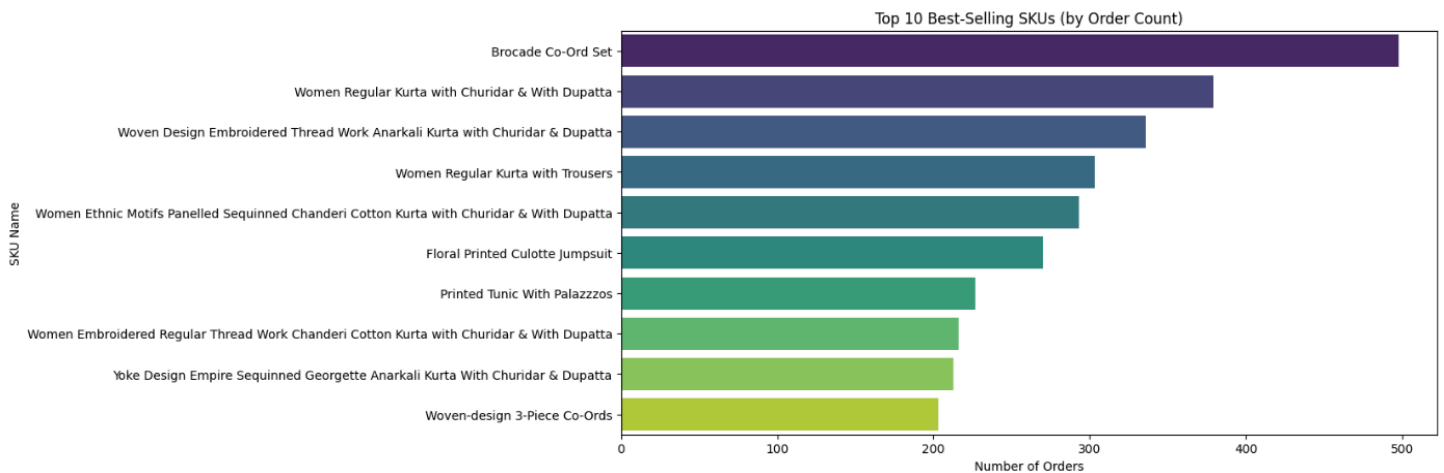
Results and Findings :

1) Top 10 Best selling Products

Fig 1 : Bar chart

The **Brocade Co-Ord Set** is the top-selling product with more than **500 orders**, indicating tremendous demand for co-ords. **Classic wear is the most popular**, with kurta sets, anarkalis, and dupatta sets being top sellers. Classic kurtas are a staple category, but fusion pieces such as floral jumpsuits and palazzo tunics are gaining traction. Demand for bundled pieces, such as 3-piece co-ords, indicates customers prefer to purchase complete outfits, providing key marketing and stock planning information.

2) Sales Distribution by Channel

Pie chart indicates **Myntra (80.5%)** as **the highest sales channel**, and **Nykaa Fashion (19.5%)** has much **lower sales**. This indicates greater customer interaction and outreach on Myntra. To boost Nykaa's sales, initiatives such as **greater visibility and targeted marketing** would be effective. In the meantime, improving pricing as well as inventory on Myntra can further boost revenue.
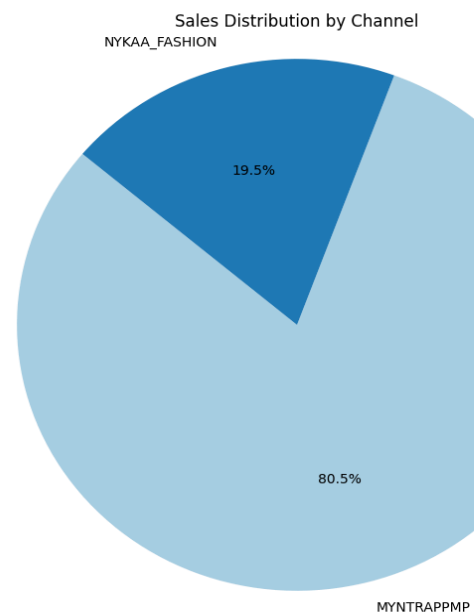
Fig 2 : Pie chart

3) Discount VS Sales Correlation Results

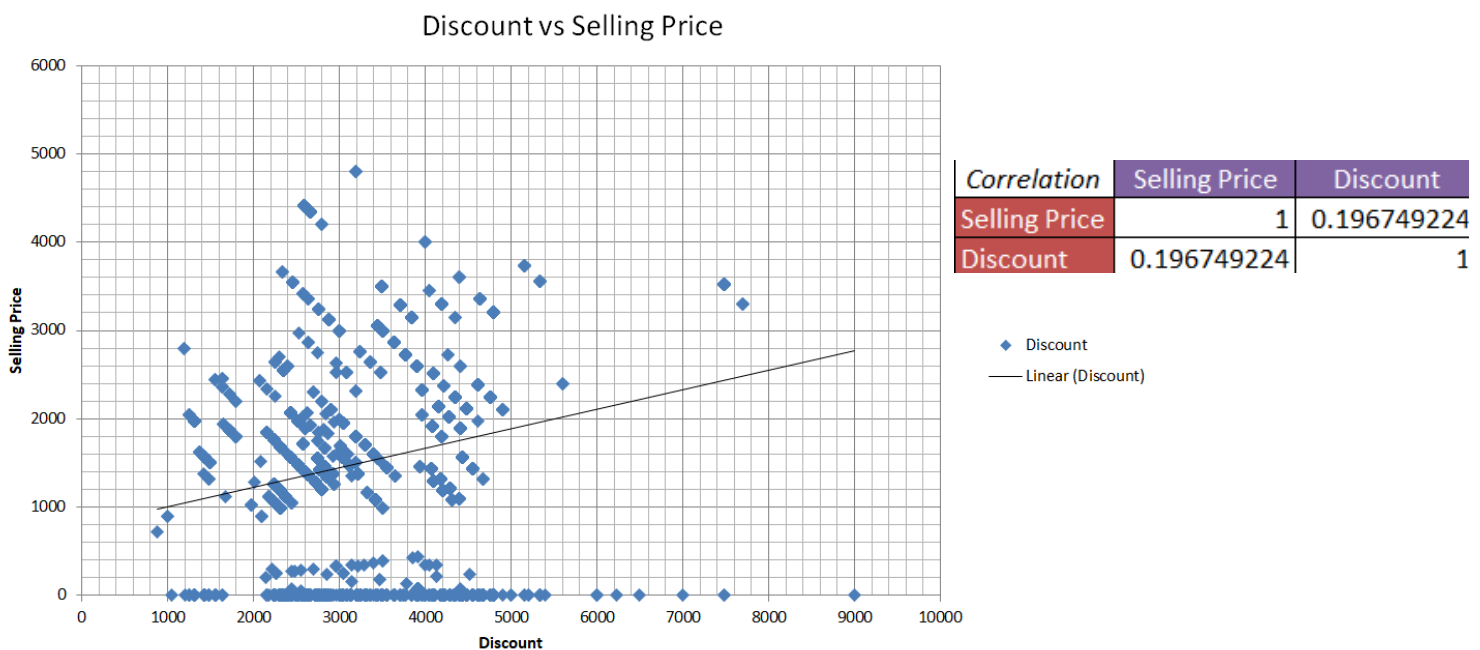| Correlation	Selling Price	Discount
Selling Price	1	0.196749224
Discount	0.196749224	1

Fig 3 : Scatter plot

The correlation matrix and scatter plot reveal that there is a **weak positive relationship (0.1967)** between **discount rates and selling prices.** This is a sign that more expensive items tend to be discounted at greater rates. There is **high variability** in data points, which means discounts are being offered randomly across prices. The retailers may be applying targeted discounts on expensive items to attract customers. Further research would be able to ascertain if discounting action effectively improves the performance of sales.
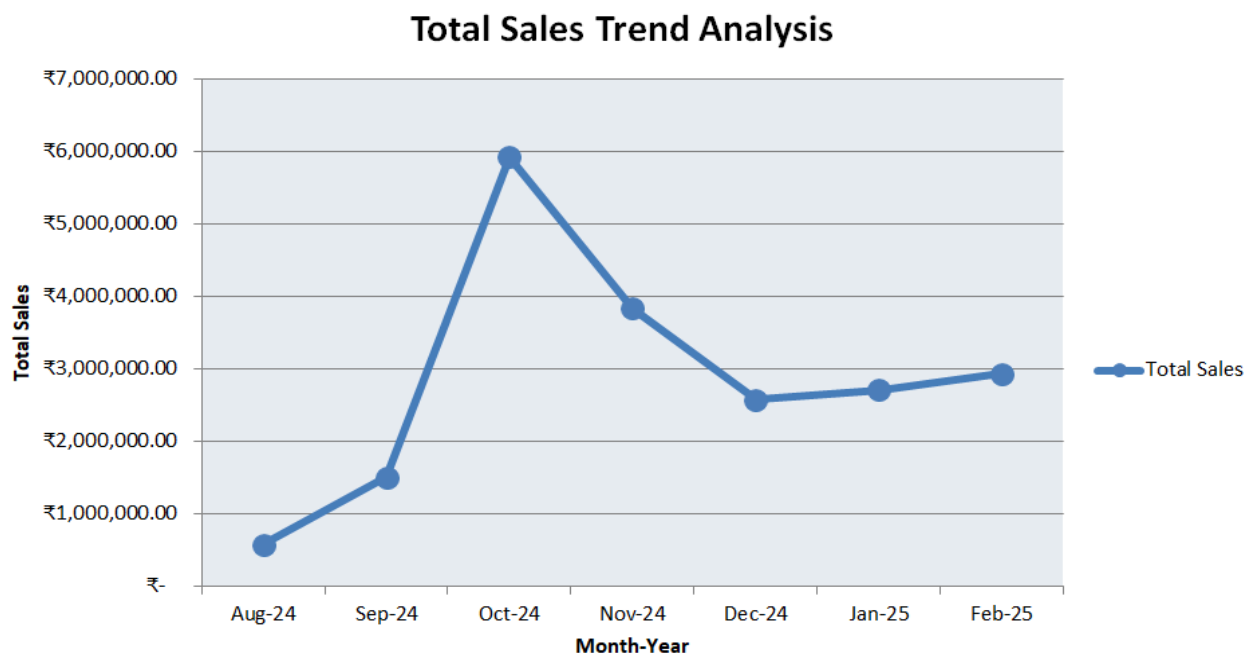
4) Sales Trend Analysis

Fig 4 : line trend chart

In **October 2024**, sales reached a high of **almost ₹6,000,000,** maybe owing to the **festive season, wedding season, or promotions**. This high, however, was followed by a **steep drop in November and December**, indicating post-holiday exhaustion and a lack of continued marketing efforts. Sales were steady in early 2025, with a little uptick in February, indicating a return to normal or the influence of well-executed marketing efforts. To capitalize on these insights, Adornia must prioritize **promotions during peak seasons**, develop post-festive retention strategies such as loyalty programs and **new collection launches**, and assess best-selling SKUs to maximize stock and sustain growth beyond seasonal highs.

(The findings are based on initial analysis; a deeper examination and recommendations will be provided in the concluding final submissions)