MediSmart: A Medical Store Analysis

A Proposal report for the BDM capstone Project

Case Study of Akanksha Medicals

Submitted by

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1 Executive Summary and Title

Title : MediSmart: A medical store analysis

This project is designed to improve the operational efficiency of Akanksha Medicals, a medical store located in Alwar, Rajasthan. The business deals in B2C sales, catering to the medical needs of customers while managing a range of pharmaceutical products. However, the store is facing challenges due to inconsistent financial tracking, overstocking, and inefficient invemtory management. These issues have led to reduced profitability and cash flow problems. The project aims to resolve these challenges by implementing an automated system that tracks inventory, analyzes sales trends, monitors financial performance, and provides valuable customer insights. By utilizing modern data tools, this multi-step approach will offer real-time data management, helping the store make data-driven decisions. The system will help identify fast-moving products, reduce overdtocking, and minimize financial inefficiencies, ultimately improving profitability.

Goal for mid-term:

1.1 Ensure all sales and purchase records are accurate and up to date.
1.2 Identify top-selling products and adjust stock levels based on demand trends.
1.3 Review and adjust product prices to increase profit margins.
1.4 Analyze customer demographics to tailor marketing strategies.

2 Proof Of Originality

Name : Akanksha Medicals

Owner : Mr. Sanjay gupta

Address : 4/434, Kala Kuan, Aravali vihar, 3/599, Kala Kuan Housing Board, Aravali Vihar, Alwar, Rajasthan 301001

Akanksha Medicals is a locally owned pharmacy located in Alwar, Rajasthan, India. It offers a wide range of medicines, health and wellness products, and medical equipment. The store is well-stocked with all the necessary items and is managed by a team of experienced professionals. The store also provides online services for customers to order medicines and other products. Customers can also avail of discounts and offers on various products. Akanksha Medicals is committed to providing quality products and services to its customers.

In order to meet the demands of the general public, the store has gradually increased the range of goods it offers to include over-the-counter medications, health supplements, and personal hygiene items. Nevertheless, the store has experienced operational inefficiencies, notably in inventory management and sales tracking, much like many small enterprises.

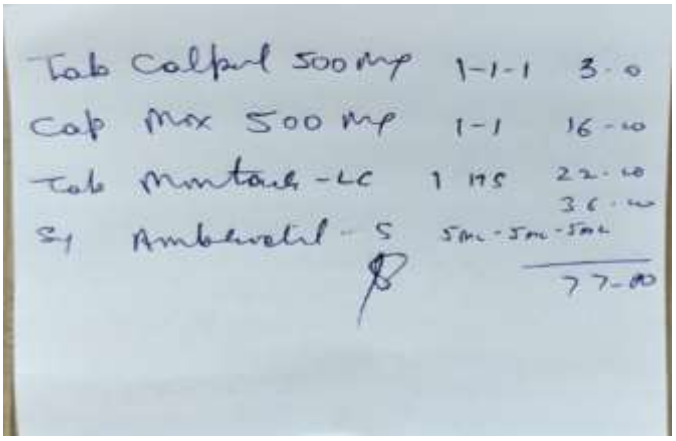
Images:

I have included visual documentation including images of the actual company, informal receipts, and example bills that the shop used to meticulously record every transaction to back up my claims.

2.1 Exterior Photo of shop

2.2 Photo of Owner with shop

2.3 Photo of me with owner of shop



2.4 One of picture of sale (informal bill)

Although the absence of formal data retention may limit the availability of documentation, the informal bill snapshots offer an insight into the shop's transactional activity and sales records. This information highlights the store's importance as a dependable provider of daily necessities for the community, as well as its track record of providing premium products and excellent customer service.

Even in the absence of official records, these phtoos help us understand the shop's role in the neighborhood and provide valueable insights into its operations.

Drive Link:

1. https://drive.google.com/drive/folders/1TCmc7b2iDP-RLnAyur1feZS45yL1POVq?usp=drive_link

3 Metadata and Descriptive Statistics

I have laboriously put together a comprehensive dataset that runs for thirty days, from September 1st, 2024, to September 30th, 2024. My data collection technique included both daily store visits and carefully scheduled alternating-day visits to ensure that all pertinent data was collected for the course of the project.

The following table provides the overview of variables with their description and unit for the collected dataset:

Variable	Description	Unit
Purchase Date	Date of purchase	Date
Sales Date	Date of sale	Date
Product Name	Name of product	Text
Payment Method	Mode of payment(Cash/Card)	Text
Quantity Bought	Number of items bought	Units
Quantity Sold	Number of items sold	Units
Selling Price	Price at which item is sold	INR (₹)
Cost Price	Price at which item is bought	INR (₹)
Total Amount	Total amount of sales/purchase	INR (₹)
Customer Age	Age of the customer	Years
Customer Gender	Gender of the customer	Male/Female

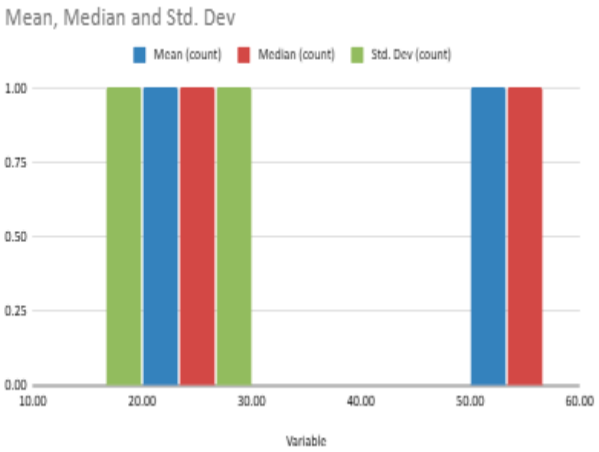
Data Link:

1. https://docs.google.com/spreadsheets/d/1DGpDCJ7QCMm8RJso9bgiRlfQ4yjUyi6O1aWdyDcBHHE/edit?usp=drive_link

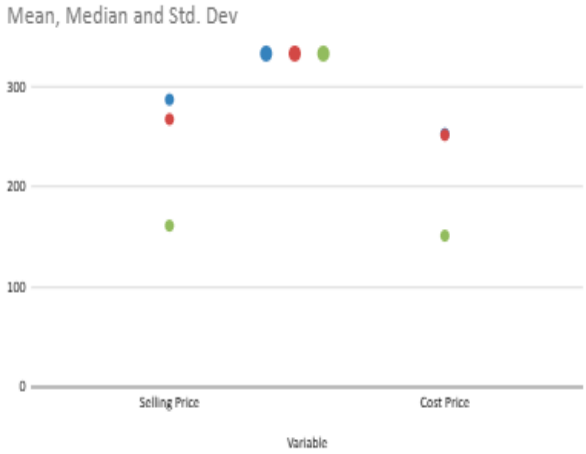
Here is the descriptive statistics analysis conducted based on the collected data, including the mean, median and standard deviation, for the variables:

Variable	Mean	Median	Std. Dev
Quantity Bought	55.62 Units	59 Units	26.58501 Units
Quantity Sold	26.43 Units	27.50 Units	14.2128 Units
Selling Price	₹286.89	₹267.29	₹161.0505
Cost Price	₹252.61	₹251.47	₹151.0570
Customer Age	43.46 Years	42.00 Years	14.5445 Years

The initial analysis of these variables provided insight into product sales, purchase quantities, and customer demographics.



3.1 Quantity Bought vs Quantity Sold



3.2 Selling Price vs Cost Price

4 Detailed Explanation of Analysis Process/Method

I collected purchase and sales data for Akanksha Medicals over a period of one month. The raw data included information on product names, quantities sold, quantities bought, customer demographics, payment methods, and pricing details. The first step was to clean and organize the data to ensure consistency and accuracy. This process involved addressing any missing values, correcting data inconsistencies, and removing outliers that could skew the analysis.

Once the data was cleaned, I applied descriptive statistical methods to summarize and explore the dataset in detail. The key variables examined included total sales, total purchases, selling price, cost price, and customer age. I used various visualizations such as column charts, bar graphs, scatter plots, and pie charts to better understand trends and patterns.

For instance, bar graphs were utilized to compare the quantities sold and bought for each product category (like antibiotics, pain relief balm, etc.), which helped in identifying top-selling products. Scatter plots were used to display the relationship between selling and cost prices across different products, giving a clearer view of profitability. I also used pie charts to visualize customer gender distribution and sales amounts, which helped analyze customer segments.

Formulas and Calculations:

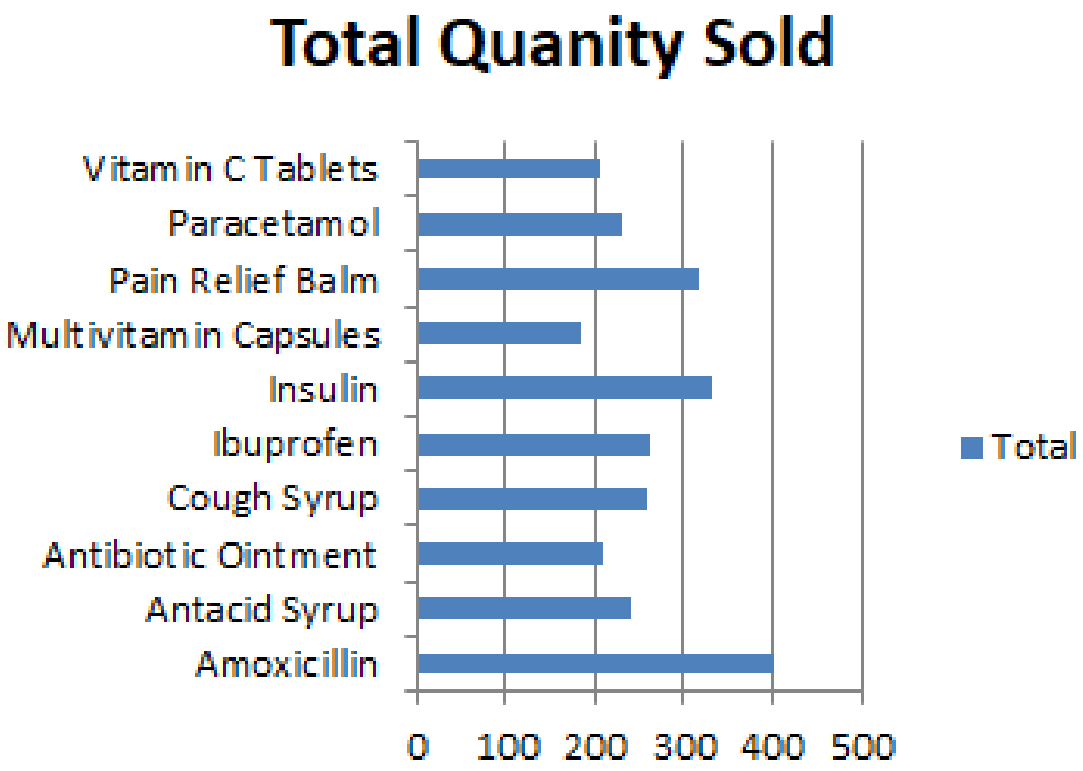
- **Total Sales:** Total Sales=∑(Quantity Sold×Selling Price)
- **Profit Margin:** Profit Margin= (Selling Price−Cost Price) / (Selling Price) ×100
- **Average Sales by Age Group:** Sales were grouped by customer age ranges to identify high-purchasing segments.

5 Results and findings

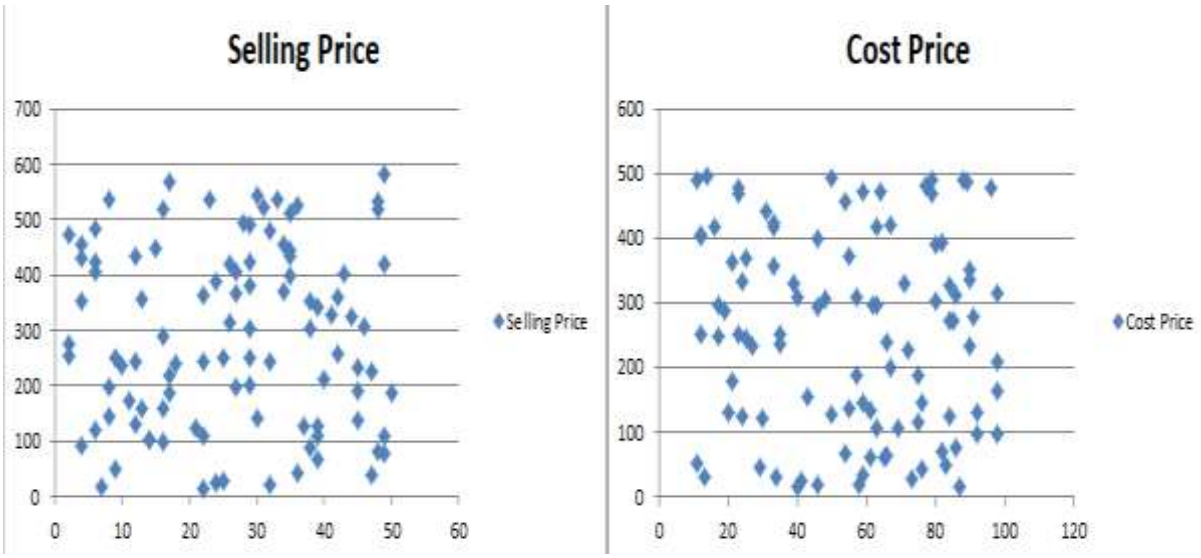
Based on the analysis using graphs and charts**,** several key findings emerged:

1. The top-selling products include Vitamin C Tablets and Paracetamol, which are sold in large quantities due to their general use.
2. The scatter plot indicates a wide variation in selling prices across products, suggesting the need for consistent pricing strategies.
3. Male customers contribute significantly more to sales than female customers. Most customers fall within the 19-27 age group.
4. The firm's total purchases (₹1.36M) are significantly lower than its total sales (₹7.6M), indicating a healthy profit margin.
5. The data shows that frequently purchased items, such as basic medicines and supplements, have a higher turnover rate compared to specialized products.

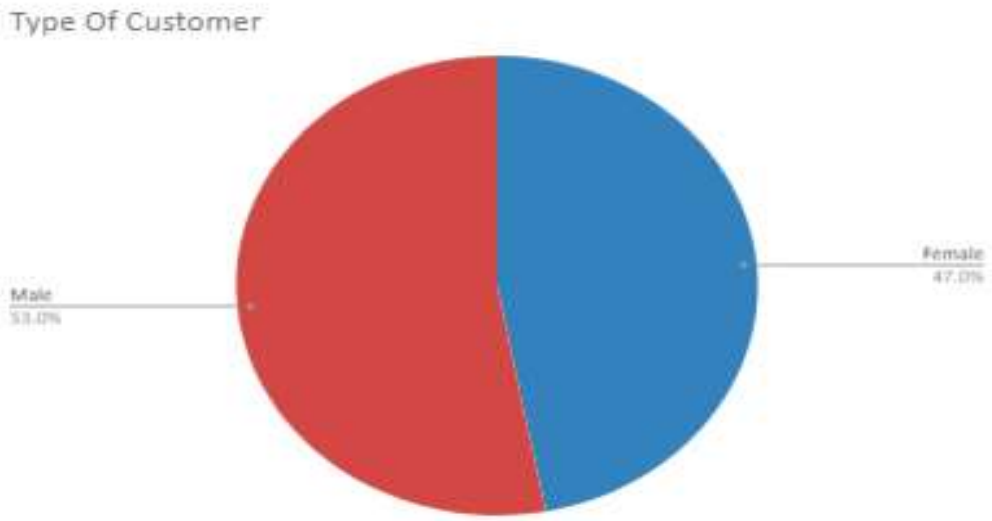
The following graphs are analyzed :



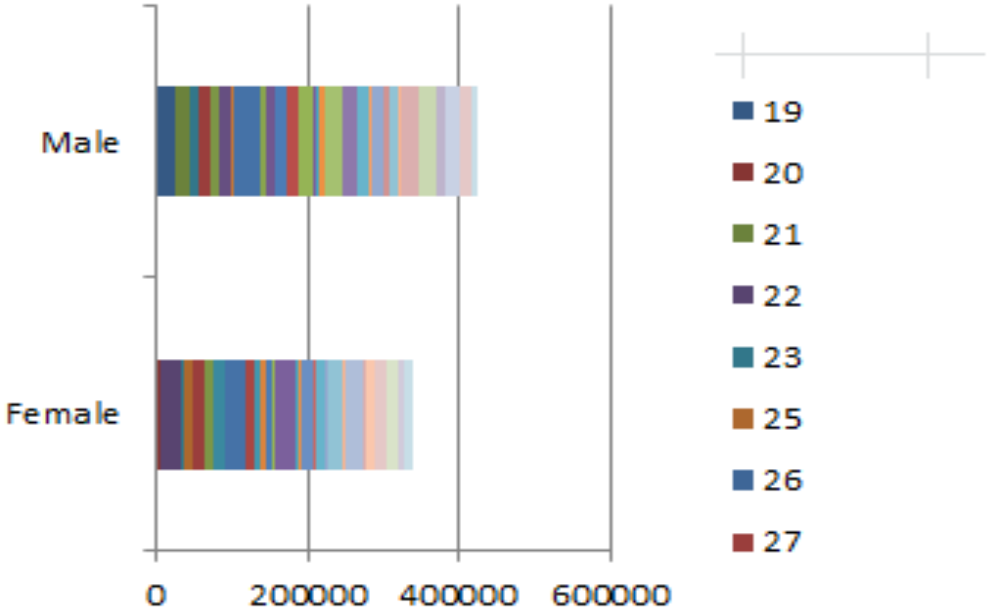
5.1 Total quantity sold per medicine



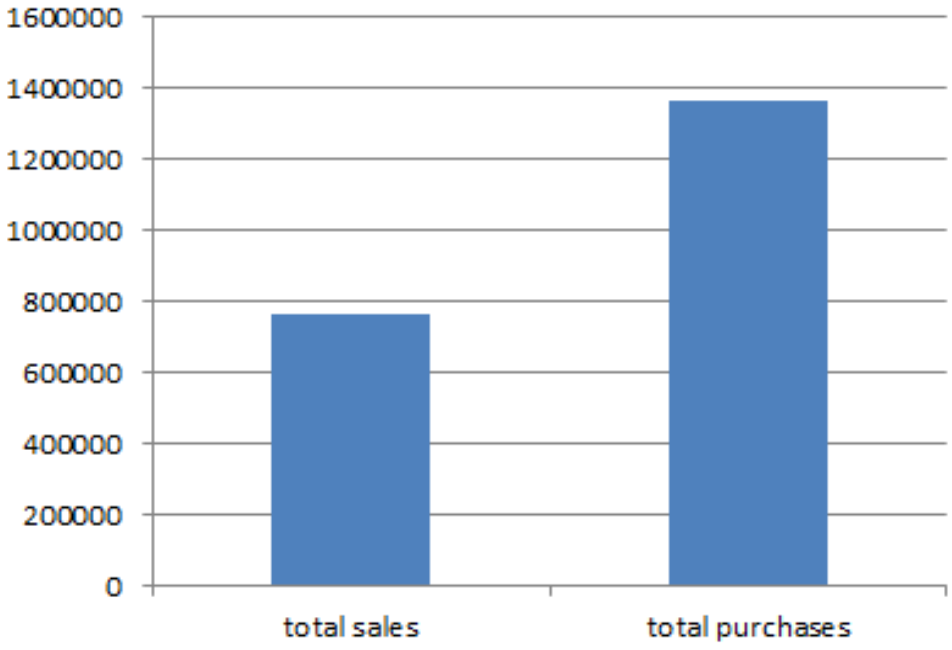
5.2 Selling Price vs Cost Price



5.3 Customer types based on gender



5.4 Total sales by customer type and age



5.5 Total Sales vs Total Purchases

Row Labels	Sum of Quantity Sold	Sum of Total Amount
Amoxicillin	403	133003.56
Antacid Syrup	241	90017.56
Antibiotic Ointment	209	88511.6
Cough Syrup	257	55447.93
Ibuprofen	263	37434.24
Insulin	330	63391.75
Multivitamin Capsules	186	57730.45
Pain Relief Balm	317	84977.89
Paracetamol	230	76358.39
Vitamin C Tablets	207	74750.35
Grand Total	**2643**	**761623.72**

5.6 Sales Of Product