Sales Insights Data Analysis

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1. Introduction

The goal of this project was to provide a comprehensive analysis of sales data to generate actionable business insights. By leveraging MySQL and Power BI, a large dataset of sales transactions was cleaned, transformed, and visualized to identify key performance indicators (KPIs), trends, and market-specific details. The resulting dashboard offers a clear and intuitive view of business performance from 2017 to 2020, empowering stakeholders to make data-driven decisions that can enhance sales and profitability.

2. Objectives

The primary objectives of this project were to:

- Analyze sales performance by calculating key metrics such as total revenue, sales quantity, and profit margin.

- Identify and visualize trends in revenue over time.

- Determine the top-performing markets, customers, and products based on revenue and sales quantity contributions.

- Analyze profitability across different markets to pinpoint areas of strength and weakness.

- Create a dynamic and interactive dashboard in Power BI to present these insights in a userfriendly format.

3. Scope of Works

The scope of this project involved a detailed analysis of sales data spanning from 2017 to 2020. The analysis was centered on the following key areas:

- Data Cleaning and Preprocessing: Initial data cleaning was performed using SQL, focusing on standardizing currency fields.

- Key Performance Indicators (KPIs): Calculation and presentation of total revenue, total sales quantity, and overall profit margin.

- Time-based Analysis: A visual representation of the revenue trend over the years to identify patterns and significant fluctuations.

- Market-specific Insights: Examination of revenue and sales quantity distribution across different markets.

- Profitability Analysis: Calculating the profit percentage for each market to identify which regions were the most profitable.

- Top Performers: Identification and ranking of the top 5 customers and top 5 products by revenue.

- Tooling: MySQL was used for data cleaning and preparation, while Power BI was the primary tool for data visualization and dashboard creation.
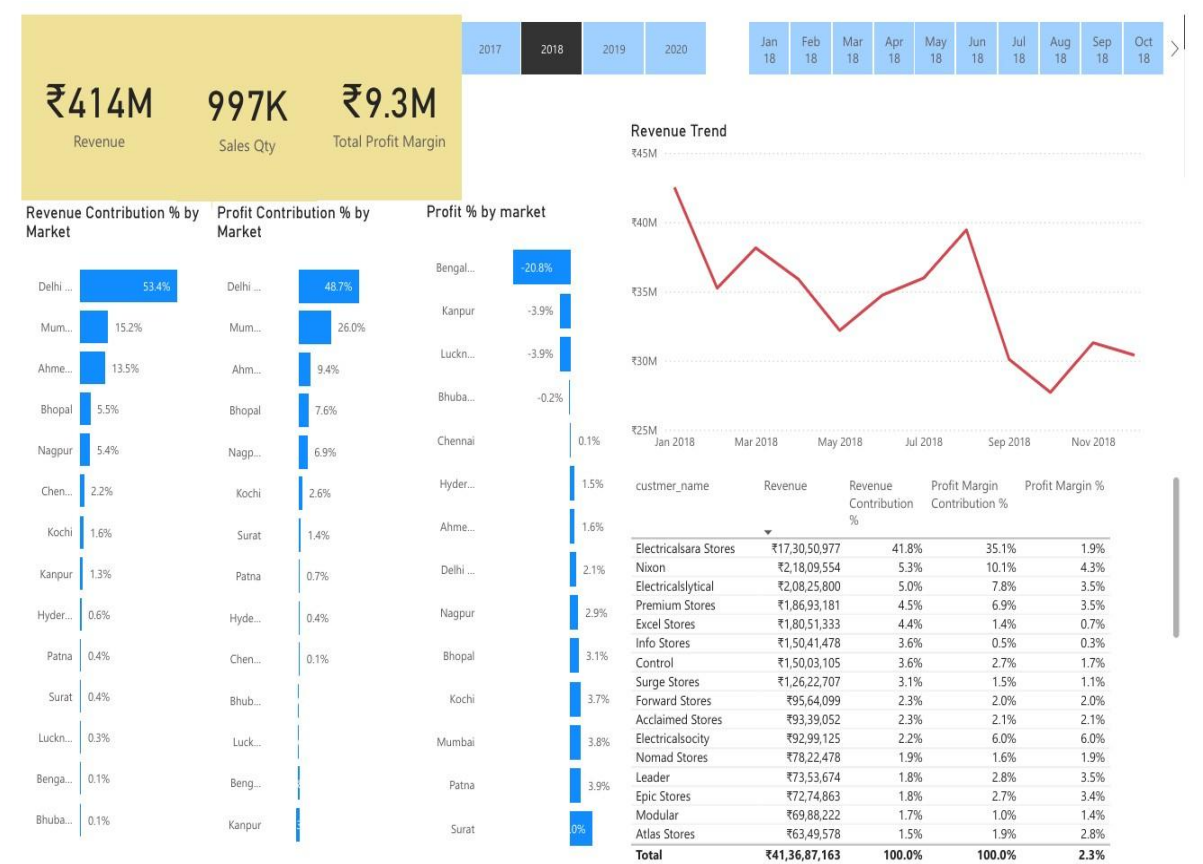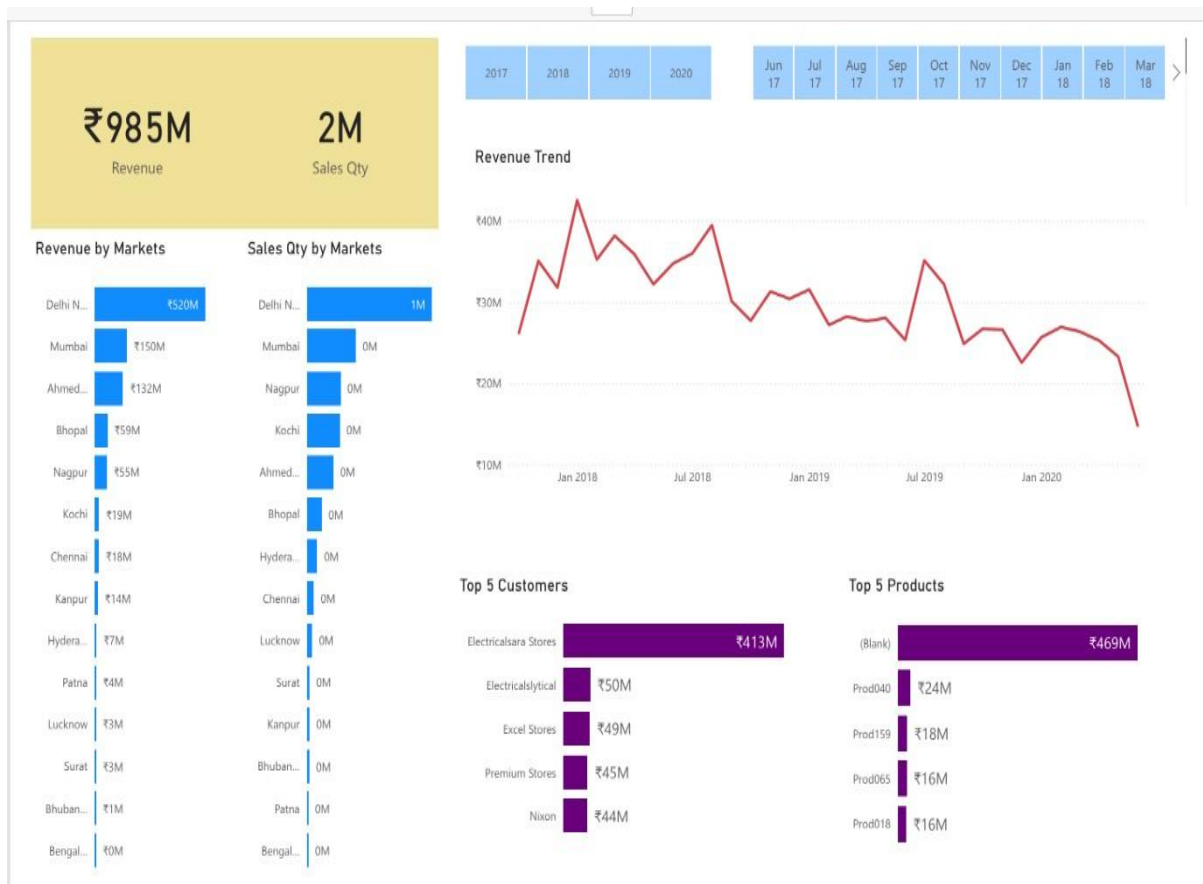
4. Methods Used

The project began with an initial data cleaning phase in MySQL. The provided SQL code snippets show distinct currency types were selected and counted to identify data inconsistencies. This step was crucial for standardizing the currency data, ensuring that both "USD" and "USD\r" were treated as a single currency.

Following the data preparation in MySQL, the majority of the analytical work was performed in Power BI. This involved loading the clean data and creating various visualizations and reports to meet the project's objectives. Measures were created using DAX (Data Analysis Expressions) to calculate total revenue, sales quantity, and profit margins, which formed the foundation of the insights presented in the dashboard.

5. Results

The analysis yielded several key insights into the company's sales performance:

- Overall Performance: The business generated a total revenue of ₹985M and sold 413M units. The overall profit margin was ₹9.3M , which translates to a 2.3% profit percentage.

- Revenue Trends: The revenue trend line from Jan 2018 to early 2020 shows significant fluctuations, with revenue generally ranging between ₹20M and ₹40M. The chart also indicates a sharp decline in revenue towards the end of 2020.

- Market Performance: The market analysis highlights strong performance in the Delhi NCR and Mumbai markets. Delhi NCR contributed ₹520M in revenue and 150M in sales quantity, while Mumbai contributed ₹150M in revenue and 40M in sales quantity.

- Profitability by Market: A profitability breakdown revealed that the Central region had a profit percentage of 3.9%, and the North region had 2.7%. A more granular view by market showed Delhi NCR was highly profitable (48.7% profit margin), but markets like Bangalore had a negative profit margin (-20.8%), indicating a significant loss.

- Top Customers & Products: The top customer was identified as "Electricalsara Stores," which contributed ₹17,30,50,977 in revenue. The most successful product was "Prod040," generating ₹24M in revenue.

Dashboard 1

₹985M — Revenue
2M — Sales Qty

Revenue Trend

Revenue by Markets

Market	Revenue
Delhi N...	₹520M
Mumbai	₹150M
Ahmed...	₹132M
Bhopal	₹59M
Nagpur	₹55M
Kochi	₹19M
Chennai	₹18M
Kanpur	₹14M
Hydera...	₹7M
Patna	₹4M
Lucknow	₹3M
Surat	₹3M
Bhuban...	₹1M
Bengal...	₹0M

Sales Qty by Markets

Market	Sales Qty
Delhi N...	1M
Mumbai	0M
Nagpur	0M
Kochi	0M
Ahmed...	0M
Bhopal	0M
Hydera...	0M
Chennai	0M
Lucknow	0M
Surat	0M
Kanpur	0M
Bhuban...	0M
Patna	0M
Bengal...	0M

Top 5 Customers

Customer	Revenue
Electricalsara Stores	₹413M
Electricalslytical	₹50M
Excel Stores	₹49M
Premium Stores	₹45M
Nixon	₹44M

Top 5 Products

Product	Revenue
(Blank)	₹469M
Prod040	₹24M
Prod159	₹18M
Prod065	₹16M
Prod018	₹16M

Dashboard 2

₹414M — Revenue
997K — Sales Qty
₹9.3M — Total Profit Margin

Revenue Trend

Revenue Contribution % by Market

Market	%
Delhi ...	53.4%
Mum...	15.2%
Ahme...	13.5%
Bhopal	5.5%
Nagpur	5.4%
Chen...	2.2%
Kochi	1.6%
Kanpur	1.3%
Hyder...	0.6%
Patna	0.4%
Surat	0.4%
Luckn...	0.3%
Benga...	0.1%
Bhuba...	0.1%

Profit Contribution % by Market

Market	%
Delhi ...	48.7%
Mum...	26.0%
Ahm...	9.4%
Bhopal	7.6%
Nagp...	6.9%
Kochi	2.6%
Surat	1.4%
Patna	0.7%
Hyde...	0.4%
Chen...	0.1%
Bhub...	
Luck...	
Beng...	
Kanpur	

Profit % by market

Market	%
Bengal...	-20.8%
Kanpur	-3.9%
Luckn...	-3.9%
Bhuba...	-0.2%
Chennai	0.1%
Hyder...	1.5%
Ahme...	1.6%
Delhi ...	2.1%
Nagpur	2.9%
Bhopal	3.1%
Kochi	3.7%
Mumbai	3.8%
Patna	3.9%
Surat	0%

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Electricalsara Stores	₹17,30,50,977	41.8%	35.1%	1.9%
Nixon	₹2,18,09,554	5.3%	10.1%	4.3%
Electricalslytical	₹2,08,25,800	5.0%	7.8%	3.5%
Premium Stores	₹1,86,93,181	4.5%	6.9%	3.5%
Excel Stores	₹1,80,51,333	4.4%	1.4%	0.7%
Info Stores	₹1,50,41,478	3.6%	0.5%	0.3%
Control	₹1,50,03,105	3.6%	2.7%	1.7%
Surge Stores	₹1,26,22,707	3.1%	1.5%	1.1%
Forward Stores	₹95,64,099	2.3%	2.0%	2.0%
Acclaimed Stores	₹93,39,052	2.3%	2.1%	2.1%
Electricalsocity	₹92,99,125	2.2%	6.0%	6.0%
Nomad Stores	₹78,22,478	1.9%	1.6%	1.9%
Leader	₹73,53,674	1.8%	2.8%	3.5%
Epic Stores	₹72,74,863	1.8%	2.7%	3.4%
Modular	₹69,88,222	1.7%	1.0%	1.4%
Atlas Stores	₹63,49,578	1.5%	1.9%	2.8%
Total	**₹41,36,87,163**	**100.0%**	**100.0%**	**2.3%**

6. Discussion

The sales insights project has provided a clear picture of the business's performance. The revenue trend analysis is critical for understanding historical performance and identifying periods of growth or decline. The market-specific data offers the most actionable insights. The stark contrast in profitability between Delhi NCR and Bangalore, for instance, suggests that management should investigate the operational costs, pricing strategies, or market conditions in Bangalore to address the losses. The identification of top customers and products allows the business to focus on its most valuable assets, potentially developing targeted marketing campaigns or loyalty programs. These insights collectively provide a robust foundation for strategic planning and corrective actions.

7. Conclusion

This project successfully leveraged data analysis to create a comprehensive sales insights dashboard. The findings provide a holistic view of the company's sales data from 2017-2020. Key insights into revenue trends, market performance, profitability, and top-performing customers/products are now available to guide strategic business decisions. The project's output serves as a powerful tool for improving operational efficiency and increasing overall profitability.

8. References

Sales Insights: Extracting Value From Hidden Data

Link: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4938126

Declaration by the Student

I, K Nikhila, hereby declare that the work presented in this report is an authentic record of my own self-initiated project. This work has been completed in accordance with the guidelines provided for a self-study project. The material has not been submitted to any other university or institution for any academic purpose.

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