"The Espresso Room" Coffee Shop Sales Insights

Most people in this world love coffee, and as a coffee lover, I cannot think of my day without coffee on my table. That discernible bitterness can give me joy and excitement and keep me alert. Now here, as a Business Data Analyst practicing data analysis in sales, we have done this project for a coffee shop named "The Espresso Room". This beverage chain is available in three locations. This project has unveiled some useful sales insights that could help the owners understand the market behavior, identify its trends and patterns, finding the Key Performance Indicators (KPI) that help "The Espresso Room" Coffee Shop business to unlock potential growth opportunities through the data-driven insights.

Data Dictionary

The following are the fields and their descriptions of the coffee shop sales.

1. transaction_id - Unique sequential ID representing an individual transaction.
2. transaction_date - Date of the transaction (MM/DD/YY)
3. transaction_time - Timestamp of the transaction (HH:MM:SS)
4. transaction_qty - Quantity of items sold
5. store_id - Unique ID of the coffee shop where the transaction took place
6. store_location - Location of the coffee shop where the transaction took place
7. product_id - Unique ID of the product sold
8. unit_price - Retail price of the product sold
9. product_category - Description of the product category
10. product_type - Description of the product type

Exploring the dataset

For this Food and beverage sales analysis, we have used this dataset from @Maven Analytics and renamed the coffee shop "The Espresso Room." This dataset describes various attributes that come with the coffee sales data, including.,

- Total number of fields – 11
- Total number of records – 149,116
- Unique transactions – 149,119
- Transaction date ranges between 1st January 2023 to 30th June 2023
- Transaction time clocks between 06:00:14 to 20:59:32
- Transaction quantity ranges between 1 to 8
- Store ID has three numbers, 3,5,8 denoting Astoria, Lower Manhattan, and Hell's Kitchen
- Unique products – 80
- Unit price ranges between 0.8 to 45

- Product category includes bakery, branded, coffee, coffee beans, drinking chocolate, flavours, loose tea, packaged chocolate, and tea.
- Product type includes Gourmet brewed coffee, Brewed Chai tea, Hot chocolate, Drip coffee, Scone, Barista Espresso, Brewed Black tea, Brewed Green tea, Brewed herbal tea, Biscotti, Pastry, Organic brewed coffee, Premium brewed coffee, Regular syrup, Herbal tea, Gourmet Beans, Organic Beans, Sugar free syrup, Drinking Chocolate, Premium Beans, Chai tea, Green beans, Espresso Beans, Green tea, Organic Chocolate, Housewares, Black tea, House blend Beans, Clothing.
- Product detail has 80 unique values.

Tools Used

In this data analysis, we used Microsoft Excel for data profiling, cleaning, manipulation, and visualization in the form of a dashboard. We have used some power features like POWER QUERY, PIVOT TABLES, PIVOT CHARTS, SLICERS, and data manipulation functions like COUNT, SUM, MAX, MIN, AVERAGE, SUBTOTAL, XLOOKUP, VLOOKUP, INDEX, MATCH, and FILTER.

Why this project is important?

Knowing the sales trends and understanding the market behavior are critical information for any business. Selling foods and beverages without knowing the customer's level of satisfaction and interest will lead the business to proceed without any navigation toward growth prospects blindly. The following are the project objectives.

1. Sales over time – This helps to find the number of beverages sold and revenue generated over a specific period (day/month).
2. Buying trends – This explains the sales of the beverages over time and lets us know the most and least sold items to understand the customer needs and preferences
3. Customer demographics – This visualizes the items sold in every location and helps us to identify the customer's most and least preferred beverage at different times of the day.

Through this project, the business owners can understand the key factors contributing to the business. Also, this can show the business about the customer demographics, their needs and preferences, and their buying trends, which could help them build likeability among their customers. This project predominantly covers the DESCRIPTIVE ANALYTICS side of the coffee shop business.

Data Profiling

Data profiling helps us to fix incorrect, incomplete, and duplicate data by identifying the data errors and modifying them by replacing, removing, or updating them with the relevant data. This helps to improve the data quality.

Here, in this dataset, almost all the fields have cleaned records. However, we have some fields that can be profiled further to increase the quality of the data.

1. Convert the unit price number format into currency "USD"
2. Create a new column, "revenue," by multiplying transaction_qty and unit_price
3. Create new columns to calculate "transaction_month" and "transaction_day" in text format from transaction_date
4. Create a new column to calculate "transaction_hour" from transaction_time
5. Create a new column right to "unit_price" to categorize the unit prize as "Low," "Medium," and "High" and name it as "price_category"

As we have done some data profiling, now the sales data is improvised further for manipulation.

Data Manipulation

To provide a comprehensive and insightful analysis, I have structured the insights into various key topics. This approach ensures clarity and makes it easier to understand the different aspects of customer demographics and product segmentation. By breaking down the data into specific categories, we can uncover valuable patterns and trends that can inform sales strategies and improve organizational performance. Following are the insights from every aspects of the coffee shop sales.

Product insights

1. How many unique products are sold by the coffee shop?
    a. The coffee shop sells **80** unique products

2. What are the top 5 sold product categories, their total count, and the weighted distribution of each category?
    a. **Coffee** is the top-sold product category with a total count of **58416**, contributing **39.17%** of the total sales.
    b. **Tea**, **Bakery items**, **Drinking chocolate**, and **Flavours** secure the following positions with total counts of **45449**, **22769**, **11468**, and 6790, with contributions of **30.48%, 15.29%, 7.69%**, and **4.55%**, respectively.

3. What are the top 3 and last 3 sold product types, their total count, and the weighted distribution of each product type?
    a. **Brewed chai tea**, **Gourmet brewed coffee**, and **Barista espresso** top the first three positions of the most sold product types with a total count of **17183**, **16912**, and **16403**, contributing **11.52%**, **11.34%**, **11%**, respectively.
    b. **House blend beans**, **Green tea**, and **Green beans** secure the last three positions of the least sold product types with a total count of **183**, **159**, and **134**, contributing **0.12%, 0.11%,** and **0.09%**, respectively.

4. Which is the most frequently bought product category and product type?
    a. **Coffee** is the most frequently bought product category.
    b. **Brewed chai tea** is the most frequently bought product type.

5. What is the average unit price of the product in each product category?
    a. The average unit price of all the products in each product category ranges from **$0.80** to **$21.02**.
    b. In product category, **Coffee** has the highest average price of **$21.02**, and **flavours** have the lowest average price of **$0.80**.

Price insights

1. What are the lowest and highest-priced items?
    a. **Hazelnut syrup** is the lowest-priced item, and it is priced at **$0.80**.
    b. **Civet Cat** is the highest-priced item, and it is priced at **$45**

2. What is the average unit price of the product in each price category?
    a. The price category is segmented into three sections: Low, Medium, and High.
        i. Low category ranges from **$0.80** to **$3.75**.
        ii. Medium category ranges from **$4.00** to **$9.50**.
        iii. High category ranges from **$10.00** to **$45.00**.
    b. On average, the High price category has an average unit price of **$19.27**, the Medium category has an average unit price of **$4.71**, and the Low price category has an average unit price of **$2.85**, respectively.

Transaction and revenue insights

1. Which month, day, and hour does the coffee shop make the most and least revenue in sales?
    a. Since the start of the coffee shop, the highest revenue was generated in the month of **June**.

b. **Monday** and **10 AM** are the day and hour where the most revenue got generated for the coffee shop.
c. **February**, **Saturday**, **8 PM** are the least revenue generated month, day, and hour.

2. Which month, day, and hour does the coffee shop make the most and least transactions in sales?
   a. **June**, **Friday**, and **10 AM** are the most transactions made month, day, and hour.
   b. **February**, **Saturday**, and **8 PM** are the least transactions made in the month, day, and hour.

3. At what month, day, and hour are the highest and lowest quantities transacted in a day?
   a. **June**, **Monday**, and **10 AM** are the month, day, and hour where the most quantities are bought per transaction.
   b. **February**, **Saturday**, and **8 PM** are the month, day, and hour where the least quantities are bought per transaction

4. What is the month-over-month sales performance for each store?
   a. In overall, the month-over-month sales performance has increased by an average of **16.27%**.
   b. In calculating store-wise, Hell's Kitchen and Lower Manhattan have the highest average of **16.34%**, and Astoria has the second highest average of **16.16%**.

5. What is the total revenue in every location over months?
   a. Overall revenue of the coffee shop is **$ 698,812.33**
   b. Hell's Kitchen is the highest revenue-generating store of **$ 236,511.17**
   c. Astoria and Lower Manhattan are the second and third revenue generating store of **$ 232,243.91** and **$ 230,057.25**

6. What are the top 3 selling items by revenue in each store location?
   a. Overall, Dark chocolate large is the top-selling item, and sustainably grown organic large and Latte regular are the second and third-selling items by revenue.
   b. In Astoria, Dark chocolate large, sustainably grown organic large, and Latte regular are the top three selling items with revenue generated of **$ 7897.5**, **$ 7509.75**, and **$ 6358** respectively.
   c. In Hell's Kitchen, Civet cat, sustainably grown organic large, and Dark chocolate large are the top three selling items with revenue generated of **$ 7380**, **$ 7329.25**, and **$ 6534** respectively.
   d. In Lower Manhattan, Dark chocolate large, Latte regular, and sustainably grown organic large are the top three selling items with revenue generated of **$ 6574.5**, **$ 6387.75**, and **$ 6312.75** respectively.

Sale time insights

1. Which are the busiest and slowest business hours in a week for each store location?
   a. Overall, **10 AM** morning is the busiest hour that has recorded the maximum transactions of **18545**, and **8 PM** night is the slowest hour that has recorded with a transaction count of **603**.
   b. Given individual stores, Astoria, Hell's Kitchen, and Lower Manhattan have the same busiest hour as **10 AM** in the morning.
   c. Hell's Kitchen and Lower Manhattan share the same slowest hour as **8 PM** night, and Astoria records **2 PM** afternoon as the slowest hour ever recorded.

2. Which are the top 3 busiest days in each store location?
   a. As the month ranges from January to June, the count of transactions made in a day in every month would be calculated to find the top three busiest days.
   b. Overall, **Friday**, **Thursday**, and **Monday** are the busiest days of the week.
   c. In Astoria, **Thursday**, **Monday**, and **Wednesday** are the busiest days.
   d. In Hell's Kitchen, **Friday**, **Tuesday**, and **Sunday** are the busiest days.
   e. In Lower Manhattan, **Monday**, **Thursday**, and **Friday** are the busiest days.

3. What was the overall sales trend of "The Espresso Room" coffee shop in each location?
   a. In Astoria, at the opening of January, the monthly revenue was fluctuating between **$ 3500** and **$ 4500**. Then, in mid-March, the store location started to pick up its sales and steadily reached a record sales of **$ 10101.54** at mid of June with the highest transaction count of **2107**.
   b. In Hell's Kitchen, the sales didn't pick up until the end of February. However, After the start of March, it slowly increased its sales, and at the middle of June, the store reached its all-time high sales of **$ 9756.16** with an increased transaction count of **2053**.
   c. In Lower Manhattan, the sales were around **$ 4000** at the start of January. But, later, it soared a little and decreased to **$ 3173**. After mid-February, the sales gradually increased and reached their highest in mid-June, recording a sale of **$ 9106.33** with a transaction count of **1838**.

Project Summary

This project summary includes the coffee shop sales analysis, its key insights and predictions.

Product Performance

The coffee shop offers 80 unique products, with coffee being the top-selling category, contributing 39.17% of total sales. Brewed chai tea is the most frequently purchased product type, followed closely by gourmet brewed coffee and barista espresso. This indicates a strong customer preference for both traditional and specialty coffee drinks.

Pricing Strategy

The average unit price across product categories ranges from $0.80 to $21.02, with coffee having the highest average price. The pricing structure is segmented into low ($0.80-$3.75), medium ($4.00-$9.50), and high ($10.00-$45.00) categories. This diverse pricing strategy caters to different customer segments and price sensitivities.

Revenue Patterns

The coffee shop generates the most revenue in June, with Monday at 10 AM being the peak time for sales. Conversely, February, Saturday, and 8 PM show the lowest revenue generation. This suggests a strong weekday morning rush and potential for improvement in weekend and evening sales.

Store Performance

Hell's Kitchen is the highest revenue-generating location, followed closely by Astoria and Lower Manhattan. All stores show an average month-over-month sales growth of 16.27%, indicating positive overall performance.

Customer Behavior

There's a noticeable trend in customer purchasing patterns, with beverage and food sales peaking at the beginning and end of each month. Interestingly, when customers buy coffee beans, there's a decrease in beverage demand.

Predictions and Recommendations to Increase Sales

1. **Expand specialty coffee offerings**: Given the popularity of brewed chai tea and specialty coffees, introducing new flavors or limited-time offerings could drive sales and attract new customers.

2. **Optimize pricing strategy**: Implement dynamic pricing for high-demand products during peak hours to maximize revenue potential.

3. **Enhance weekend and evening promotions**: Develop targeted marketing campaigns and special offers to boost sales during slower periods, particularly on weekends and evenings.

4. **Introduce combo deals**: Create attractive food and beverage combinations to increase average transaction value, especially during mid-month periods when sales tend to dip.

5. **Seasonal menu items**: Capitalize on the strong June performance by introducing summer-themed products and promotions.

6. **Coffee bean upselling**: Develop strategies to maintain beverage sales when customers purchase coffee beans, such as offering discounted drinks with bean purchases.

7. **Store-specific strategies**: Tailor marketing and product offerings to each store's unique customer base and busiest days. For example, focus on Thursday promotions in Astoria and Friday specials in Hell's Kitchen.

8. **Expand high-revenue products**: Promote top-selling items like Dark chocolate large and sustainably grown organic large across all locations to boost overall revenue.

9. **Time-based promotions**: Implement flash sales or happy hour specials during slower hours to drive foot traffic and increase sales during typically quiet periods.

By implementing these data-driven strategies, the coffee shop can capitalize on its strengths, address areas for improvement, and potentially increase its sales prospects across all locations.

Conclusion

This comprehensive analysis of "The Espresso Room" coffee shop's sales data has unveiled valuable insights into product performance, pricing strategies, revenue patterns, and customer behavior across its three locations. The coffee shop's diverse product range and segmented pricing strategy have successfully catered to various customer needs with a consistent month-over-month growth of 16.27% across all locations. Moving forward, data-driven decision-making will be crucial for "The Espresso Room" to maintain its growth momentum. By continuing to refine its operations based on data insights, the coffee shop is well-positioned to enhance customer satisfaction across all locations.