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A Study of Sales Analysis and Visualization Through SQL and Business Intelligence at Pressure Jet System Pvt. Ltd.

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Abstract: *Sales Data Analysis provides an understanding of the product that your customers are buying and help you dissect why they are behaving in a certain way. Analyze this behaviour and lead the further process. Many global, industry-leading brand are now using their sales data in inventive ways to make better business decision, but any company can take advantages of insights and reporting tools to achieve data-driven sales success. The project aim to show on how we can use the Power BI with sales analysis data using SQL query for data cleaning and DAX query language and its performance on presenting the dashboard to the end users. So in this project, I have created dashboard to know the trends and business performance and also to know which product sales most, which product sales most in particular regions and market performance. The project represents the large dataset into visualization form that help to take business decision.*

The study will provide insights into various aspects of the sales process, including customer behavior, product performance, and revenue trends. By analyzing this data, the project will identify areas of improvement and opportunities for growth. The outcome of the project will be a sales analysis and visualization system that will help Pressure Jet System Pvt. Ltd. to make data-driven decisions, enhance customer satisfaction, and increase revenue.

Keywords: Sales Analysis, DAX query, SQL (Structured Query Language), dashboard, visualization, KPI (Key Performance Indicator)

I. INTRODUCTION

The study of data analysis and visualization of sales dataset using Power BI and SQL at PressureJet aims to analyze the sales data of PressureJet and provide insights to help improve sales and marketing strategies PressureJet is a company that produces high pressure cleaning systems and accessories, and has a wide customer base, including industrial, commercial, and residential clients. As such, analyzing the sales data can help the company understand the purchasing patterns and preferences of its customers and identify areas where the sales and marketing process can be improved pressure cleaning systems and accessories, and has a wide customer base, including industrial, commercial. As such, analyzing the sales data can help the company understand the purchasing patterns and preferences of its customers and identify areas where the sales and marketing process can be improved.

The study will use Power BI and SQL to analyze and visualize the sales data, including sales figures, customer demogra phics, and product sales. The resulting data visualizations will be used to identify patterns and trends in the sales data, a nd recommendations will be made on how to improve sales and marketing strategies.

Power BI is cloud-based data analysis, which can be used for reporting and data analysis from wide range of data source. Power BI is the technical and procedural representation of data. It is an infrastructure that collects, stores and analyze the data produced by a company's activity. Power BI parses all the data generated by a business and presents easy-to-digest reports, performance measures and trends that inform management decisions. BI components and software come in wide variety of Power query, Power map, Power pivot, Power view, Power Q&A, Power BI desktop.

Structured Query Language (SQL) is one of the programming languages which allows us to access and perform data analysis by using all the available data within our database, and manipulating or filtering it through queries. Thus, we can generate more insightful information out of the raw data.

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The study has the potential to provide valuable insights into how PressureJet can better serve its customes and increase sales revenue. By using advanced data analysis and visualization techniques.

II. LITERATURE REVIEW

The literature review highlights the significance of sales analysis and visualization through SQL and BI for organizations like PressureJet System Pvt. Ltd. The review reveals that sales analysis enables informed decision-making, forecasting, and strategic planning. SQL provides a robust framework for data extraction, manipulation, and querying, while data visualization tools and techniques enhance the presentation and interpretation of sales data. The findings from this literature review can serve as a foundation for the study of sales analysis and visualization at PressureJet System Pvt. Ltd. and offer valuable insights for implementing effective sales analysis and visualization practices.

sales analysis as a valuable tool for understanding sales performance and informing business decision-making. By examining various methods, metrics, data sources, and technologies used in sales analysis, this review offers insights into the practices and challenges associated with sales analysis. The findings from this literature review can serve as a foundation for further research and provide guidance for organizations seeking to enhance their sales analysis processes and improve overall sales performance.

2.1 OBJECTIVES

- To Analyze areas for improvement, and make data driven decisions that will help increase revenue and profits for PressureJet.
- To understand product performance, customer behavior, market trends, and more to provide a comprehensive analysis of the sales data.

2.2 HYPOTHESIS

Null hypothesis: There is no significant difference in sales trends on a monthly basis.
Alternate hypothesis: There is a significant difference in sales trends on a monthly basis

III. ANALYSIS & INTERPRETATION

Sales analysis and visualization through SQL and Business Intelligence (BI) involve extracting insights from the data and translating them into actionable recommendations.

SQL queries to extract and manipulate relevant sales data. Perform aggregations, filtering, and sorting operations to generate meaningful datasets for analysis.

Business Intelligence (BI) tools and techniques to explore the sales data visually. Create interactive dashboards, charts, and graphs to identify trends, patterns, and correlations within the data.Analyze key sales metrics such as sales revenue, sales growth rate, customer acquisition rate, average order value, and customer lifetime value. Identify the trends and patterns associated with these metrics over different time periods, product categories, or customer segments.

Evaluate the performance of different sales channels, products, or customer segments. Compare their revenue contributions, growth rates, and profitability. Identify top-performing and underperforming areas to prioritize improvement efforts.Segment customers based on their purchasing behavior, demographics, or other relevant factors. Analyze customer acquisition, retention, and churn rates. Identify customer preferences, purchasing patterns, and potential cross-selling or upselling opportunities.

Analyze market trends, competitive landscape, and external factors influencing sales performance. Incorporate market data and industry benchmarks to provide a broader context for the analysis.Interpret the visualizations created through BI tools. Identify significant trends, anomalies, or patterns that emerge from the visual representations. Explain the implications of these findings on sales strategies, marketing campaigns, and overall business performance.

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IV. CONCLUSION

The analysis of the sales data across 5 months revealed noticeable variations and patterns. There were clear fluctuations in sales figures, with each months showing higher sales volumes while others exhibited lower sales volumes. These variations suggest that sales performance is not consistent and can vary significantly from one month to another.

Based on these findings, it can be concluded that there is a significant difference in sales trends on a monthly basis. This implies that factors such as seasonality, promotional campaigns, economic conditions, or other variables may influence sales performance and contribute to the observed variations in monthly sales figures.

However, it's important to consider the limitations of the data sources and analysis conducted. The accuracy and reliability of the data depend on the quality and integrity of the data sources used. Additionally, there may be other factors or variables not included in the analysis that could also impact sales trends.

Because the quantity of each model of pump varies from month to month, we are unable to provide an exact forecast; however, we can provide an approximation based on monthly sales data. Due to this we will maintain approximate stocks of model pump.

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