

“COFFEE SALES”

A Virtual Internship Project Report On Coffee Sales



Submitted to:



UNIFIED MENTOR

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Submitted by:

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BATCH-01/04 to 01/08/2025

The project employs a robust analytical approach, starting with data collection and extensive data preparation, including handling missing values, converting data types, and removing outliers. Feature engineering will be performed to extract relevant information such as month and year from the transaction dates. Following data preparation, an in-depth exploratory data analysis (EDA) will be conducted to visualize sales trends over time, by store, and by product. Finally, machine learning modelling, specifically linear regression, will be applied to predict sales, with the model's performance evaluated using metrics like Mean Squared Error and R-squared score. The overall process aims to provide actionable insights for business optimization based on observed sales dynamics.

Key Insights:

- **Payment Methods:** Approximately 92% of transactions are made via card.
- **Popular Products:** "Americano with Milk" and "Latte" are the most popular coffee products, while "Cortado," "Hot Chocolate," "Espresso," and "Cocoa" are less popular. Latte also generates the highest revenue.
- **Sales Trends:** "Americano with Milk" and "Latte" show an upward sales trend over time.
- **Daily Sales Peaks:** The highest sales occur on Tuesdays.
- **Hourly Sales Peaks:** Two peak sales hours are observed: 10:00 AM and 7:00 PM.

All products generally peak around 10:00 AM, with Latte showing a particularly strong trend at this time. Cappuccino, Cocoa, and Hot Chocolate are more popular in the evening (6:00 PM to 8:00 PM).

Analytical Approach:

- **Data Cleaning and Preparation:** Handling missing values, converting data types (e.g., 'Date' to datetime), and removing outliers using the Z-score method.

- **Feature Engineering:** Extracting 'Month' and 'Year' from the 'Date' column.
- **Exploratory Data Analysis (EDA):** Visualizing sales over time, by store, and by product using libraries like Matplotlib and Seaborn. This also includes analyzing monthly, daily (weekday), and hourly sales patterns.
- **Machine Learning Modeling:** Splitting data into training and testing sets, applying one-hot encoding for categorical variables, and training a Linear Regression model to predict sales. The model's performance is evaluated using Mean Squared Error and R-squared score.

Tools & technologies used

- Python (pandas, matplotlib, seaborn, numpy)

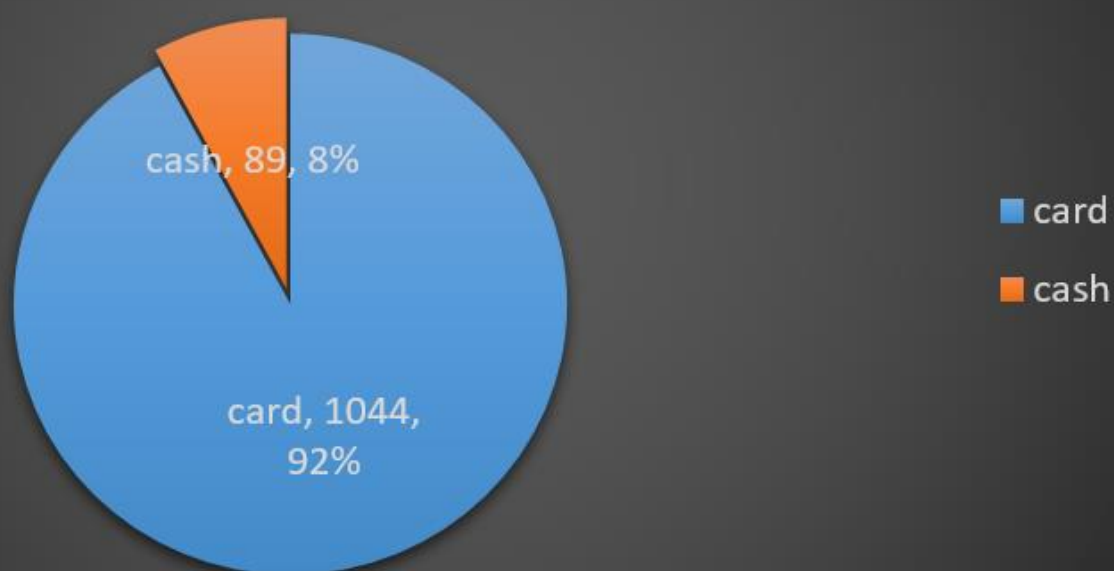
Dataset details

File name: ('coffee_sales.csv')



cash type	Count of cash_type
card	1044
cash	89

Cash Type



This image displays a pie chart titled "Cash Type," which illustrates the distribution of two payment methods: "card" and "cash." The pie chart visually represents the proportion of transactions made using "card" versus "cash."

Overall Performance of this Graph:

The graph effectively conveys its message due to its simplicity and clear labelling:

- **Clarity:** It's very easy to understand that card payments are significantly more frequent.
- **Conciseness:** It presents the key information (counts and percentages) directly on the chart.
- **Visual Impact:** The large blue segment clearly shows the overwhelming preference for cards.
- **Completeness:** It includes both the absolute numbers and percentages, which is good for comprehensive understanding.

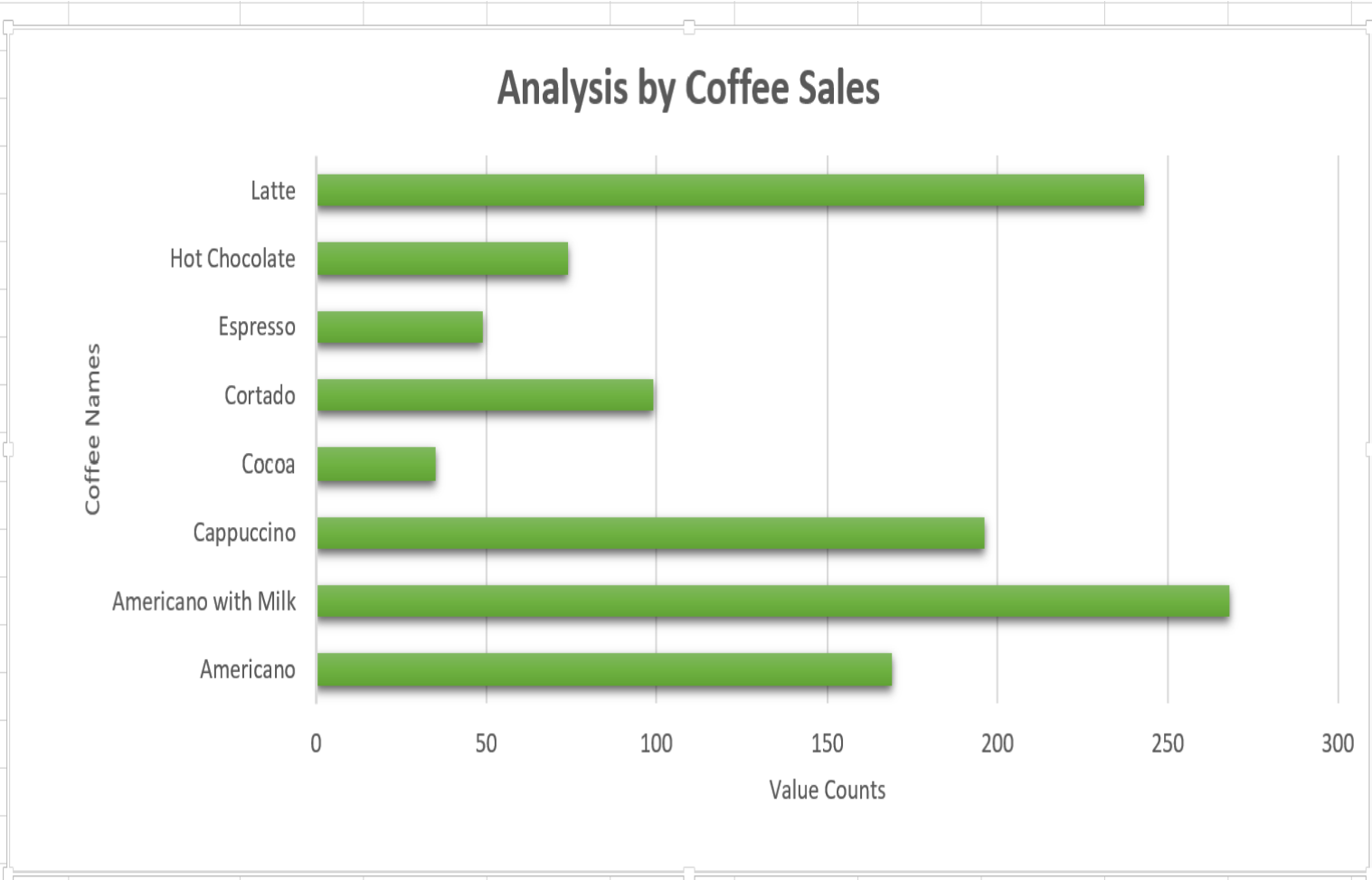
Important Objectives of this Graph:

- **Understand Payment Preferences:** The primary objective is to clearly show which payment method is predominantly used by customers or for transactions.
- **Identify Trends:** It helps in identifying a strong preference for card payments over cash.
- **Support Business Decisions:** The data can inform various business decisions related to payment infrastructure, security, and operational efficiency.
- **Simplify Data Interpretation:** Pie charts are excellent for quickly conveying parts of a whole, making the dominance of card payments immediately obvious.
- **Monitor Performance:** By tracking this over time, a business can see if payment trends are shifting.

Financial Ideas Based on the Graph:

- **Optimize Card Payment Infrastructure:**
 - Invest in Reliable Card Terminals: Ensure payment terminals are always up-to-date, fast, and reliable to minimize failed transactions and improve customer experience.
 - Explore Diversified Card Payment Options: Consider offering various card payment to cater to all customers.
- **Minimize Cash Handling Costs:**
 - Reduced Cash Register Needs: Less cash means less need for multiple cash registers, potentially freeing up staff or space.
 - Less Frequent Bank Deposits: Fewer cash transactions mean fewer trips to the bank for deposits, saving time and reducing transportation risks.
 - Improved Security: Less physical cash on premises reduces the risk of theft or pilferage.
- **Data-Driven Marketing and Promotions:**
 - Card-Exclusive Promotions: Consider running promotions or loyalty programs that reward card usage to further encourage this preferred payment method.
 - Analyse Card Transaction Data: With a large volume of card transactions, there's a wealth of data available this data can be invaluable for targeted marketing, inventory management, and staffing.
- **Operational Efficiency and Planning:**
 - Staff Training: Train staff primarily on efficient card processing procedures.
 - Inventory Management: If certain products are more frequently purchased via card, this might influence inventory decisions.
 - Future-Proofing: The trend towards cashless payments is growing globally. This business is well-positioned for a future where digital payments dominate. Continue to monitor these trends and adapt.
- **Financial Reporting and Auditing:**
 - Easier Reconciliation: Card transactions are typically easier to reconcile and track digitally, which can simplify accounting and auditing processes.
 - Reduced Cash Variance: Less cash handling generally leads to fewer discrepancies or errors in daily reconciliations.

coffee_name	Count of coffee_name
Americano	169
Americano with Milk	268
Cappuccino	196
Cocoa	35
Cortado	99
Espresso	49
Hot Chocolate	74
Latte	243



The uploaded image displays a horizontal bar chart titled "Analysis by Coffee Sales," which represents the sales performance of different coffee beverages and related drinks. The y-axis lists "Coffee Names" (Latte, Hot Chocolate, Espresso, Cortado, Cocoa, Cappuccino, Americano with Milk, Americano), and the x-axis represents "Value Counts," indicating the number of sales for each item.

Overall Performance and Key Observations:

- **Top Performers:** "Americano with Milk" is the clear leader in sales, followed closely by "Latte" and "Cappuccino." These three items represent the bulk of the sales volume.
- **Mid-Range Performers:** "Americano" and "Cortado" have moderate sales, significantly lower than the top three but still substantial.
- **Lower Performers:** "Hot Chocolate," "Espresso," and especially "Cocoa" have the lowest sales volumes. "Cocoa" appears to be the least popular item on the menu in terms of quantity sold.
- **Variety in Offerings:** The graph shows a diverse menu, catering to different preferences, from milk-based coffees to more traditional black coffees and non-coffee options.

Important Objectives of this Graph:

- **Identify Bestsellers:** The primary objective is to clearly identify which coffee beverages are selling the most, allowing the business to understand customer preferences.
- **Highlight Underperformers:** Conversely, it helps pinpoint items with low sales, which might require re-evaluation.
- **Inventory Management:** Understanding sales volumes is crucial for effective inventory planning, ensuring popular items are always in stock and minimizing waste from slow-moving items.

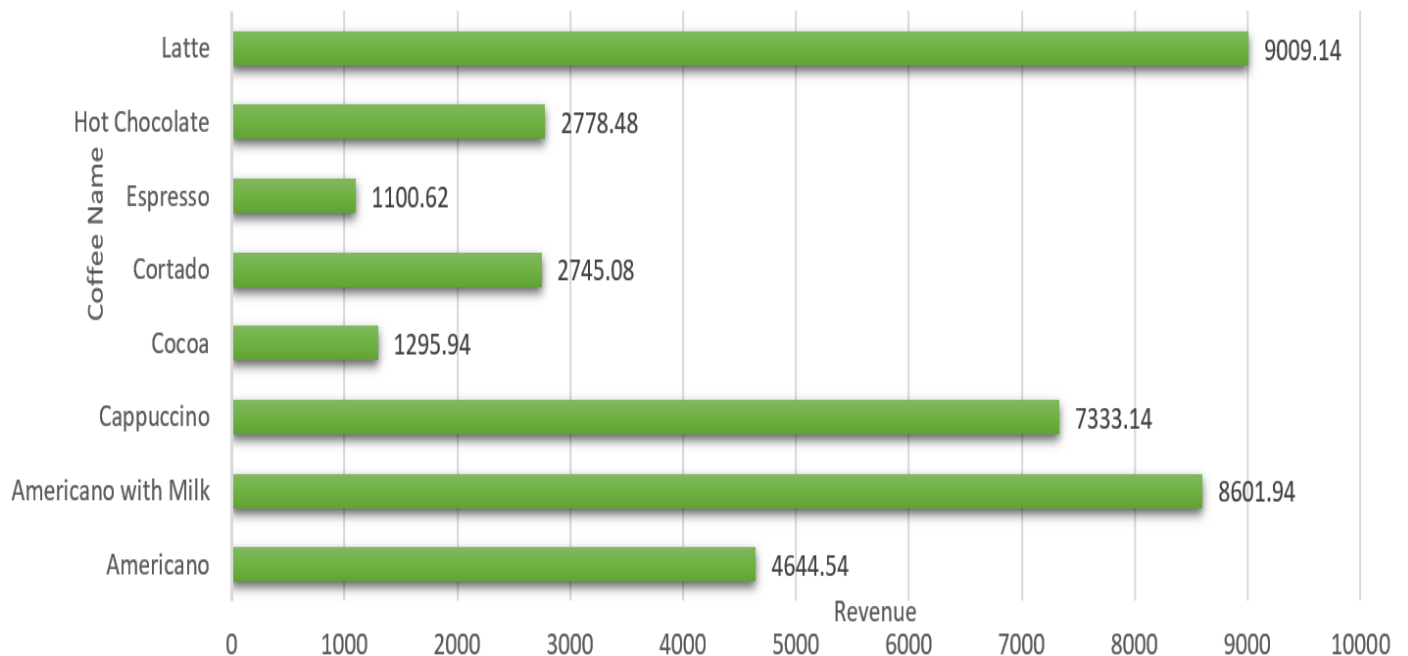
- **Marketing and Promotional Strategy:** The data informs targeted marketing efforts. Popular items can be featured, while less popular ones might need promotional pushes or re-evaluation.
- **Performance Benchmarking:** Over time, this graph can be used to compare sales performance against previous periods, marketing campaigns, or even competitor data.

Here are some financial ideas from the graph

- **Focus on Top Earners:** Prioritize "Americano with Milk," "Latte," and "Cappuccino." These are your cash cows; ensure consistent supply and consider slight price increases or upsells.
- **Evaluate Underperformers:** Analyze "Cocoa," "Espresso," and "Hot Chocolate." If their contribution to profit or menu diversity is low relative to their costs consider phasing them out or rebranding.
- **Strategic Pricing:** Explore premium pricing for top sellers. For mid-range items like "Americano" and "Cortado," consider promotional pricing or bundling to boost sales.
- **Cross-Selling/Bundling:** Pair popular coffees with higher-margin food items or create bundles to encourage sales of less popular items.
- **Inventory Optimization:** Use sales data to minimize waste from slow-moving items and avoid stockouts of bestsellers. This directly impacts working capital.
- **Menu Rationalization:** The data informs future menu decisions. Consider introducing more items similar to "Americano with Milk" given its success, or removing items with persistently low sales to streamline operations and reduce complexity.

coffee_name	Sum of money
Americano	4644.54
Americano with Milk	8601.94
Cappuccino	7333.14
Cocoa	1295.94
Cortado	2745.08
Espresso	1100.62
Hot Chocolate	2778.48
Latte	9009.14

Analysis by Coffee Revenue



This graph, titled "Analysis by Coffee Revenue," is a horizontal bar chart that represents the revenue generated by different coffee products. Each bar corresponds to a specific coffee name (e.g., Latte, Hot Chocolate, Espresso), and its length indicates the revenue in a numerical value.

- **Top Performers:**

- Latte is by far the highest revenue generator, indicating strong customer preference and/or higher pricing.
- Americano with Milk is the second highest, very close to Latte, suggesting another highly popular choice.
- Cappuccino also performs very well, solidifying its position as a core revenue driver.

- **Mid-Range Performers:**

- Americano and Cortado fall into this category. They contribute significantly but are not at the top tier.

- **Lower Performers:**

- Hot Chocolate, Cocoa and especially Espresso generate considerably less revenue compared to the top items. Espresso's low revenue might be expected if it's primarily used as a base for other drinks rather than a standalone purchase.

Important Objectives of this Graph:

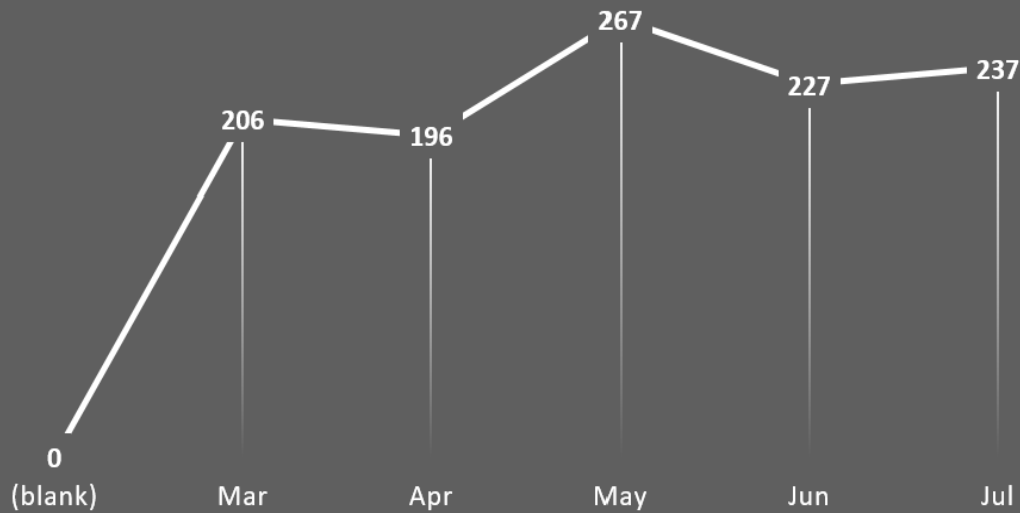
- **Revenue Performance by Product:** The primary objective is to visually compare the revenue contribution of each coffee item. This helps in identifying which products are the biggest earners and which are underperforming.
- **Product Prioritization:** By understanding revenue distribution, businesses can prioritize marketing efforts, inventory management, and even staffing based on the demand and profitability of each item.
- **Strategic Decision-Making:** The data can inform decisions about menu optimization, pricing strategies, promotional campaigns, and resource allocation.
- **Identifying Trends/Opportunities:** While this is a snapshot, over time, similar graphs could reveal trends in customer preferences and market demand.

Financial Ideas:

- **Focus on Top Earners:** Continue to promote and ensure the consistent quality of Latte, Americano with Milk, and Cappuccino.
- **Analyze Mid-Range Potential:** Investigate if there are opportunities to boost sales for Americano and Cortado through promotions, bundling, or improved visibility.
- **Cost Analysis:** Pair this revenue data with the cost of goods sold for each item to understand actual profitability, not just gross revenue. A high-revenue item could have low profit margins if its costs are also very high.
- **Customer Insights:** Understand why customers prefer certain items. Is it taste, price, marketing, or convenience? Use this to refine your offerings.
- **Menu Optimization:** Based on revenue and profitability, consider optimizing the menu. Should less popular items be adjusted, replaced, or removed if they are not strategically important.

Row Labels	Count of coffee_name
(blank)	
Mar	206
Apr	196
May	267
Jun	227
Jul	237
Grand Total	1133

MONZ



This graph is a line chart that appears to represent a trend over several months, from March to July. The Y-axis likely represents a numerical value, possibly sales, units, website visitors, or some other key performance indicator. The "blank" label at the beginning suggests data might have started being collected from March, or there was no activity prior to that point in the displayed period.

Overall Performance (Based on the Graph):

- **Initial Growth (Mar):** The metric starts from 0 (or a "blank" period) and sees a significant jump to 206 in March, indicating a strong start or initial surge in activity.
- **Slight Dip (Apr):** There's a small decrease from March to April, representing a minor setback or seasonal dip.

- **Strong Peak (May):** May shows the highest performance at, indicating a very successful month or a peak in demand/activity. This is the best performance depicted.
- **Decline (Jun):** Following the May peak, there's a noticeable drop to in June.
- **Partial Recovery (Jul):** July sees a slight recovery, but it's still below the peak performance of May.

Important Objectives of this Graph:

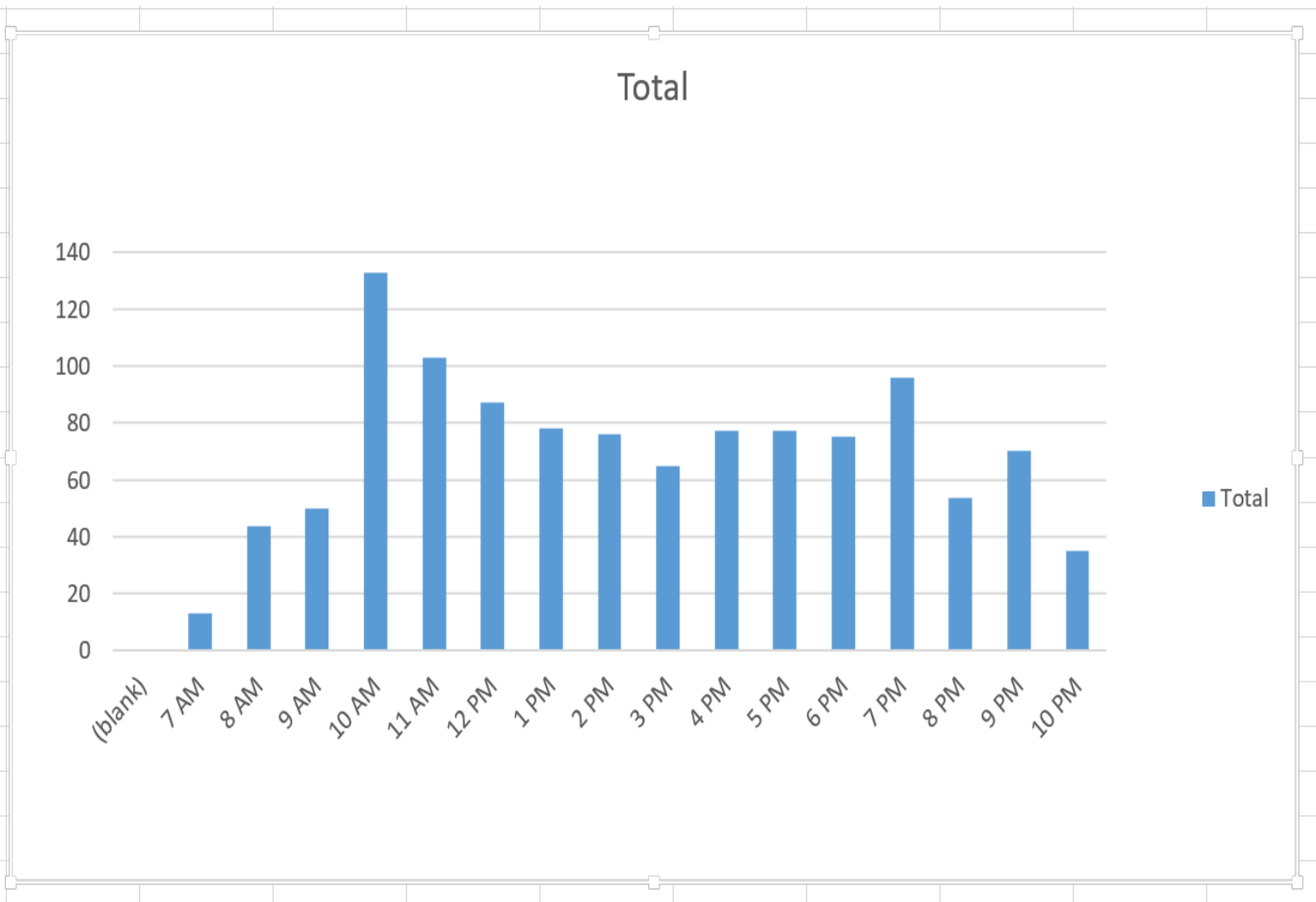
- **Trend Analysis:** The primary objective is to visualize the performance trend over time. This helps in understanding if the metric is growing, declining, or fluctuating.
- **Performance Tracking:** It allows for quick tracking of a specific metric month-over-month, enabling easy comparison and identification of deviations from expected performance.
- **Identifying Peaks and Troughs:** The graph clearly shows periods of high and low performance, which can prompt further investigation into the reasons behind these fluctuations.
- **Forecasting and Planning:** Understanding past trends can aid in making more informed forecasts for future periods and in setting realistic goals.
- **Strategic Adjustments:** If a negative trend is observed, it signals a need for strategic adjustments

Financial Ideas in Short:

- **Analyze May's Success:** Investigate what factors contributed to the peak performance in May. Were there specific marketing campaigns, product launches, seasonal demands, or external events that drove this surge? Replicate successful strategies.
- **Address April & June Dips:** Understand the reasons behind the dips in April and June. Were there operational issues, increased competition, or a decrease in market demand Develop strategies to mitigate future declines.

- **Sustaining Growth:** While July showed a partial recovery, it's crucial to aim for consistent growth maintain performance.
- **Correlate with Events:** Cross-reference this data with any business-specific events or external factors to identify correlations.
- **Set Targets:** Based on the observed trends, set realistic but ambitious targets for the upcoming months, perhaps aiming to exceed the May peak or ensure stable growth.
- **Cost-Benefit Analysis:** If this represents revenue, link it to associated costs. If it's a non-revenue metric analyze its conversion to revenue to understand its financial impact.

Row Labels	Count of coffee_name
(blank)	
7 AM	13
8 AM	44
9 AM	50
10 AM	133
11 AM	103
12 PM	87
1 PM	78
2 PM	76
3 PM	65
4 PM	77
5 PM	77
6 PM	75
7 PM	96
8 PM	54
9 PM	70
10 PM	35
Grand Total	1133



This graph is a vertical bar chart titled "Total." It represents the distribution of a "Total" metric over different hours of the day, from 7 AM to 10 PM. The height of each bar indicates the value of this "Total" for that specific hour. Given the context of previous coffee revenue analysis, this "Total" likely represents transaction volume, customer count, or sales revenue per hour. The "blank" label at the beginning suggests no activity or data recorded before 7 AM.

Overall Performance (Based on the Graph):

- **Morning Ramp-Up:** Activity starts picking up from 7 AM, gradually increasing until it reaches a significant level.
- **Morning Peak (10 AM - 11 AM):** The graph shows a clear peak in activity around 10 AM followed by another high point at 11 AM. This indicates a strong morning rush.
- **Midday/Early Afternoon Dip:** There's a noticeable drop in activity from 12 PM through 4 PM, as this suggests a post-lunch lull or a more steady flow.
- **Evening Resurgence:** Activity picks up again in the evening, with a secondary peak around 7 PM. This could be a post-work rush or dinner-time crowd.
- **Late Evening Decline:** After 7 PM, there's a gradual decline in activity through 10 PM, as expected.

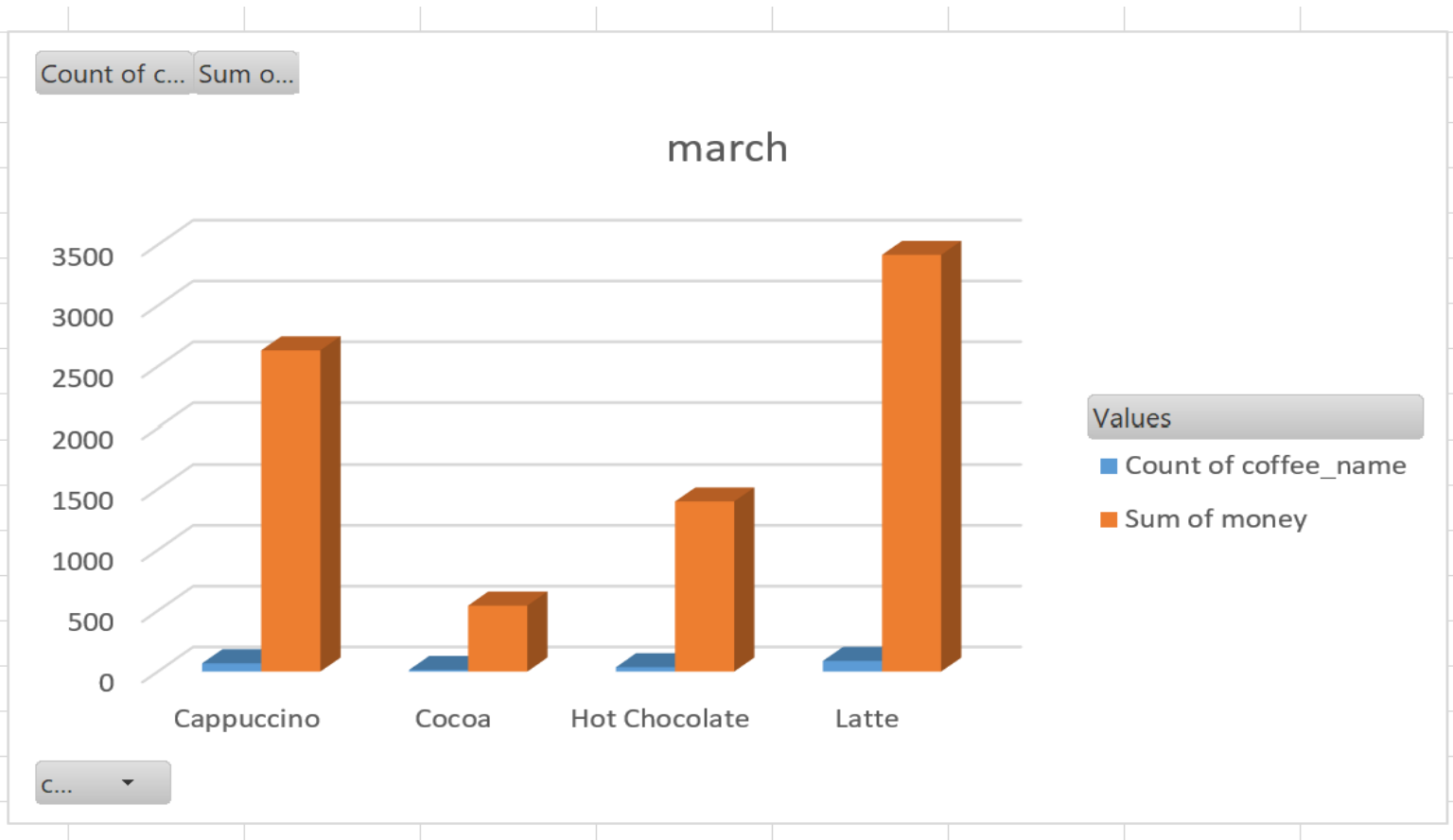
Important Objectives of this Graph:

- **Peak Hour Identification:** The primary objective is to pinpoint the busiest hours of operation. This is crucial for resource allocation and operational planning.
- **Staffing Optimization:** Understanding hourly demand allows for efficient scheduling of staff to match customer flow, preventing understaffing during busy periods and overstaffing during slow times.
- **Operational Efficiency:** It helps in planning activities like restocking, cleaning, or training during off-peak hours to minimize disruption during busy times.
- **Targeted Marketing/Promotions:** Knowing peak and off-peak times enables the creation of targeted promotions to balance demand throughout the day.
- **Service Quality Improvement:** By identifying peak times, businesses can proactively manage queues and service delivery to maintain customer satisfaction.

Financial Ideas in Short:

- **Optimize Staffing:** Schedule more staff during the 10 AM-11 AM peak and the 7 PM resurgence to handle increased customer volume efficiently and reduce wait times. Reduce staff during the slower midday/early afternoon hours (12 PM-4 PM).
- **Targeted Promotions:** Introduce promotions (e.g., happy hour discounts on certain items) during the slower midday/early afternoon hours (12 PM-4 PM) to drive traffic and increase sales during these times.
- **Menu Adjustments:** Analyze if specific high-margin products sell better during peak times vs. off-peak times. Adjust stock or promotions accordingly.
- **Operational Planning:** Schedule non-customer facing tasks (e.g., inventory checks, cleaning, staff meetings) during the quieter hours (before 7 AM or during the midday dip) to maximize efficiency during peak periods.
- **Analyze Sales Mix:** If this represents transaction count, delve deeper into the value of transactions during different hours
- **Consider Opening/Closing Hours:** Evaluate if the current operating hours are optimal. If there's significant activity at 7 AM, are there earlier opportunities? If 10 PM is very low, is it worth staying open that late.

Row Labels	Count of coffee_name	Sum of money
Cappuccino	68	2632.38
Cocoa	14	543.02
Hot Chocolate	36	1399.02
Latte	88	3417.34
Grand Total	206	7991.76



This graph is a clustered bar chart specifically for the month of March. It compares two different metrics for four specific coffee products: Cappuccino, Cocoa, Hot Chocolate, and Latte.

Overall Performance (Based on the Graph for March):

- **Latte:** Shows the highest revenue (Sum of money), significantly above and also has a relatively high count of units sold. This indicates it's a very strong performer in both volume and value.
- **Cappuccino:** Also a strong revenue generator, with a high count of units sold. Similar to Latte, it's a key contributor.
- **Hot Chocolate:** Generates moderate revenue and has a moderate count of units sold. It's a decent contributor but not as dominant as Latte or Cappuccino.

- **Cocoa:** Shows the lowest revenue and also the lowest count of units sold among the displayed products. It appears to be the weakest performer in March among these four.

Important Objectives of this Graph:

- **Product Performance in March:** The primary objective is to analyze the sales and revenue performance of selected coffee products specifically for the month of March.
- **Volume vs. Value Analysis:** It allows for a direct comparison between the quantity sold and the revenue generated for each product. This helps in understanding profitability and pricing strategies.
- **Identifying High-Value/High-Volume Products:** Businesses can quickly identify which products are driving revenue and which are selling in high quantities but perhaps at lower price points.
- **Strategic Planning for the Month:** The data informs monthly inventory planning, marketing campaigns, and sales targets for these specific items.
- **Seasonal or Monthly Insights:** When compared with similar graphs for other months, it can reveal seasonal trends or monthly fluctuations in product performance.

Financial Plans

- **Prioritize Latte & Cappuccino:** These are the cash cows. Ensure consistent availability, quality, and consider upselling opportunities.
- **Evaluate Cocoa:** Given its low revenue and volume, assess its profitability. Is it worth keeping on the menu? Can its sales be boosted through bundling or promotions.
- **Pricing Strategy Review:** Compare the "Count of coffee name" to "Sum of money" for each. For example, if Cocoa sells many units but generates little money, its pricing might be too low, or it might be a lower-priced, less profitable item by

nature. Conversely, if a product sells fewer units but generates high revenue, it could be a premium item.

- **Targeted Promotions:** Consider promoting Hot Chocolate and Cocoa during specific times of the day or week, or bundle them with other items, to increase their revenue contribution.
- **Inventory Management:** Use this data to accurately forecast demand for each product in future March months, optimizing inventory levels and reducing waste.
- **Profit Margin Analysis:** Crucially, layer in the cost of goods sold for each item to understand the actual profit margin. A high-revenue item might have lower margins if its ingredients are expensive, or a low-revenue item could be highly profitable if its costs are minimal.

Row Labels	Count of coffee	Sum of money
Cappuccino	77	2904.44
Cocoa	12	452.64
Hot Chocolate	25	943
Latte	81	3055.32
Grand Total	195	7355.4

Count ... Sum o...

april

3500
3000
2500
2000
1500
1000
500
0

Cappuccino

Cocoa

Hot
Chocolate

Latte

Values

Count of coffee

Sum of money



Graph 1: "April" - Clustered Bar Chart

This graph is a clustered bar chart specifically for the month of April. It compares two different metrics for four specific coffee products: Cappuccino, Cocoa, Hot Chocolate, and Latte.

The two metrics represented by the bars are:

- **Count of coffee (Blue/Thin bars):** This likely represents the number of units sold or transactions for each coffee type.
- **Sum of money (Orange/Thicker bars):** This represents the total revenue generated by each coffee type.

Important Objectives of this Graph:

- **Product Performance in April:** The primary objective is to analyze the sales volume and revenue generated by selected coffee products specifically for the month of April.
- **Volume vs. Value Analysis:** It allows for a direct comparison between the quantity of items sold and the total revenue generated for each product. This insight is crucial for understanding product profitability and the effectiveness of current pricing strategies.
- **Identifying Key Contributors:** It helps in quickly identifying which products are top performers in terms of both sales volume and financial contribution.
- **Monthly Strategic Adjustment:** The data can inform short-term tactical decisions related to inventory, marketing focus, and sales promotions for the specific products in the upcoming month.
- **Month-over-Month Comparison (with March data):** When compared with the previous "March" graph, it facilitates a month-over-month performance analysis for these specific products, revealing trends or changes in customer preferences.

Overall Performance (Based on the Graph for April):

- **Latte:** Again, Latte is a top revenue generator (Sum of money), significantly above and also shows a high count of units sold. This confirms its continued strong performance.
- **Cappuccino:** Continues to be a strong revenue generator with a high count of units sold. It maintains its position as a key contributor.
- **Hot Chocolate:** Generates moderate revenue and has a moderate count of units sold. Its performance seems consistent with, or slightly lower than, March.
- **Cocoa:** Continues to show the lowest revenue and also the lowest count of units sold among the displayed products. It remains the weakest performer in April among these four.

Financial Ideas in Short (for April):

- **Reinforce Top Sellers:** Continue to prioritize Latte and Cappuccino. Ensure their consistent quality, availability, and explore loyalty programs or bundles around them.
- **Cross-Promotion Opportunities:** Consider bundling lower-performing items like Hot Chocolate with top sellers (Latte, Cappuccino) or offering special deals during off-peak hours to boost their sales.
- **Pricing Analysis:** Though the blue bars (count) are very thin, it appears the ratio of "Sum of money" to "Count of coffee" is relatively consistent for Latte and Cappuccino, suggesting stable pricing and sales. For Hot Chocolate and Cocoa, further investigation into their pricing relative to demand might be warranted.
- **Inventory Management:** Use April's data to refine inventory forecasts for May and subsequent months, ensuring popular items are always in stock and minimizing waste for less popular ones.

Graph 2: "Analysis by Coffee Revenue" - Horizontal Bar Chart

This graph, titled "Analysis by Coffee Revenue," is a horizontal bar chart that represents the total revenue generated by various coffee products over an unspecified period. Each bar corresponds to a specific coffee name, and its length directly indicates the revenue in a numerical value.


Important Objectives of this Graph:

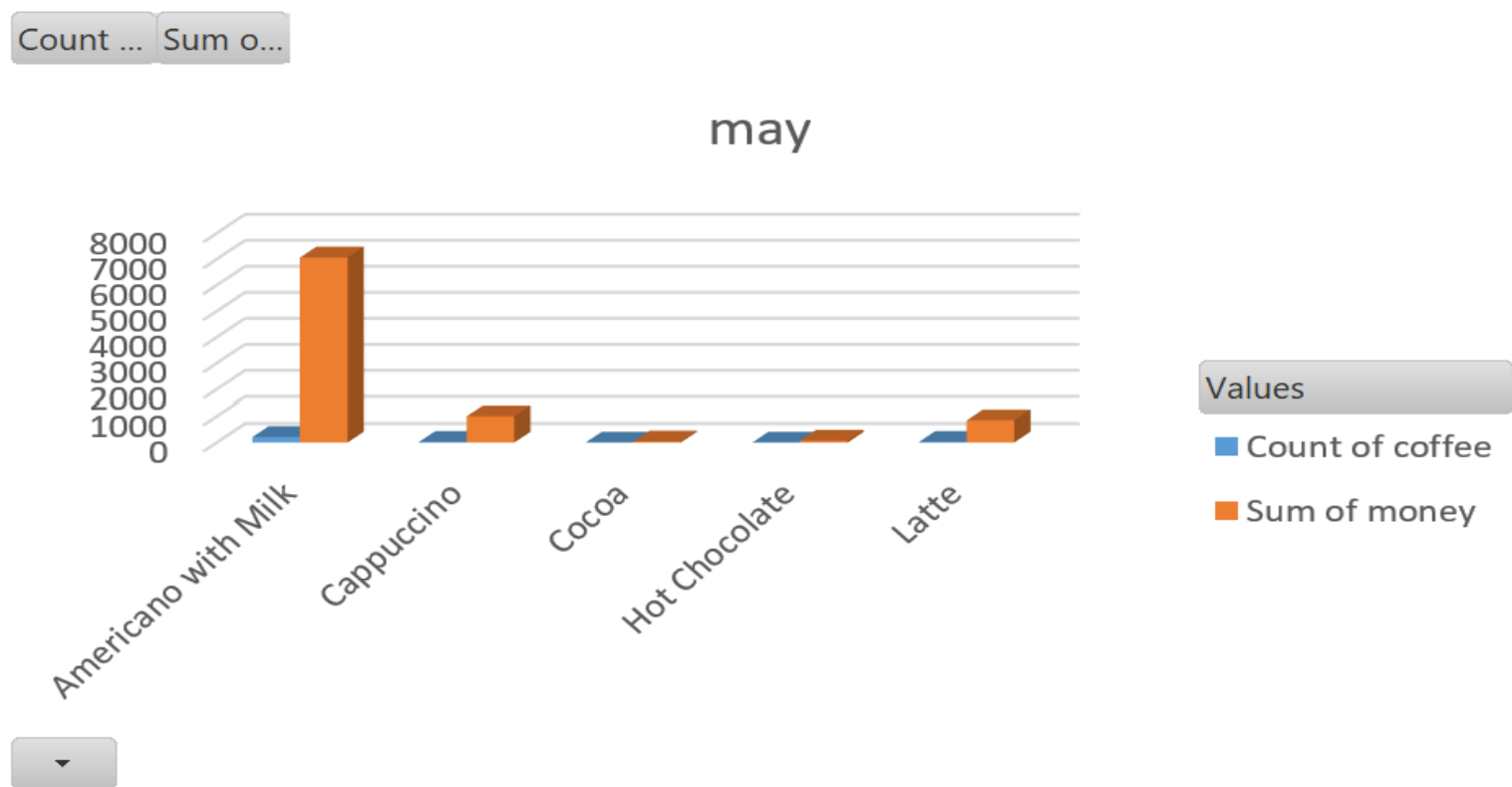
- **Overall Revenue Contribution:** The primary objective is to visually compare the total revenue generated by each coffee item across the entire period covered. This provides a comprehensive view of which products are the biggest financial contributors.
- **Product Portfolio Assessment:** It allows for an assessment of the entire product portfolio's financial health, identifying core revenue drivers and niche products.
- **Strategic Resource Allocation:** Businesses can use this data to make long-term decisions about product development, marketing budgets, and operational focus based on the proven revenue generation of each item.
- **Identifying Market Demand:** High revenue for certain products indicates strong market demand and customer preference for those items.
- **Benchmarking:** This aggregated view can serve as a benchmark for individual monthly performance (like the March and April graphs) to see if monthly trends align with the overall picture.

Overall Performance (Based on the Graph):

- **Dominant Performers:**
 - Latte is the clear leader, generating the most revenue.
 - Americano with Milk is a very close second, indicating strong popularity and revenue generation.
 - Cappuccino is also a high performer, solidifying its position as a core product.
- **Mid-Range Contributors:**
 - Americano contributes significantly, but at about half the revenue of the top two.

- Cortado and Hot Chocolate are in a similar range, providing decent, but not outstanding, revenue.
- **Lower Contributors:**
 - Cocoa generates considerably less revenue.
 - Espresso is the lowest revenue generator among the listed items. As noted previously, this might be due to its nature as a base ingredient rather than a standalone high-volume product.

Row Labels	 Count of coffee	Sum of money
Americano with Milk	213	7066.34
Cappuccino	27	1008.64
Cocoa	1	37.72
Hot Chocolate	2	75.44
Latte	23	852.86
Grand Total	266	9041



The provided image is a bar chart titled "may," displaying "Count of coffee" (blue bars) and "Sum of money" (orange bars) for various coffee and hot chocolate drinks, along with a "Grand Total."

Overall Performance Analysis:

- **Dominant Revenue Stream:** "American Cappuccino with Milk" and "Grand Total" clearly stand out in terms of "Sum of money." This indicates that "American Cappuccino with Milk" is the primary revenue generator among the individual drink categories. The "Grand Total" bar naturally represents the sum of all categories, and its large value confirms a substantial overall revenue.

- **Low Revenue & Volume for Other Drinks:** "Cappuccino," "Cocoa," "Hot Chocolate," and "Latte" contribute significantly less to both the "Count of coffee" and "Sum of money." Their revenue figures are in the hundreds, whereas "American Cappuccino with Milk" is in the thousands.
- **Price Discrepancy (Implied):** While "American Cappuccino with Milk" has a high "Sum of money," its "Count of coffee" is not overwhelmingly higher than some other categories. This suggests that "American Cappuccino with Milk" likely has a higher average selling price per cup compared to other drinks. For instance, "Latte" and "Cappuccino" seem to have similar counts but much lower revenue.
- **Grand Total Perspective:** The "Grand Total" clearly shows the cumulative revenue and count for all items. The "Sum of money" for the Grand Total is close to 9000, while the "Count of coffee" is much lower, again hinting at a healthy average price point across all sales.

Objectives of This Graph:-

- **Revenue Dominance by "Americano with Milk" and "Grand Total":** The "Sum of money" bars clearly show that "Americano with Milk" is the highest revenue-generating individual item, and the "Grand Total" bar confirms the overall significant revenue.
- **Popularity vs. Profitability:** While "Americano with Milk" generates the most money, it's important to cross-reference this with its "Count of coffee" to understand if it's high volume or high price driving the revenue. Other items like "Cappuccino" and "Latte" also contribute, but significantly less.
- **Underperforming Items:** "Cocoa" and "Hot Chocolate" appear to be low in both count and sum of money, indicating they are not popular or significant revenue drivers.
 - * Overall Performance: The "Grand Total" provides an immediate snapshot of the total sales volume and revenue for the month of May, which is substantial.
 - * Strategic Focus: The business should consider focusing marketing or operational efforts on "Americano with Milk" to capitalize on its success. For underperforming items like "Cocoa" and "Hot Chocolate," strategies could include promotions, recipe

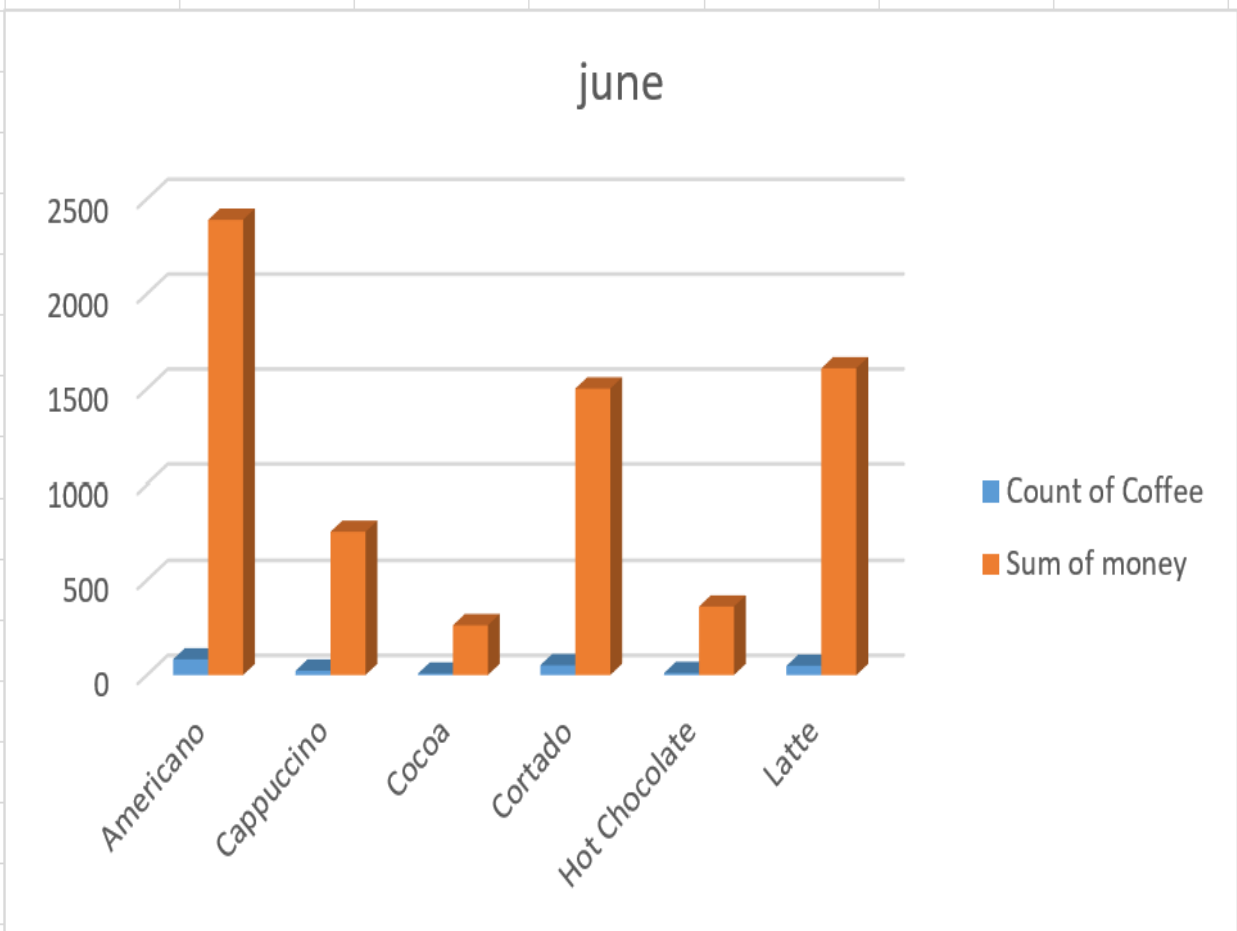
changes, or even considering their removal from the menu if they consistently underperform.

* Pricing Strategy Insights: By comparing the count and sum of money for each item, one could infer pricing strategies. For example, a high sum of money with a relatively lower count might suggest a higher price point for that item.

Important Financial Ideas and Recommendations:

- **Focus on High-Profit Items:**
 - "American Cappuccino with Milk" is the star performer. The business should analyse why this specific drink is so popular and profitable.
 - Explore opportunities to promote "American Cappuccino with Milk" further. This could include special offers, bundling, or prominently featuring it on the menu.
 - Replicate elements of its success (e.g., taste profile, perceived value, and marketing) to other less popular drinks if possible.
- **Inventory Management:**
 - The "Count of coffee" data is crucial for inventory management.
 - Ensure sufficient stock of ingredients for "American Cappuccino with Milk" to avoid stock outs, which lead to lost sales. Conversely, optimize inventory for low-selling items to minimize waste and storage costs.
- **Marketing and Promotional Strategies:**
 - The data clearly shows customer preferences.
 - Tailor marketing efforts. Promote popular items as flagship products. For less popular items, consider "buy one get one free" offers, combo deals, or seasonal promotions to stimulate demand.
- **Time-Series Analysis (Future Consideration):**
 - This graph only shows data for "May." To understand trends and seasonality, it's essential to compare this data with previous months and future months.
 - Create similar graphs for April, June, etc., to identify growth, decline, or consistent performance patterns. This helps in better forecasting and planning.

Row Labels	Count of Coffee	Sum of money
Americano	83	2390.42
Cappuccino	23	754.86
Cocoa	8	262.56
Cortado	52	1501.44
Hot Chocolate	11	361.02
Latte	49	1608.18
Grand Total	226	6878.48



- This graph is a clustered bar chart specifically for the month of June. It compares two different metrics for five specific coffee products: Americano, Cappuccino, Cocoa, Cortado, and Latte.
- The two metrics represented by the bars are:
- Count of Coffee (Blue/Thin bars): This likely represents the number of units sold or transactions for each coffee type.
- Sum of money (Orange/Thicker bars): This represents the total revenue generated by each coffee type.

Overall Performance (Based on the Graph for June):

- **Americano:** This product emerges as the highest revenue generator in June, significantly above and also shows a high count of units sold. This is a notable change compared to previous months where Latte and Cappuccino often led.
- **Latte:** While still a strong performer, Latte's revenue appears to be below Americano's, its count of units sold also seems lower than Americano's. This suggests a shift in top-performing products for June.
- **Cappuccino:** Generates moderate revenue, with a corresponding count of units sold. Its position has also shifted relative to Americano and Latte.
- **Cortado:** Shows moderate revenue, similar to Cappuccino.
- **Hot Chocolate:** Generates lower revenue, with a low count of units sold.
- **Cocoa:** Continues to be the lowest revenue generator, similar to previous months, with the lowest count of units sold.

Important Objectives of this Graph:

- **Product Performance in June:** The primary objective is to analyze the sales volume and revenue generated by selected coffee products specifically for the month of June.
- **Volume vs. Value Analysis:** It allows for a direct comparison between the quantity of items sold and the total revenue generated for each product. This

insight is crucial for understanding product profitability and the effectiveness of current pricing strategies.

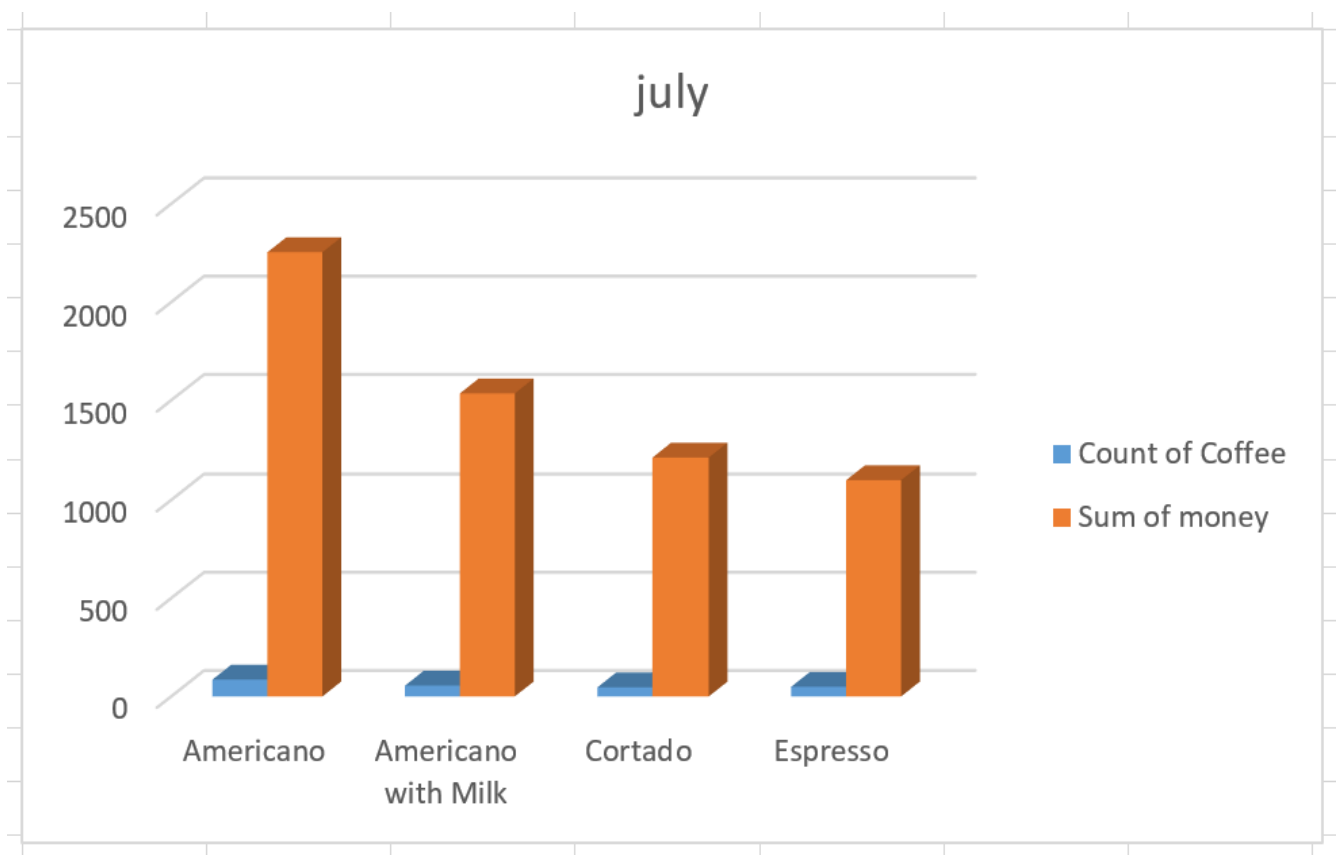
- **Identifying Key Contributors:** It helps in quickly identifying which products are top performers in terms of both sales volume and financial contribution for the month of June.
- **Monthly Strategic Adjustment:** The data can inform short-term tactical decisions related to inventory, marketing focus, and sales promotions for the specific products in the upcoming month (July).
- **Month-over-Month Comparison (with March and April data):** When compared with the previous "March" and "April" graphs, it facilitates a month-over-month performance analysis for these specific products, revealing trends or changes in customer preferences over time.

Financial Ideas:

- **Leverage Americano's Success:** Investigate the reasons for Americano's surge in June. Was it a specific promotion, seasonal preference, or a change in customer behaviour? Capitalize on this by ensuring ample stock and continued promotion.
- **Re-evaluate Latte and Cappuccino's Dip:** While still important, their relative performance has decreased compared to Americano in June. Analyze if there was increased competition, a change in consumer preference, or if any promotions for Americano cannibalized their sales.
- **Address Consistent Underperformers (Cocoa, Hot Chocolate):** Cocoa consistently performs poorly. Consider phased removal if not strategically vital or significantly boost its profitability per unit. Hot Chocolate also remains a lower contributor; explore seasonal promotions or menu bundling.
- **Dynamic Pricing/Promotions:** Use this monthly data to dynamically adjust promotions. For example, if Americano is doing well, focus promotions on mid-range performers like Cappuccino or Cortado, or bundle them with Americano.

- **Optimize Inventory for July:** Based on June's performance, adjust inventory levels for July. Stock more Americano and potentially less of the lower-performing items to reduce waste and carrying costs.

Row Labels	Count of Coffee	Sum of money
Americano	86	2254.12
Americano with Milk	55	1535.6
Cortado	46	1215.72
Espresso	49	1100.62
Grand Total	236	6106.06



Graph: "July" - Clustered Bar Chart

This graph is a clustered bar chart specifically for the month of July. It compares two different metrics for four specific coffee products: Americano, Americano with Milk, Cortado, and Espresso.

The two metrics represented by the bars are:

- Count of Coffee (Blue/Thin bars): This likely represents the number of units sold or transactions for each coffee type.
- Sum of money (Orange/Thicker bars): This represents the total revenue generated by each coffee type.

Overall Performance (Based on the Graph for July):

- **Americano:** This product is the highest revenue generator in July among the displayed items. It also shows a high count of units sold. This continues its strong performance observed in June.
- **Americano with Milk:** This is the second-highest revenue generator. With a corresponding good count of units sold. It maintains its position as a significant contributor.
- **Cortado:** Generates moderate revenue, with a moderate count of units sold.
- **Espresso:** Shows the lowest revenue among this group, and also the lowest count of units sold. This consistent low revenue for standalone Espresso has been noted across other graphs as well.

Important Goals of this Graph:

- **Product Performance in July:** The primary objective is to analyze the sales volume and revenue generated by this specific subset of coffee products for the month of July. This helps in understanding how these particular items are performing in the most recent month available.

- **Volume vs. Value Analysis:** It allows for a direct comparison between the quantity of items sold and the total revenue generated for each product. This insight is crucial for understanding product profitability and the effectiveness of current pricing strategies for these specific items.
- **Identifying Key Contributors (among these specific items):** It helps in quickly identifying which of these four products are top performers in terms of both sales volume and financial contribution for July.
- **Monthly Strategic Adjustment:** The data can inform short-term tactical decisions related to inventory, marketing focus, and sales promotions for these specific products in the upcoming period.
- **Month-over-Month Comparison (with previous data):** When compared with the previous graphs it facilitates a month-over-month and overall performance analysis for these specific products, revealing trends or changes in customer preferences over time.

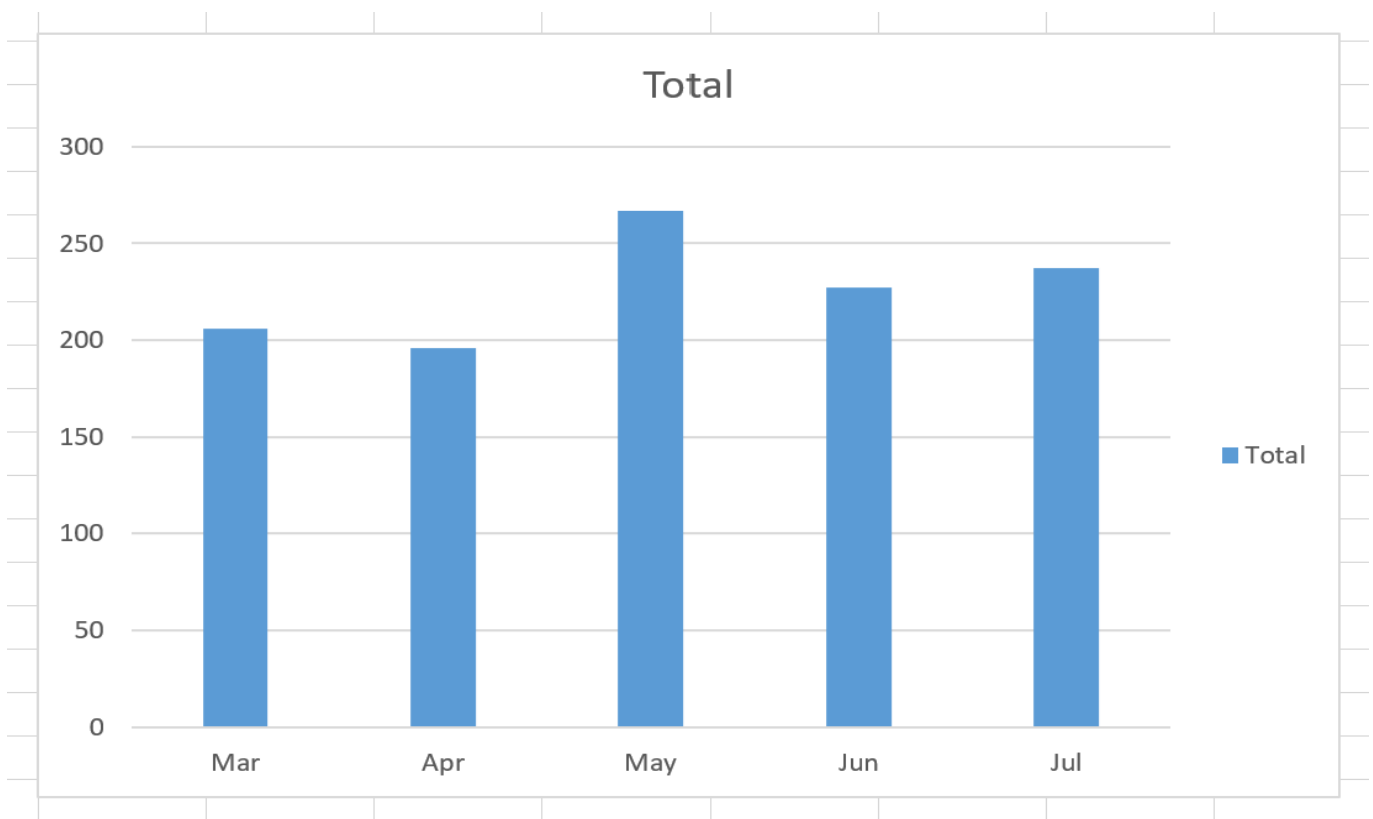
Financial Ideas (for July):

- **Capitalize on Americano Variants:** Both Americano and Americano with Milk are strong performers. Explore combined promotions or variations to further boost their sales, especially given the warmer July weather which might favour these types of drinks.
- **Evaluate Espresso's Standalone Contribution:** Espresso consistently appears at the lower end of revenue generation. While it's a base for other drinks.
- **Pricing and Profitability Check for Cortado:** Analyze Cortado's gross profit margin. If its unit cost is low, its current revenue might still make it a valuable contributor. If its costs are high, consider if it's hitting its potential.
- **Inventory Adjustment for August:** Based on July's robust performance for Americano and Americano with Milk, ensure sufficient inventory for August. Similarly, manage stock for Espresso and Cortado efficiently to avoid waste.
- **Seasonal Impact Confirmation:** The continued strong performance of Americano variants in July (a summer month) further reinforces the idea of seasonality. Plan

marketing and stock for warmer drinks like Hot Chocolate and Cocoa as cooler months approach, and sustain focus on Americano variants during summer.

- **Customer Feedback for Low Performers:** If sales of Espresso or Cortado are not meeting expectations, gather customer feedback. Are there specific reasons customers prefer other drinks?

Row Labels	Count of coffee_name
Mar	206
Apr	196
May	267
Jun	227
Jul	237
Grand Total	1133



This graph is a vertical bar chart titled "Total". It represents a monthly trend of a single metric from March to July. The Y-axis represents the value of this "Total" metric for each month. Based on previous graphs in this series, this "Total" most likely represents total monthly sales revenue or total monthly customer count for the business.

Overall Performance (Based on the Graph):

- **March:** Starts strong at around 205-210.
- **April:** Experiences a slight dip from March, settling around 195-200.
- **May:** Shows a significant peak, reaching the highest point in the displayed period, likely around 255-260. This indicates a very successful month.
- **June:** Sees a noticeable drop from the May peak, falling back to around 215-220.
- **July:** Shows a partial recovery from June's dip, increasing slightly to around 225-230, but still remains below the May peak.

Important Objectives of this Graph:

- **Overall Monthly Performance Tracking:** The primary objective is to track the overall performance of the business month-over-month, from March to July. This provides a high-level view of growth, stability, or decline.
- **Identifying Performance Trends:** It helps in identifying a general trend in the business's overall health – whether it's growing, stable, or experiencing fluctuations.
- **Benchmarking and Goal Setting:** Current month's performance can be benchmarked against previous months, and future targets can be set based on these trends.
- **Early Warning System:** Significant drops in the "Total" metric can serve as an early warning sign, prompting deeper investigation into underlying causes.
- **Seasonal Analysis:** Over a longer period (more than 5 months), this type of graph can reveal seasonal patterns in overall business activity.

Financial Ideas:

- **Investigate May's Success:** Deep dive into what made May the strongest month. Were there specific marketing campaigns, special events, product launches, or favourable external conditions that contributed to this peak? Replicate these successful strategies if possible.
- **Analyze June's Decline:** Understand the reasons for the drop in June after the May peak. Was it due to decreased marketing efforts, increased competition, economic factors, or a natural post-peak adjustment? Develop strategies to prevent or mitigate such dips in the future.
- **Strive for Consistent Growth:** While July showed a recovery, the goal should be to sustain and ideally exceed the May peak in subsequent months. Implement initiatives to drive continuous improvement.
- **Correlate with Other Metrics:** Cross-reference this "Total" (whether revenue or customers) with other internal data, such as marketing spend, operational costs, or specific product performance (from the other graphs you provided), to get a holistic view of profitability and efficiency.
- **Forecast & Budget:** Use the monthly performance trend to create more accurate financial forecasts and operational budgets for the coming months. For example, if July's recovery trend continues, August might be projected to be stronger.
- **Customer Retention/Acquisition:** If "Total" represents customer count, analyze customer acquisition channels and retention strategies. If it's revenue, look at average transaction value and frequency.