Coffee Shop Data Analysis and Recommendations

Muhammad Ahmad Naveed

Information Technology University

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Abstract

This report presents an in-depth analysis of the transaction history and related data of a coffee shop. It studies the product performance, focusing on sales, profit margins, and the comparison between the various items. In addition, through a comprehensive analysis of the data, it also lists down the best and least selling products. It then expands upon the analysis by providing recommendations to enhance sales, profitability and to simultaneously reduce losses. From the various suggestions, a few examples are of the recommendations to focus on the high-margin products, optimizing pricing strategies, and exploring product bundling to increase overall profitability. Moreover, it also expands upon ways in which losses can be reduced, such as, by revising pricing strategies, cutting production costs, and discontinuing unprofitable products. The findings highlight the significance of targeted marketing, effective inventory management, and continuous tweaking toward business strategies for the maintenance and improvement of profit margins.

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Introduction

In today's competitive economic atmosphere, it is essential that business owners have a strong understanding of product performance and business research to ensure the success of their business.

In the case of the coffee shop, this begins with the identification of which products are performing better in terms of sales and profits, and which are not. Then the effective management of the sales and the products based on informed decisions can help the business grow by mitigating losses and improving profitability and performance.

As such, this report aims to analyse the profitability and performance of various products available at the shop. Through a thorough examination of the data, it is able to list the best and the least selling products, as well as providing a clear understanding of the factors that are driving product performance, while simultaneously offering actionable recommendations to improve sales and profitability and to diminish losses.

This is achieved through a combination of statistical analysis and data-driven insights, based on which this report will provide informed decisions on pricing, inventory management, and product marketing. In addition, it will also give strategies to address the underperforming products and how to improve their sales and profits along with the general optimization of the coffee shop's performance.

Literature Review

Business analysis is a fundamental tool that every company should have and utilise in today's world to ensure profitability mitigate losses. In any retail business, understanding the product, the profits and sales, and the customers is crucial for the sustainability and growth of the company.

This significance is supported and highlighted by numerous studies in the domain of business research, each exploring a different aspect and its effect on the business itself. For instance, it is held that focusing on high-margin products can significantly enhance overall profitability (FasterCapital, 2024). As such, businesses should allocate resources and marketing efforts toward such products, as these have a higher chance of being able to contribute to growth and sustainability. It is also emphasized that strategic pricing is essential in maximizing profits, but should be based on informed decisions (FasterCapital, 2024).

It must also be noted that effective supply chain management is also a major factor to address for businesses. As such, inventory levels must align with the relation between the supply and demand (Chopra, 2016). Applying this to the coffee shops can translate itself as product freshness and availability being the driving factors alongside demand to effectively manage the inventory and thus improve profitability.

Another seemingly insignificant, but powerful approach to support product sales and thus the business is product bundling. Bundling complementary products can increase their combined perceived value and thus increase sales (Stremersch, 2022). This is already a common approach in coffee shops and cafes, where combos such as a coffee and a doughnut are examples of bundled products – more lucrative due to a discount associated with the bundle instead of individual purchases.

Finally, it is also necessary to focus on the underperforming products to negate losses. A business can consider discontinuing a consistently low-selling product, further basing their decision on the production cost of the product (Anderson, 1994). However, before doing so, it is important to take customer feedback and study the market conditions to get the whole picture by identifying possible underlying issues that could be affecting the product's performance (Zeithaml, 1996).

In conclusion, a strategic approach and analysis are key to business performance and product profitability. As such, factors like supply and demand, inventory, and customer feedback are some of the many that need to be thoroughly analysed for making informed decisions. In the context of this report, this methodology solidifies the importance of the applied methods for the growth and sustainability of the coffee shop.

Methodology

The process began with the data collection. The data was in an Excel file called "Coffee Shop Sales" It included product name, sales, prices, transaction dates and times, and etcetera.

The next step was data cleaning to ensure validity and reliability. Missing values were counted and identified across all columns, but no significant data was missing. Duplicated entries were also found and removed to prevent skewed results. Following this, categorical variables, like product names, were converted to strings with whitespace removed to ensure uniformity. The transaction time was also converted to a datetime format for the same reason.

After this, new columns such as “Total Sales” and “Profit” were created, for improving the analysis. The two columns were created by multiplying the transaction quantity by the unit price for each product and the subtraction of the total cost from the total sales, respectively.

The cleaned dataset was also grouped by product details, and key metrics were aggregated, including the sum of transaction quantities, mean unit price, total sales, and profit.

At this point, the information generation began, starting with the identification of the top and lowest products, followed by the calculation of the profit margins by dividing the profit by the total sales, which helped identify the products by their profit margins.

Following this, the main work began, where the primary features were selected that included transaction quantity, unit price, and total sales, for the purpose of creating the predictive model. Then, Linear Regression was chosen to predict profitability based on the aforementioned features. The coefficients were then analysed to see the effects of the features on profitability. Finally, the predicted profits were compared against the actual profits to assess the model’s performance.

Consequent analysis included time-based, profit-margin, and cost analysis. These were done by the analysis of sale trends over time based on the resampling of the data by month, the calculation of the average gross margin percentage to set a benchmark to compare profitability, and the estimation of unit costs based on the average gross margin percentage, respectively. The benefits were, the findings of monthly growth rates that were calculated to identify products with positive sales trends, the evaluating the profitability of products, and the precise calculation of total costs and profit, especially for products in loss.

Talking about the products in loss, it was imperative to find the products with profits in negative as well. This was the initial step in identifying their costs, sales, and pricing strategies to determine why they were in loss.

Finally, the recommendations of actionable strategies for the growth and sustainability of the business were generated. These were suggestions like, the advice to enhance profitability by focusing on high-margin products and optimizing pricing strategies, and to minimize or eliminate losses by revising pricing strategies, reducing production costs, and considering the discontinuation of consistently underperforming products.

Results

This section presents the findings from the analysis, discussing what was focused upon and what information was resultant of this focus.

The top products of the coffee shop are Ouro Brasileiro Shot and Hazelnut Syrup, generating high revenue consistently. Whereas, the Ginger Scone, I Need My Bean! Diner Mug, and Scottish Cream Scone were the lowest-performing products. These items had low sales and high costs, resulting in negative profits. Another notable performer with high profit margin was the Traditional Blend Chai Rg that had a profit margin significantly above the benchmark value.

The predictive model had overall performed well. Its predictions were closely matching the actual profits, with a high R^2 indicating how the model could explain a larger portion of the variance in product profitability.

The following time-based analysis showed how Jamaican Coffee River and Spicy Eye Opener Chai were products that were consistently growing in sales over time, and how they had the potential for further growth through proper management. Alongside these, the Latte was also a highly popular and marketable product.

On the other hand, for the scones, it was suggested to adjusting their pricing strategies or to reduce their production costs to improve their performances. However, some products were beyond hope, such as the Espresso Roast and Traditional Blend Chai Rg, and so, discontinuation or significant price adjustments were suggested for these.

Lastly, for the top products, strategies such as promoting and stocking them were suggested for enhancing the shop’s overall profitability.

In summary, the results provide a clear picture of the coffee shop's performance, identifying both strengths and areas for improvement. The findings underscore the importance of targeted strategies to maximize profitability while minimizing losses.

Discussion

The interpretation of the results of the analysis and the consideration of their implications for the coffee shop helps examine the strengths and weaknesses of the offered products and provides insights into how the business can enhance profitability and reduce losses.

The distinction between the top and lowest products helps suggest strategies with how they should be handled and prioritised. The top products should be central to the shop's strategy, receiving priority in marketing efforts and inventory management. Whereas, low-performing products need either strategic repositioning or discontinuation.

The results also highlight the significance of optimizing the pricing of the products to maximize profit margins. The high-margin products were clear indicators of the fact that their profitability could be improved by refining how they were priced. As such, the business could introduce premium pricing for products in high-demand or set dynamic pricing based on factors such as seasons, supply, and demand.

As for the products in loss, they require an alternate strategy. Firstly, the production costs should be reduced. This can be done through negotiating with the ingredient suppliers or improving operational efficiency. Secondly, reducing prices or bundling them with more lucrative products could be an effective solution. It may prove to be a highly effective solution, especially since product bundling will also help clear out slow-moving inventory while simultaneously improving the overall sales. However, if all else fails product discontinuation is inevitable, especially for products with negative profits. But before doing so, customer feedback must be taken and re-evaluation must be done to understand whether these products could become lucrative or not. In that case, targeted marketing campaigns aimed at such products might help improve their sales, albeit the risk of the investment.

Besides the aforementioned, effective inventory management is also crucial, based on the sales and profit margins of the products. In addition, understanding the customer through market research and feedback is also highly imperative. By aligning product offerings with customer expectations, the coffee shop can enhance customer satisfaction and drive repeat business. Moreover, customer feedback can provide valuable insights into why certain products are underperforming and what exactly the issue is related to.

Finally, the predictive model's results provide a tool for future planning. As such it can help the shop make more informed decisions about the business in the future.

However, there are some limitations too. The analysis was based on historical sales data, which may not fully align with the present. In addition, external factors such as economic and seasonal conditions, market competition, etcetera, were not considered. Moreover, the analysis focused only on the quantitative factors and not the qualitative one, which would provide insights in a more holistic view. Future studies should consider integrating the aforementioned and improving the results.

Conclusion

The analysis of the coffee shop's data has provided valuable information about the factors driving profitability and the problems hindering performance. The distinction between the top and least performing products and their profit margins would help the business make informed decisions toward its growth and sustainability.

The business has also been recommended to revise and implement strategies to improve performance, such as, effective inventory and supply-chain management, refining pricing, introducing product bundling, and negotiating with suppliers. Additionally, strategies such as targeted marketing for products in loss, price reduction, or discontinuation can further improve success. Finally, customer research and feedback should be in focus, and in-depth to ensure their satisfaction.

In conclusion, this report highlights the importance of data-driven decision-making for the business. As such, the recommended strategies and continuous performance monitoring can not only increase profitability but also ensure long-term growth, sustainability, and customer satisfaction.

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