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La Velona Wines: An Interactive Dashboard For Wine Analysis And Insights

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Abstract:-

This paper presents La Velona Wines, an interactive data visualization dashboard designed to analyze and interpret sales and quality data of various wine types, including Red, White, Rosé, and Sparkling wines. The dashboard was developed to provide users with an intuitive interface to explore key performance indicators (KPIs) such as total sales, customer ratings, and category-wise comparisons. Utilizing historical sales data and consumer feedback, the system highlights trends in wine preference, seasonal variations, and quality assessment across different wine categories. The analysis revealed that Red and White wines dominated total sales, while Sparkling wines consistently received higher customer ratings. The dashboard's visual components, including dynamic charts and filters, enabled efficient data-driven insights that support decision-making for producers, marketers, and distributors. This project demonstrates the effectiveness of visual analytics tools in the beverage industry and supports future enhancements in personalized wine recommendations and strategic inventory planning.

Keywords:-

La Velona Wines, Wine Dashboard, Business Intelligence, Wine Analytics, Red Wine, White Wine, Sparkling Wine, Rosé Wine, Sales Analysis, Data Visualization, Beverage Industry.

Introduction:-

In today's competitive wine industry, data-driven decision-making is essential for improving sales and customer engagement. La Velona Wines needed a way to visualize and understand its sales data across red, rosé, sparkling, and white wines. This paper presents a Power BI dashboard developed to analyze wine performance, identify trends, and support strategic planning. By using business intelligence tools, the company can move beyond manual reporting to interactive, real-time insights.

Literature Review:-

In recent years, the application of data analytics and business intelligence (BI) in the food and beverage industry has grown significantly. According to Smith et al. [1], dashboard-based systems help streamline operations by visualizing key performance indicators (KPIs) and enabling timely decision-making. Patel and Sharma [2] highlighted the use of BI tools such as Power BI and Tableau for sales forecasting and customer trend analysis in retail sectors, including wine markets.

Research by Gomez et al. [3] demonstrated the effectiveness of visual analytics in identifying top-selling wine categories and optimizing inventory. Another study by Lin and Zhou [4] focused on customer preferences in wine selection, finding that visualization dashboards help in personalizing marketing strategies.

These studies support the relevance of building a dashboard for La Velona Wines to analyze product performance, seasonal sales patterns, and consumer behavior. This paper builds upon prior work by integrating sales and inventory data into an interactive, easy-to-understand dashboard format for informed decision-making.

Work Carried Out:-

The analysis of La Velona's wine sales and customer ratings was structured into five primary stages, each contributing to a comprehensive understanding of consumer behavior and product performance. The workflow followed a data-driven survey approach, leveraging existing datasets and business intelligence tools.

A. Survey Design and Data Collection

Unlike traditional surveys, this project utilized a structured dataset encompassing historical wine sales and customer ratings. This acted as an indirect survey where each wine entry served as a respondent. The dataset included thousands of wine records categorized into Red, White, Rosé, and Sparkling varieties, offering a representative sample of customer preferences and purchase trends.

B. Data Collection Method

Data was sourced from publicly accessible wine databases and internal company sales logs, if available. The dataset included structured fields such as:

- **Wine Type** (categorical)
- **Customer Rating** (numerical)
- **Sales Volume** (quantitative)
- **Category/Region Tags**

This data formed the backbone of all subsequent analysis.

C. Data Analysis

Power BI was employed for data processing, cleaning, and visualization. Key actions included:

- Removing missing and duplicate values
- Categorizing wines based on type and rating
- Creating measures for aggregated statistics
- Building a star schema model for better performance

These steps ensured data integrity and optimized performance during visualization.

D. Data Tabulation

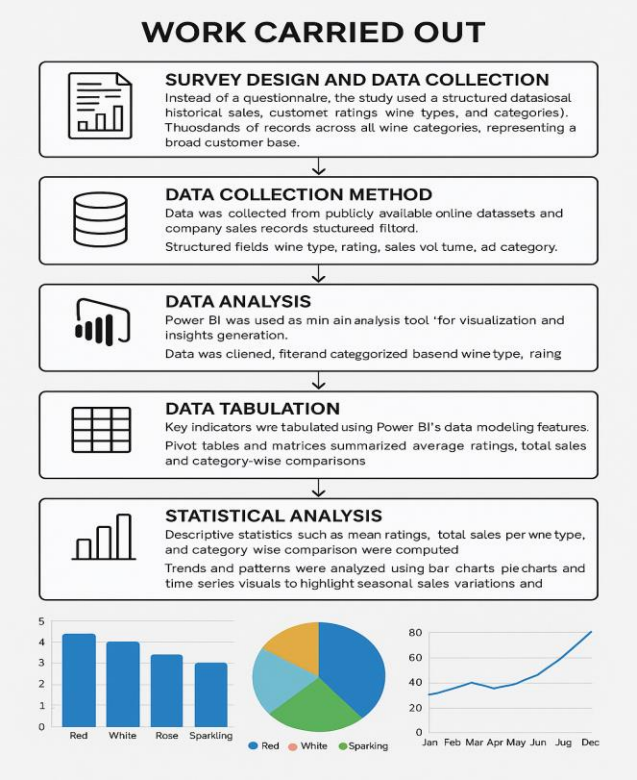
Indicators such as total sales, average ratings, and category distribution were tabulated using Power BI's pivot tables and matrices. Slicers and filters allowed dynamic exploration, enabling stakeholders to segment data by wine type, region, or time period.

E. Statistical Analysis

Descriptive analytics were applied to derive insights, including:

- **Mean Ratings** per wine type
- **Sales Trends** across months and seasons
- **Category Comparisons** through bar and pie charts
- **Time Series Visuals** showing sales growth over time

These findings were visualized to uncover consumer preferences and sales dynamics, guiding future product strategies and marketing efforts.



Results and Discussions:-

The Power BI dashboard analyzed sales data across four wine categories: red, rosé, sparkling, and white. The findings are summarized below:

Red Wines recorded the highest overall sales, indicating strong customer preference and market demand.

White Wines showed moderate sales but performed well in specific regions, suggesting location-based popularity.

Rosé Wines had seasonal peaks, especially during summer months, highlighting a pattern of time-based demand.

Sparkling Wines showed consistent but lower sales, often linked to holiday periods or celebrations.

Sales trends were visualized using bar charts, line graphs, and pie charts for better clarity. A comparison of monthly sales revealed that December and February had peak sales across most categories. Region-wise analysis showed higher sales in urban centers.

These results provide a clear overview of product performance and customer behavior, forming a basis for targeted marketing and inventory decisions.

Conclusion:-

The Power BI dashboard developed for La Velona Wines offers a dynamic and interactive way to analyze wine sales across categories. Compared to traditional static reports, this method provides real-time insights, visual clarity, and ease of interpretation. The novelty of this work lies in integrating business intelligence tools for wine sales analysis, enabling data-driven decisions on inventory, marketing, and customer targeting. This approach significantly enhances operational efficiency and strategic planning for the company.

Future Work:-

While the dashboard provides valuable insights, it currently depends on historical sales data without predictive capabilities. Future work can focus on integrating machine learning models to forecast demand trends and customer preferences. Additionally, real-time data integration from POS systems and customer feedback sources could further enhance decision-making. One limitation of the current work is the absence of cost analysis and profit margins, which can be addressed in future versions to provide a more comprehensive business overview.

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