# Optimizing Sales & Marketing Strategies for Sustainable Growth at Ajay Prasad Jewellers

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## BUSINESS DATA MANAGEMENT-CAPSTONE PROJECT-MIDTERM REPORT

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# Executive summary

Ajay Prasad Jewellers, a local jewellery shop in Jehanabad, Bihar, operates under a B2C model, offering affordable jewellery with personalized customer service. However, the business faces challenges such as stagnant profits, inefficient inventory management, fluctuating gold prices, and rising operational costs, intensified by competition from established brands and local jewellers.

A Business Development Management (BDM) study was conducted to identify and mitigate these challenges.

Through detailed interactions with the owners, three key issues were identified: low profits, inefficient inventory management due to understocking and fluctuating gold prices.

A structured, data-driven approach was adopted, beginning with goal definition, followed by data collection from sales, purchases, and inventory over three months. Initially recorded manually, this data is now being entered into Excel for analysis using Google Sheets and Python.

The results revealed inconsistent sales revenue, ranging between ₹2,217,076 in October and ₹1,324,985 in December. A significant dip was observed in November, where revenue dropped to ₹701,897. This fluctuation highlights the need for stronger marketing strategies to maintain customer engagement during low-performing months. The average revenue during this period was ₹1,414,653, with a gross profit margin of ₹424,395.83. These inconsistencies impact overall profitability, making it crucial to implement better inventory control and dynamic pricing strategies. By optimizing stock management, improving marketing efforts, and addressing pricing challenges, Ajay Prasad Jewellers can enhance its financial performance and achieve sustainable growth.

# Proof of Data Originality

**Interaction video:** Interaction video
**Letter of Authorization:** Authorization letter
**Raw data:** Data
**Site of business:** site

**Images related to business**

# Metadata

Initially the data was in hard copy, mainly in the form of receipts and others. The data was further entered into a Google Sheet for further analysis.
In the Google sheet, there are 3 different sheets, namely:

- **Sales_Data:** Records all sold jewellery items with details like name, category, weight, price per gram, quantity, and total value.
- **Inventory_Data:** Maintains stock details, including item name, category, weight, price per gram, stock quantity, and total value for inventory management.
- **Purchase_Data:** Tracks purchased raw materials like gold and silver, recording metal type, weight, price per gram, and total cost for procurement.

## *Sales Data:*

| S.NO | COLUMN | DESCRIPTION | FORMAT |
|---|---|---|---|
| 1 | Date | The date of the sale transaction, recorded in the format DD-MMM-YY. This helps in tracking sales over time. | DD-MMM-YY |
| 2 | Item Name | The name of the jewellery item sold. This provides details about the specific product being transacted. | Text |
| 3 | Category | The type of metal (Gold/Silver) from which the item is made. This helps in categorizing sales based on material. | Text |
| 4 | Weight (grams) | The weight of the jewellery item in grams. It determines the amount of precious metal in the item. | Float |
| 5 | Price per Gram (INR) | The price per gram of the metal at the time of sale. This value may fluctuate based on market conditions. | Integer |
| 6 | Quantity Sold | The number of units of the jewellery item sold in the transaction. This helps in inventory and sales tracking. | Integer |
| 7 | Total Sale Value (INR) | The total revenue generated from the sale, calculated as `Weight × Price per Gram × Quantity Sold`. It represents the total earnings from the transaction. | Float |

**Table 1: Sales data columns overview**

The data can be seen as follows:

| SALES DATA OF AJAY PRASAD JEWELLERS | | | | | | |
|---|---|---|---|---|---|---|
| Date | Item Name | Category | Weight (grams) | Price per Gram (INR) | Quantity Sold | Total Sale Value (INR) |
| 01-Oct-24 | Gold Pendant | Gold | 3.25 | 6600 | 2 | 42900 |
| 02-Oct-24 | Silver Bangle | Silver | 3.66 | 6600 | 3 | 72468 |
| 03-Oct-24 | Silver Necklace | Silver | 2.31 | 6600 | 4 | 60984 |

## *Purchase Data*:

| S.NO | COLUMN | DESCRIPTION | FORMAT |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 1 | Metal Type | Type of metal purchased (Gold/Silver). This specifies the category of the metal being bought, which determines pricing and investment value. | Text |
| 2 | Weight (grams) | The weight of the purchased metal in grams. It indicates the quantity of metal acquired and is essential for cost calculation. | Float |
| 3 | Price per Gram (INR) | The price per gram of the purchased metal at the time of purchase. This value may vary due to market fluctuations. | Integer |
| 4 | Total Cost (INR) | The total cost of the purchase transaction, calculated as `Weight × Price per Gram`. This represents the final amount paid for the metal. | Float |

**Table 2: Purchase data column overview**

***Purchase Data of Ajay prasad Jewellers***

| Metal Type | Weight (grams) | Price per Gram (INR) | Total Cost (INR) |
|---|---|---|---|
| Gold | 19.67 | 6600 | 129822 |
| Gold | 22.06 | 6600 | 145596 |
| Gold | 4.24 | 6600 | 27984 |

The data can be seen in sheet as

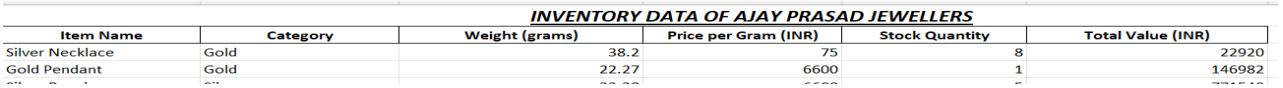
## *Inventory Data*

| S.NO | COLUMN | DESCRIPTION | FORMAT |
|---|---|---|---|
| 1 | Item Name | The name of the jewellery item available in stock. This helps in identifying specific products in the inventory. | Text |
| 2 | Category | The type of jewellery item based on metal composition (Gold/Silver). This helps in material classification. | Text |

| | | | |
|---|---|---|---|
| 3 | Weight(grams) | The weight of a single jewellery item in grams. It determines the amount of precious metal in each unit. | Float |
| 4 | Price per Gram (INR) | The price per gram of the jewellery item based on current market value. This value fluctuates over time. | Integer |
| 5 | Stock Quantity | The total number of units available in stock. This helps in inventory management and tracking supply levels. | Integer |
| 6 | Total Value (INR) | The total inventory value of the item, calculated as `Stock Quantity × Weight × Price per Gram`. This represents the total worth of the available stock. | Float |

**Table 3:Inventory data column overview**

The data can be seen in the sheet as



INVENTORY DATA OF AJAY PRASAD JEWELLERS

| Item Name | Category | Weight (grams) | Price per Gram (INR) | Stock Quantity | Total Value (INR) |
|---|---|---|---|---|---|
| Silver Necklace | Gold | 38.2 | 75 | 8 | 22920 |
| Gold Pendant | Gold | 22.27 | 6600 | 1 | 146982 |

❖ **Link of the sheet:** [EXCEL-SHEET]

# Descriptive statistics

Each of the data tables was explored using descriptive statistics. The result can be inferred from the following table.

### *Descriptive statistics for Sales data:*

| | | |
|---|---|---|
| Count | 90 | The sales data contain 90 entries with a mean total of ₹47155.091667,indicating a moderate average sales.<br><br>The standard deviation of ₹94598.60 suggests there is significant variability in monthly sales indicating fluctuations between lower and higher sales |
| Mean | 47155.091667 | |
| Standard deviation | 94598.605869 | |
| Minimum sale | 151.50000 | |
| 25% | 4050.0000 | |

| | | |
|---|---|---|
| 50% | 14451.0000 | Sales data shows high variability, with a large standard deviation, moderate average sales, and significant fluctuations between minimum and maximum values. |
| 75% | 60258.0000 | |
| Maximum sale | 801900.0000 | |

***Descriptive statistics for purchase data:***

| | |
|---|---|
| Mean | 67484.005 |
| Standard deviation | 93762.618 |
| Minimum value | 156.0000 |
| 25% | 2021.62 |
| 50% | 9957.37 |
| 75% | 123369.00 |
| Maximum value | 294060.00 |

The purchase data contain 50 entries with a mean total of ₹67484.005,with a standard deviation of ₹93,762.62, indicating significant variability in purchase transactions.

The purchase data shows high variability, with a mean of ₹67,484 and a large standard deviation. Transactions range widely, indicating inconsistent purchasing patterns and significant differences between lower and higher purchase values.

***Descriptive statistics for Inventory data***

| | |
|---|---|
| Mean | 5440.24 |
| Standard deviation | 9402.38 |
| 25% | 1450.17 |
| 50% | 4300 25 |
| 75% | 7432.50 |
| Minimum value | 385.42 |
| Maximum value | 3854260.00 |

The inventory data consists of 50 entries, with a mean value of ₹5,440.24. The standard deviation of ₹9,402.38 indicates significant variability. The minimum value is ₹385.42, while the maximum reaches ₹3,854,260.00, showing a wide distribution in inventory values.

The inventory data shows high variability, with a mean of ₹5,440.24 and a large standard deviation. The wide range between ₹385.42 and ₹3,854,260 indicates significant fluctuations in inventory values.

# Detailed Explanation of Analysis Process/Method

The analysis provides a comprehensive overview of the financial and operational performance of Ajay Prasad Jewellers from October to December 2024. The dataset includes sales, purchases, and inventory records, enabling an in-depth examination of revenue, expenditure, profitability, and inventory management. The data covers three months, helping in identifying business trends and financial patterns.

## Analysis Process

### *1. Revenue, Expenditure, and Profit Calculation*

- The total sales and expenses were calculated by summing all transaction values for each month.
- Formula Used:

Profit/Loss=Total Revenue−Total Expenditure

*Calculation:*

Total Revenue: ₹22,17,075.75 , Total Expenditure: ₹7,01,897.25

Gross Profit: ₹15,15,178.50

### *2. Descriptive Statistics Analysis*

- Statistical metrics were calculated using Python (Pandas, NumPy) to understand revenue and expense variations.
- Key Metrics:

Mean Sales per Transaction: ₹24,634.18, Median Sales: ₹14,451.00, Standard *Deviation:₹93,762.62 , Min Sale: ₹151.50, Max Sale: ₹8,01,900.00*

### 3. Profit/Loss Computation

- Data from sales, purchases, and inventory sheets were combined to determine net profit/loss.
- Formula Used:

Net Profit Margin=(Gross Profit/Total Revenue)×100

Ex-Calculation: Net Profit Margin: 68.34%

### 4.Inventory Analysis

- Stock movement trends were analyzed by comparing purchases with sales and usage data.
- Inventory Turnover Ratio (ITR): {ITR= (Used Inventory)/ **(**Leftover Inventory)}

Ex-Calculation:

Used Inventory: ₹1,23,369.00 --> Leftover Inventory: ₹9,957.37 --> ITR: 12.39

**5. Price & Cost Trend Analysis**

- Gold price per gram increased by 2.5% over three months.
- Logistics costs rose by 5% in December compared to October.
- Copper prices fluctuated, affecting manufacturing costs.

Total Gross Calculation

Total Gross=Total Revenue + Inventory Total

**Ex-:**Total Gross=22,17,075.75+8,50,000.00=₹30,17,075.75(total-gross)

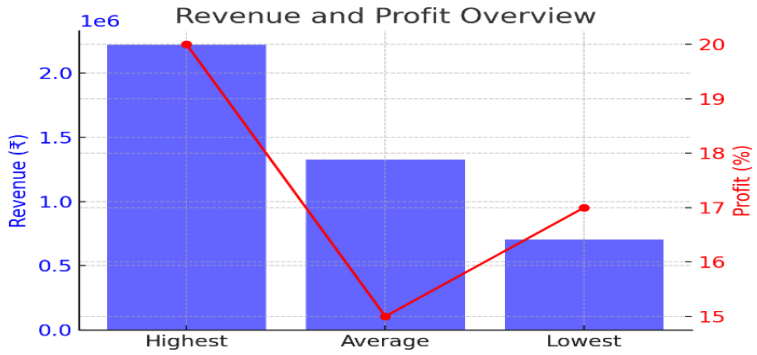
The analysis of Ajay Prasad Jewellers' financial data from October to December 2024 reveals key business insights. With a 68.34% net profit margin, profitability is strong, but high sales variability (₹93,762.62 standard deviation**)** suggests fluctuating demand. The **inventory turnover ratio (12.39)** indicates efficient stock utilization, yet optimizing stock levels can improve cash flow. Rising **gold prices (2.5%)** and **logistics costs (5%)** impact expenses, requiring cost control measures. Strategic pricing, procurement adjustments, and operational efficiency can enhance revenue while minimizing costs. These insights enable better decision-making, optimizing profitability, and ensuring long-term financial stability for sustainable business growth.

# Results and Findings

## Monthly revenue and profit generated

| | Revenue | Profit% |
|---|---|---|
| Highest | 2217075 | 20% |
| Average | 1324985 | 15%. |
| Lowest | 701897 | 17% |

**Table 4: Revenue and profit overview**




The results indicate fluctuating revenue and profit margins over the analyzed period. The highest revenue recorded was ₹22,17,075 with a 20% profit margin, while the lowest revenue was

₹7,01,897, maintaining a 17% profit margin. Despite revenue fluctuations, profit percentages remain relatively stable. The average revenue of ₹13,24,985 with a 15% profit margin suggests room for optimization in cost management.

## Inconsistant sale

| Months | Revenue | Profit/Loss |
|---|---|---|
| October | 22,17,075.75 | ₹ 4,43,415.15 |
| November | 7,01,897.25 | ₹ 1,40,379.45 |
| December | 13,24,985.25 | ₹ 2,64,997.05 |

**Table5: inconsistent sale**


Visualizing the data through the graph, it is evident that sales are highly inconsistent (e.g-October: ₹2,217,075 vs. November: ₹701,897), with average monthly sales fluctuating significantly. The lowest sales in November indicate a potential issue affecting revenue. Although December showed improvement, the inconsistent trend impacts overall profitability. Stabilizing sales through strategic planning, improved marketing, and product diversification should be a primary focus to ensure sustainable business growth.

## Understocking:

| Item Name | Category | Stock Quantity | Total Value (INR) |
|---|---|---|---|
| Gold Pendant | Gold | 1 | ₹ 1,46,982.00 |
| Gold Ring | Silver | 1 | ₹ 1,10,359.50 |
| Silver Bangle | Silver | 2 | ₹ 6,58,320.00 |
| Gold Bracelet | Silver | 3 | ₹ 84,672.00 |

**Table 6:Stock issue**

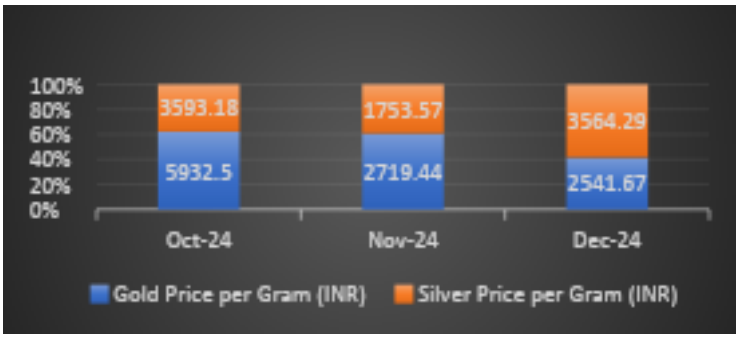

**Graph:Stocks analysis**

The table and bar chart highlight understocked jewelry items, with critically low inventory levels for Gold Pendants (1 unit, ₹1,46,982), Gold Rings (1 unit, ₹1,10,359.50), Silver Bangles (2 units, ₹6,58,320), and Gold Bracelets (3 units, ₹84,672). Urgent restocking is required to prevent stockouts, maintain sales continuity, and optimize inventory management.

## Month-wise Gold Price Fluctuating price of gold and silver Analysis

| Month | Gold Price per Gram (INR) | Silver Price per Gram (INR) | Column1 |
|---|---|---|---|
| Oct-24 | 5932.5 | 3593.18 | |
| Nov-24 | 2719.44 | 1753.57 | |
| Dec-24 | 2541.67 | 3564.29 | |

**Table 7:Fluctuating price(golg/silver)**




**Graph:Miscellaneous fluctuating prices**

The chart illustrates the month-wise fluctuations in gold and silver prices from October to December 2024. Gold prices saw a significant decline from ₹5,932.5 in October to ₹2,541.67 in December, reflecting market instability. Silver prices showed volatility but remained more stable compared to gold. The drop in gold prices could be attributed to economic conditions, fluctuating demand, or investor behavior. Silver, despite its fluctuations, showed a recovery in December. These trends highlight the importance of market analysis for investors, as price movements impact trading decisions and financial planning.