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Advanced Analytical Report on Retail Store Sales Data

Introduction

We conducted a thorough analysis of sales data gathered from a retail establishment in Malaysia for this project. In addition to examining raw sales data, the analysis's goal was to turn those figures into insightful information that could help improve business decision-making. This report attempts to give a more thorough understanding of how the store is currently operating and where improvements can be made by examining customer behavior, product performance, store location revenue, and payment preferences.

Malaysian retail is a very dynamic industry, particularly in the Fast-Moving Consumer Goods (FMCG) sector, where consumers frequently buy inexpensive everyday items on a regular basis. Understanding these customers' behavior patterns is essential to building long-term business growth. When new market entrants and modern shopping platforms continue to emerge, retail establishments that do not comprehend the behavior of their customers will probably become less competitive. The management can make better decisions regarding pricing, inventory control, promotions, and customer interaction by using analytical thinking to examine the available dataset.

The foundation for a thorough analysis of the data that follows is laid out in this introduction. The study goes beyond basic evaluation to examine seasonal patterns, top-selling items, consumer payment methods, and store location variations. The evaluation process will identify areas for operational improvement that will help the store increase profitability, customer satisfaction, and efficiency.

Descriptive Statistics

Examining the general descriptive statistics of the 200 transactions that were gathered was the first stage in the dataset analysis process. Because they depict the usual sales patterns that take place every day, these figures form the basis of the report.

The analysis indicates that 3.11 units are usually purchased in a single transaction. This is an important finding because customers usually purchase a few items at a time rather than in bulk... To put it another way, the retail establishment primarily serves everyday purchases or minor household necessities rather than extensive shopping excursions. The nature of FMCG products, which are typically purchased in small quantities but frequently, is reflected in this from a business standpoint. Additionally, it implies that rather than making a single, significant purchase each week, customers might visit the store multiple times.

With prices ranging from RM 2.50 to RM 50.00, the store positions itself as a retailer for consumers seeking mid-range goods. Understanding the price range in which the store competes is also possible thanks to the average unit price of RM 17.42. With prices ranging from RM 2.50 to RM 50.00, the store positions itself as a retailer for consumers seeking mid-range goods. This enables the store to cater to two clientele groups: those who are price conscious and favor inexpensive products, as well as those who are prepared to pay a little bit more for superior or higher-end goods. Therefore, having a wide range of prices is advantageous since it attracts a larger clientele.

Furthermore, the RM 52.90 average sales per transaction indicates moderate spending habits. Customers do occasionally purchase larger baskets, as evidenced by the highest recorded sale of RM 250.00, but these are still anomalies rather than the rule. Overall, the descriptive statistics demonstrate that the store operates in a market where consumers consistently and moderately spend money. Instead of relying solely on a few large sales, managers should concentrate on sustaining consistent customer visits and repeat business.

Monthly Sales Trends

Several patterns start to show up when sales data from different months is analyzed. Seasonal changes in the retail sector have a direct effect on this particular store. The sales statistics show that while some time periods maintain their current sales numbers, other time periods exhibit significant sales growth.

In Malaysia, holidays like Ramadan and Hari Raya frequently cause a spike in spending. Families purchase gifts and household goods to prepare for their gatherings, which boosts sales of food and drink as well as personal care items. School breaks and year-end holidays provide promotional opportunities that boost sales. According to the data, these peaks are not coincidental; rather, they are a direct result of social and cultural events that influence Malaysian consumers' purchasing decisions.

This information is crucial for the store because it allows for accurate forecasting of consumer buying trends. Rather than treating every month equally, the management team should plan ahead and stockpile more products during peak seasons. Companies can increase revenue by developing bundle packages that are only offered during the holidays and by implementing marketing campaigns that target particular clients. To keep its customers interested during times of lower demand, the store concentrates on customer loyalty programs and clearance sales.

The examination of monthly sales trends reveals seasonal peaks, necessitating the development of proactive strategies by businesses. The store can use the predictable patterns of customer behavior it finds to grow its business over the long run.



Top-Selling Products

Product performance is another crucial aspect of the analysis. Not every product makes the same amount of money for a retail establishment. According to the data, beverages and personal care products account for the majority of sales and more than 40% of total store revenue.

The essential nature of this category is reflected in the strong performance of beverages, which sold 146 units for RM 2,890. Almost every kind of consumer, regardless of age or background, buys and regularly consumes beverages. Seasonal variations also affect this category; for instance, cold drinks sell better in warmer months. Customer satisfaction therefore depends on having a large selection and accessibility of beverages.

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Personal care items, which generated RM 2,187.50 from 131 units, are high-performing items. Examples of necessities that people regularly buy are toiletries and hygiene products. Unlike snacks or groceries, which can vary depending on current trends, personal care products are a steady and dependable source of income.



Household goods, groceries, and snacks all do well, demonstrating the store's emphasis on convenient and necessary goods. Instead of luxury goods, customers depend on the store for everyday necessities. The existence of an RM 245 "Other/Unknown" category indicates that there may be some data inconsistencies or less popular products being sold, which may necessitate a review of the store's inventory classification.

The analysis's conclusion is that inventory control in these best-selling categories should be the store's top priority. Running out of personal care or beverage inventory could have a direct negative impact on total revenue. Simultaneously, the store can test out new product launches in areas that exhibit room for expansion, like eco-friendly home goods or healthier snacks, which are gaining popularity in Malaysia.

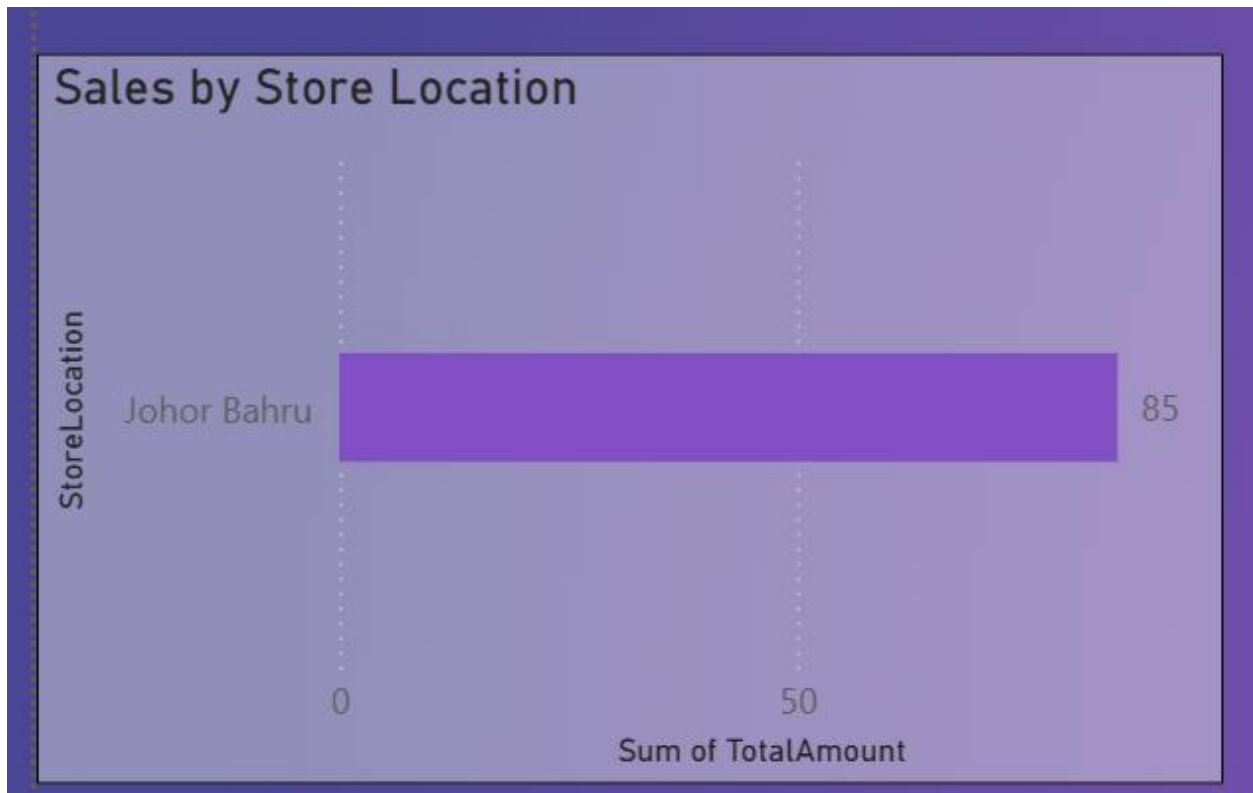
Sales by Store Location

Four cities in Malaysia are home to the store, and each one exhibits distinct performance traits. With RM 3,150 in sales, Kuala Lumpur is in first place, closely followed by Johor Bahru with RM 2,997.50. With RM 2,382.50 and RM 2,050, respectively, Malacca and Penang are in second and third place.

As the capital city with a dense population and higher purchasing power, Kuala Lumpur's strong performance is to be expected. Due to its proximity to Singapore, Johor Bahru also enjoys the advantages of a robust retail environment and cross-border economic activity. A significant amount of the store's revenue comes from these two cities combined, demonstrating the value of allocating resources to markets with strong demand.

Malacca and Penang, however, must not be disregarded. Despite having lower sales at the moment, they offer unrealized growth potential. Given that both cities are popular travel destinations, sales could rise dramatically with the correct marketing techniques. Offering tourist-focused promotions or collaborating with nearby lodging facilities and attractions, for instance, could increase foot traffic to the shops in these cities.

As a result, the analysis recommends a two-pronged approach: actively funding growth initiatives in Malacca and Penang while preserving and bolstering operations in Kuala Lumpur and Johor Bahru. By doing this, the business can strike a balance between its potential for long-term growth and its immediate revenue.



Payment Method Distribution

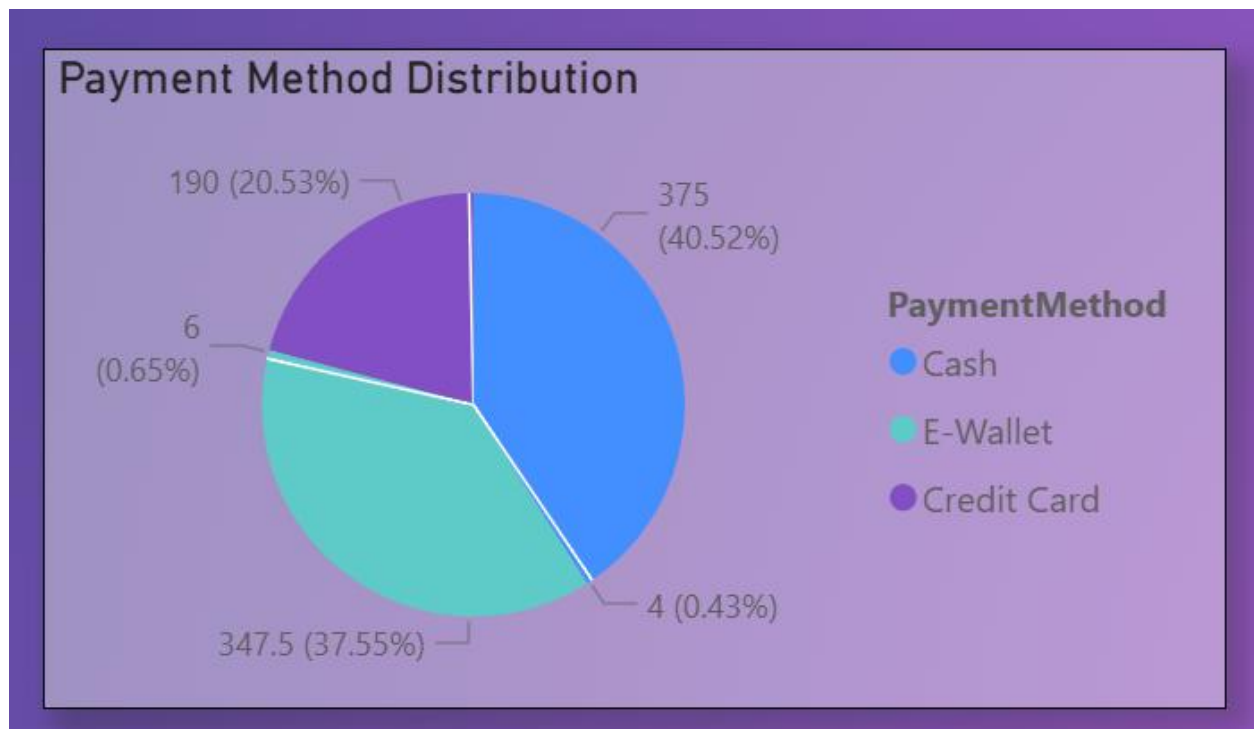
The dataset's strong preference for digital payments is an intriguing finding. Consumers are increasingly eschewing cash transactions in favor of card transactions and e-wallets. This is part of a larger trend in Malaysia, where financial institutions and the government have been pushing cashless transactions as a component of the digital economy.

This behavior presents both opportunities and challenges for the retail establishment. On the one hand, using digital payments lowers the risk of handling large sums of cash and is quicker and more secure. However, in order to manage technical issues, they need to invest in dependable payment systems and ongoing staff training.

By offering discounts for cashless payments, establishing quicker digital checkout lines, and implementing loyalty rewards connected to e-wallets, the store can further promote

this trend. By taking these actions, the store presents itself as contemporary and forward-thinking while also increasing customer convenience.

It's also critical to acknowledge that younger consumers, who make up an increasing portion of the clientele, are especially drawn to mobile payments. The store makes sure it stays relevant to this new generation of customers by fortifying its digital payment systems.



Correlation: Price vs. Quantity

A distinct pattern emerges from the Price per Unit vs. Quantity Sold analysis: products with lower prices sell more, while those with higher prices sell fewer. This result emphasizes how price-sensitive consumers are.

Given that the majority of consumers in the FMCG industry seek out reasonably priced everyday goods, this is not surprising. But it also implies that high-end goods shouldn't be completely disregarded. They appeal to a specific group of higher-spending consumers and contribute larger margins per unit despite selling fewer units.

This means that the store needs to keep its pricing strategy balanced. The bulk of shelf space should be devoted to low-cost items that increase sales, but a smaller area can be set aside for high-end products to draw in clients who are prepared to pay more. By doing this, the store can please customers who are concerned about price as well as those who are looking for better products.

Key Insights and Recommendations:



Several important conclusions can be drawn from the above analysis, which ought to direct the store's strategic choices:

Stock Up on Fast-Moving Items The store's mainstays are snacks, beverages, and personal care products. When planning an inventory, these should always come first. In these categories, running out of stock could result in an instant drop in sales.

Develop in Up-and-Coming Cities: Although Johor Bahru and Kuala Lumpur are already performing well, there is room for improvement in Malacca and Penang. Partnerships, community involvement, and targeted marketing can all improve performance in these domains.

Leverage Seasonal Demand: Sales should be expected to peak during holiday seasons. These opportunities can be maximized by planning promotions, bundles, and discounts ahead of time.

Encourage Digital Payments: By offering incentives for using e-wallets and cards, the store will attract younger customers and fit in with Malaysia's digital economy.

Divide Up Your Clientele by Price Sensitivity By providing both high-end and low-cost options, the store can avoid offending any of its clientele.

Conclusion

The retail store in Malaysia has a great chance of becoming an essential part of the FMCG industry. Sales of beverages and personal care products account for the majority of the company's revenue, while snacks, groceries, and household goods strengthen its position in the market. Kuala Lumpur and Johor Bahru continue to lead the market, but Penang and Malacca have the potential to grow in the future with the right kind of marketing assistance.

Another area for improvement, in terms of customer satisfaction and operational efficiency, is the quick uptake of digital payments. The store can modernize its operations and attract the tech-savvy generation by adopting e-wallets and cards..

Overall, the analysis's conclusions imply that the retail establishment is in a strong position to grow its clientele, boost earnings, and stay competitive in the Malaysian retail market if it places the proper emphasis on inventory control, regional expansion, seasonal promotions, and payment innovation.

The BI dashboard played a central role in making these insights accessible, allowing stakeholders. To explore sales performance across multiple dimensions. By combining Python for preprocessing and analysis with Power BI for visualization, the project demonstrated how raw data can be transformed into actionable insights that support informed decision-making.

Github repository: <https://github.com/nm-haq/modern-data.git>

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