

Beverages Sales Analysis

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Section	Details
Tools Used	Python (Pandas, Matplotlib), SQL, Quarto
Data Source	Internal transaction database

Report Overview

This report analyzes sales data from a coffee shop over a given period, focusing on beverage transactions. The goal is to identify best-selling products, revenue trends, and store performance by location. Using SQL and Python, we extracted and processed transaction-level data to create visual summaries. Key findings are framed using the QIA method to drive actionable decisions, such as stocking strategies, pricing adjustments, and targeted promotions

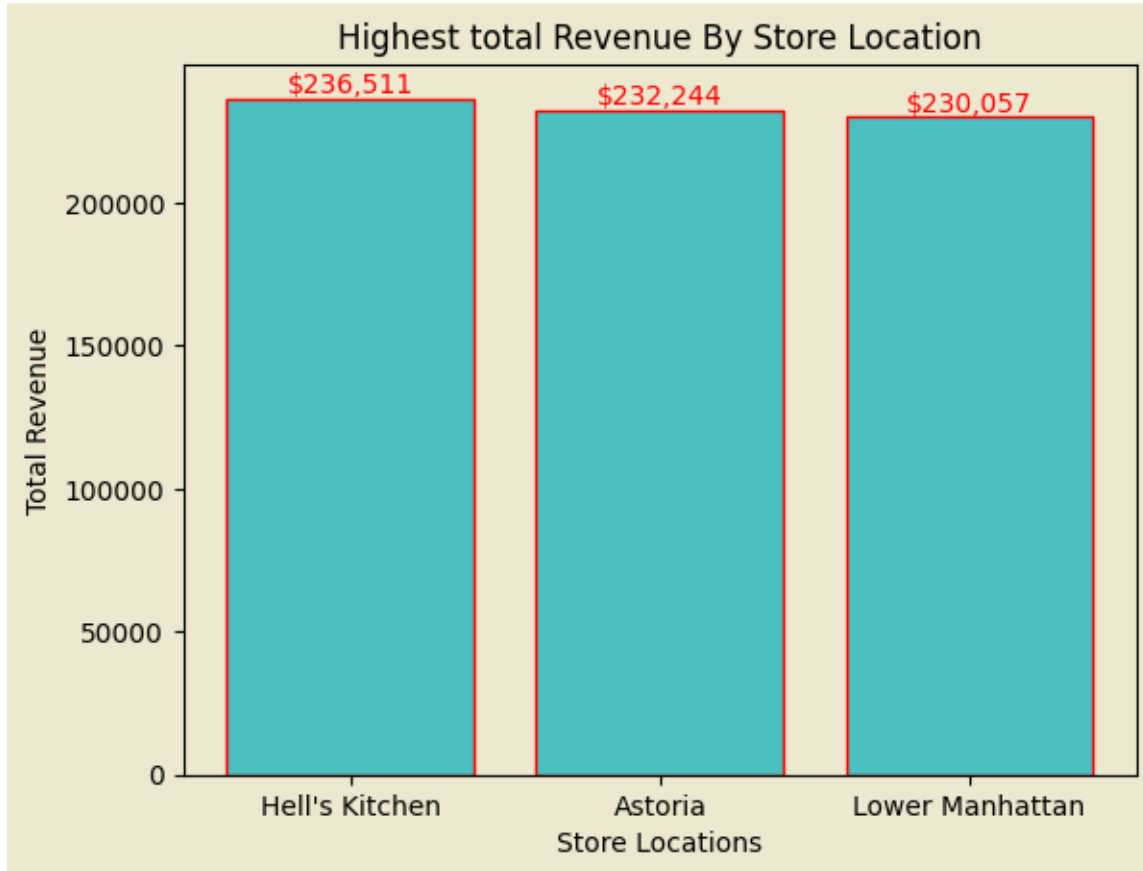
Sample Data

This dataset contains transaction-level sales data collected from multiple beverages shop locations. Each row represents a unique transaction, with details such as the product sold, quantity, price, date, and time of purchase.

	transaction_id	transaction_date	transaction_time	transaction_qty	store_id	store
93836	94090	2023-05-13 00:00:00.000000	13:33:16.000000	1	8	Hell's
26885	26942	2023-02-17 00:00:00.000000	10:49:44.000000	2	5	Low
63008	63178	2023-04-10 00:00:00.000000	15:54:01.000000	2	8	Hell's
16425	16455	2023-01-30 00:00:00.000000	07:41:11.000000	1	5	Low
128307	128644	2023-06-13 00:00:00.000000	10:31:02.000000	2	5	Low
76536	76706	2023-04-26 00:00:00.000000	10:28:42.000000	1	8	Hell's
102770	103024	2023-05-21 00:00:00.000000	10:47:55.000000	1	8	Hell's
147575	147912	2023-06-29 00:00:00.000000	14:18:00.000000	2	3	Astor

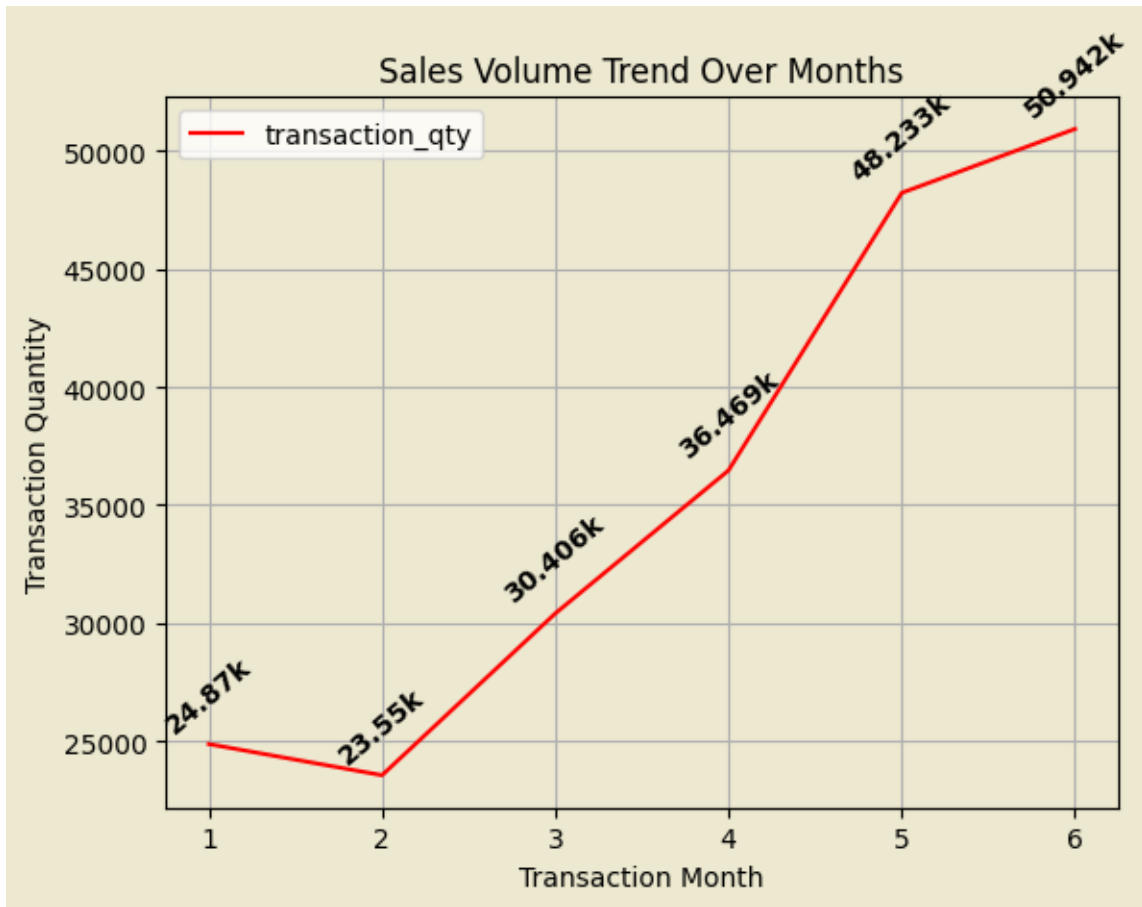
Which store location generated the highest total revenue over time?

Hells Kitchen generated the highest total revenue at 236K, followed closely by Astoria 232K and Lower Manhattan 230K. The revenue distribution among these top three stores is very close, indicating a balanced performance across key locations.



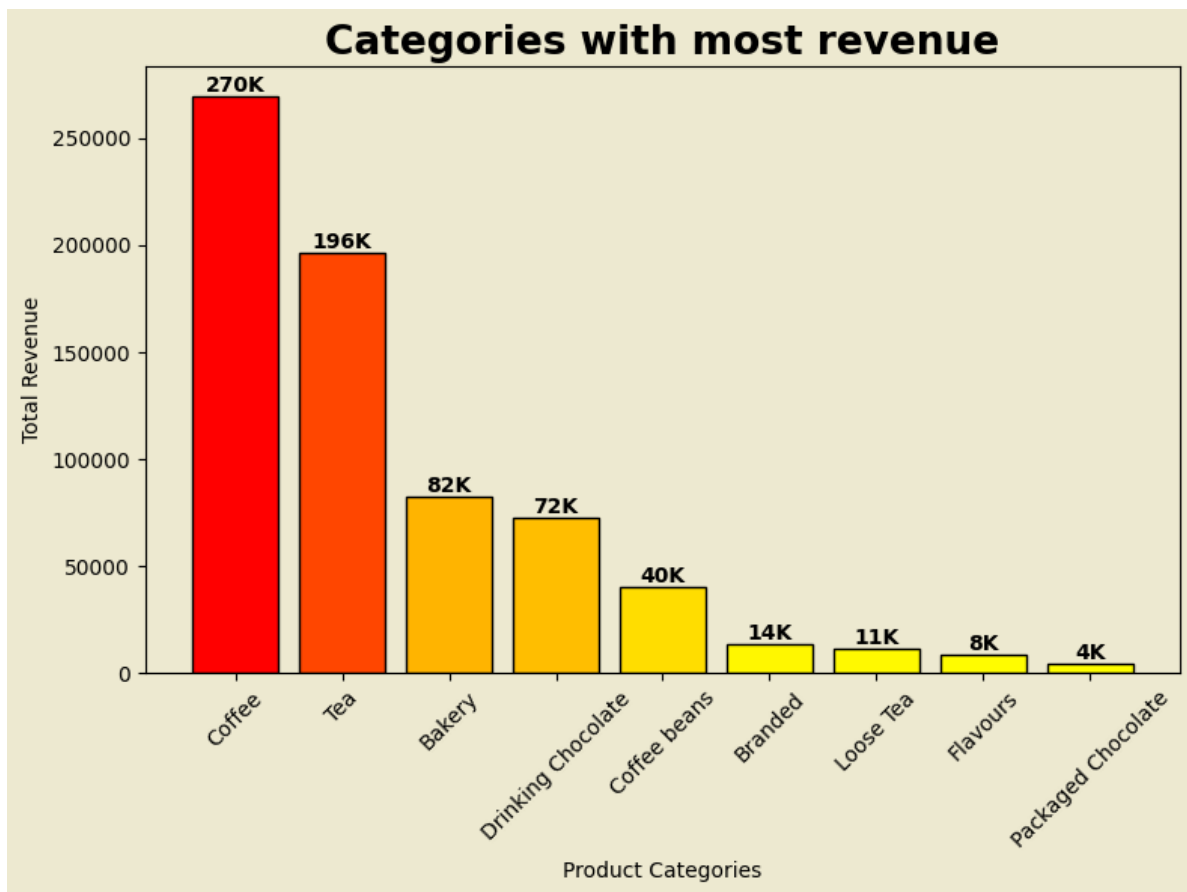
How does sales volume (quantity) trend over months?

Sales volume shows a strong upward trend over time. In January, total quantity sold was around 24K units, and it steadily increased to 50K units by June. This indicates growing customer demand or improved business performance over the months.



Which product categories bring in the most revenue?

Coffee is the top revenue-generating category with 270K, followed by Tea 196K, Bakery 82K, and King Chocolate 72K. The lowest revenue comes from Packed Chocolate, contributing only 4K. This highlights coffee and tea as the dominant contributors to overall sales.



What are the top best-selling products across all stores?

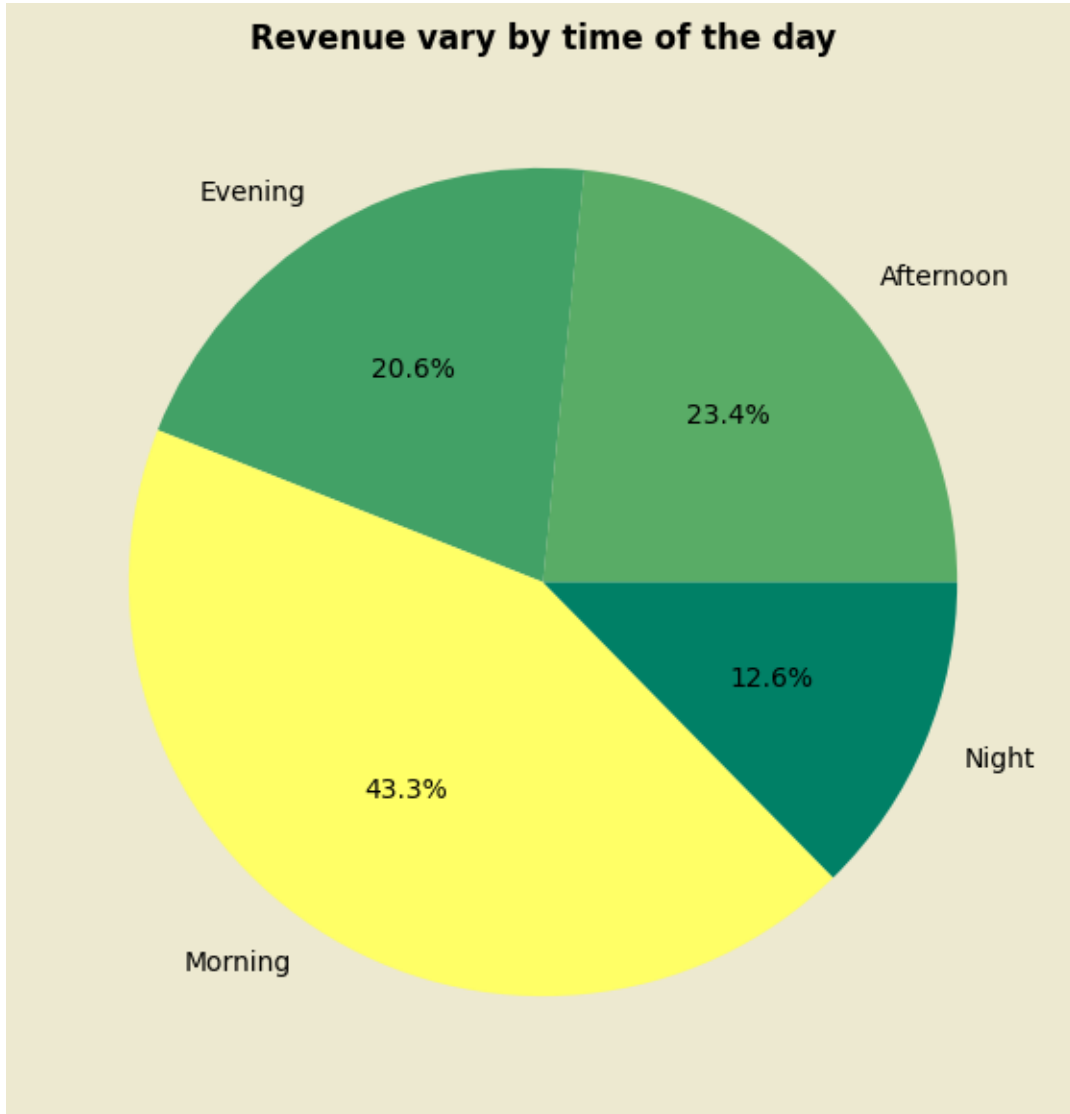
- In Astoria, the best-selling product is Dark Chocolate.
- In Hells Kitchen, it's Civet Cat Coffee.
- In Lower Manhattan, again, Dark Chocolate leads in sales.

Top-Selling Products by Store

store_location	product_detail	total
Astoria	Dark chocolate Lg	7897.5
Hell's Kitchen	Civet Cat	7380.0
Lower Manhattan	Dark chocolate Lg	6574.5

How does revenue vary by time of day (morning, afternoon, evening)?

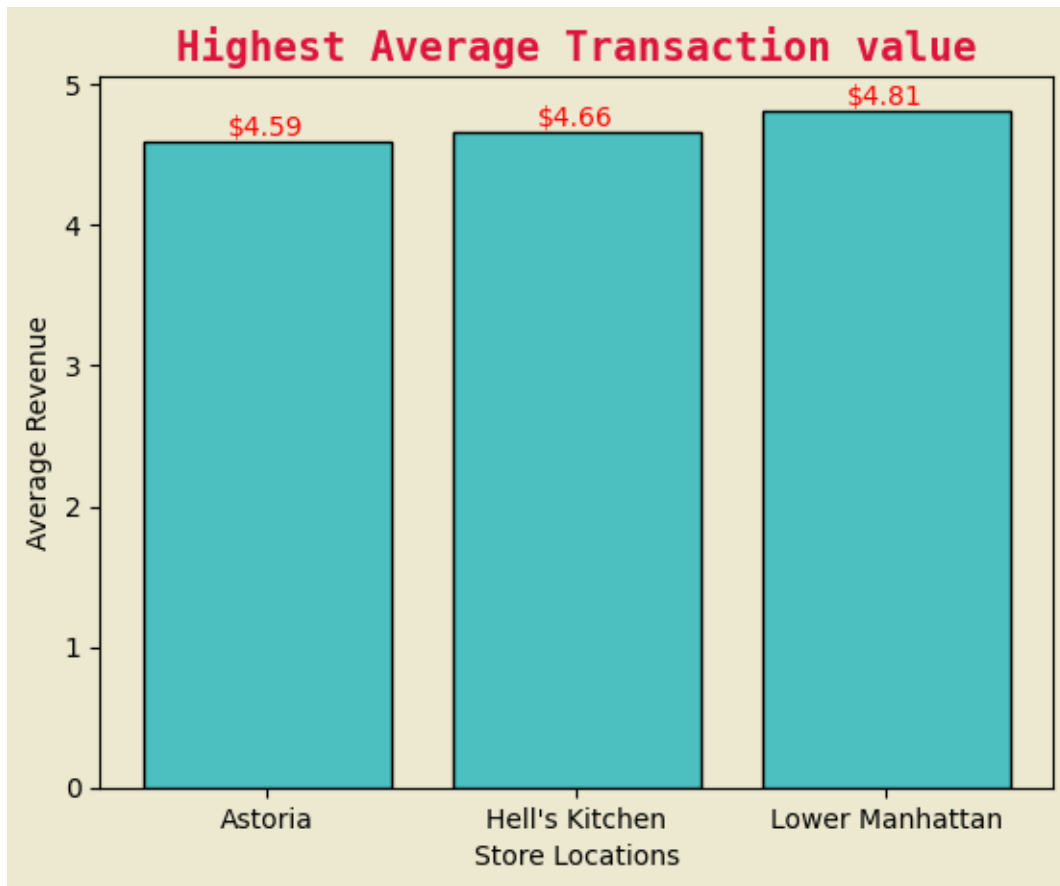
The highest revenue comes from morning hours, contributing 43.3% of total sales. This is followed by evening (23.4%), afternoon (20.6%), and night (12.6%). This pattern suggests that customers are most active during mornings, likely for their daily coffee routines.



Which store has the highest average transaction value?

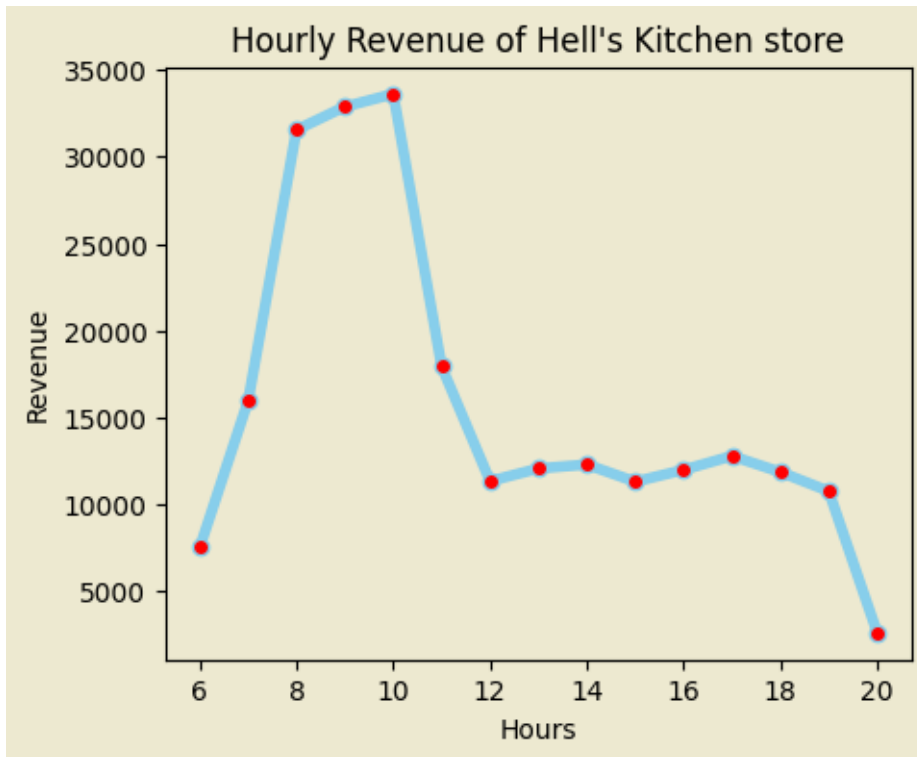
Lower Manhattan has the highest average transaction value at 4.81, followed by Hells Kitchen (4.66) and Astoria (4.59). While the difference is small, it suggests customers in Lower Man-

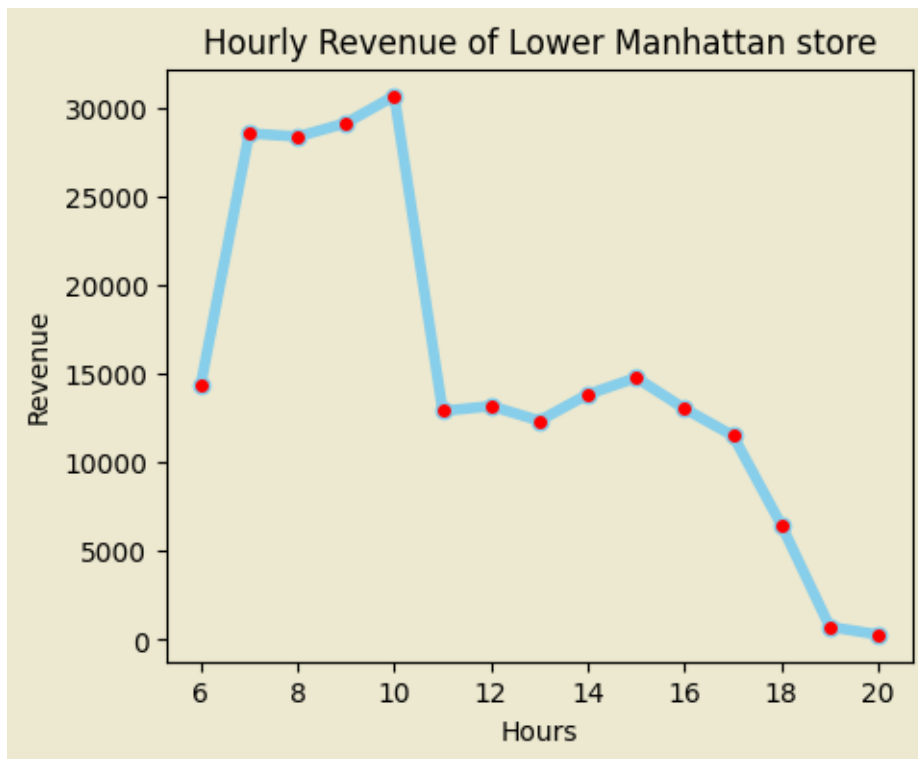
hattan tend to purchase slightly more or opt for higher-priced items per visit.

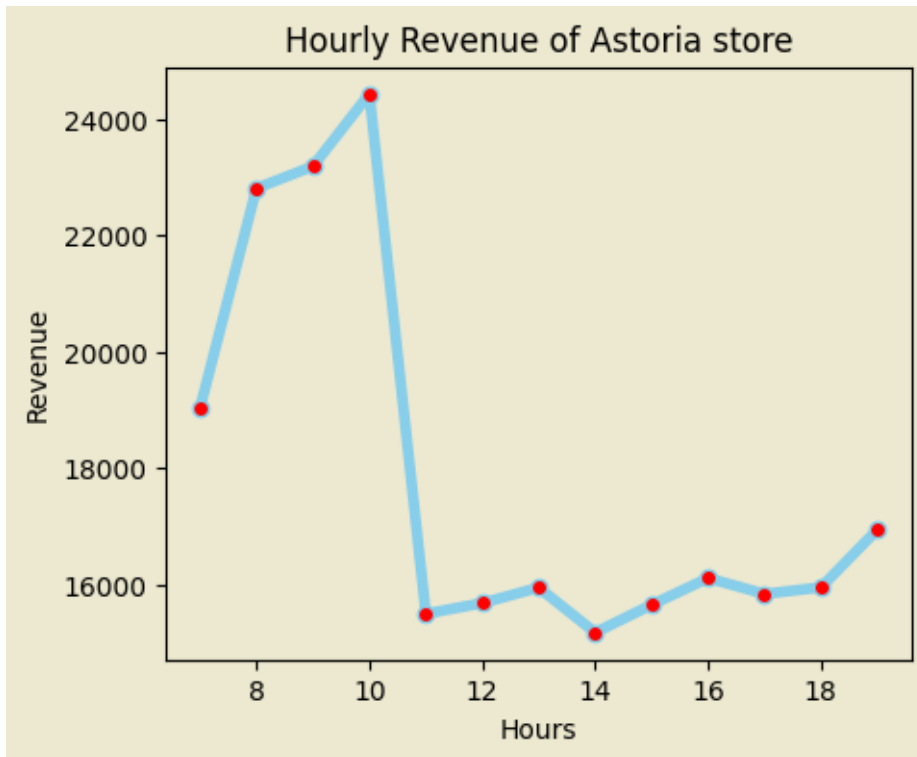


What is the hourly transaction pattern across all stores?

Transactions gradually increase during early hours and peak between 6 AM and 10 AM, aligning with typical morning coffee demand. There's a smaller secondary rise around 2 PM to 5 PM, likely due to post-work or evening relaxation purchases. Activity drops significantly during late-night hours.

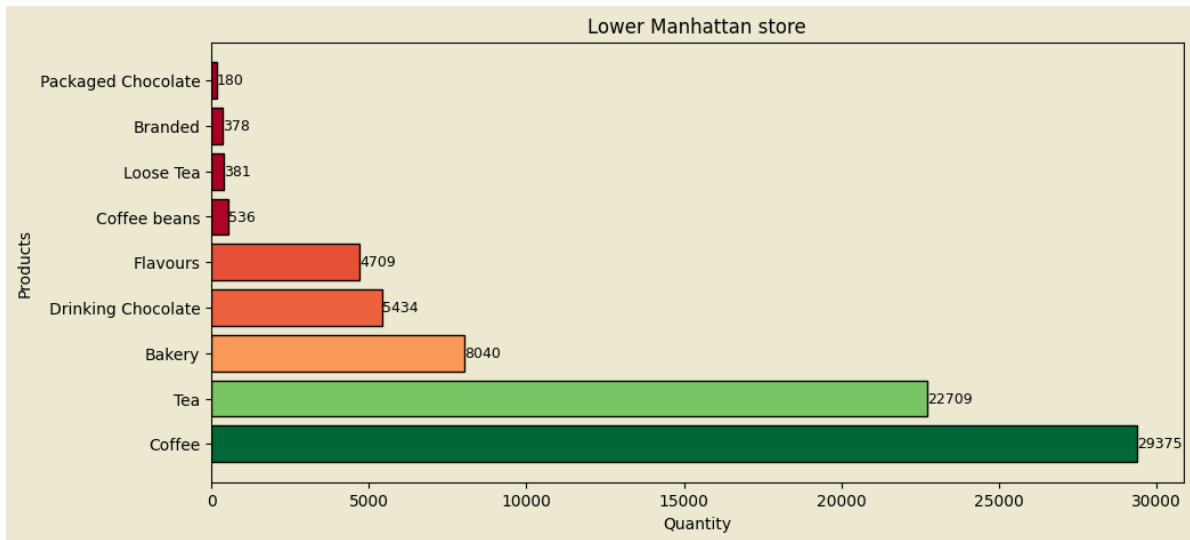


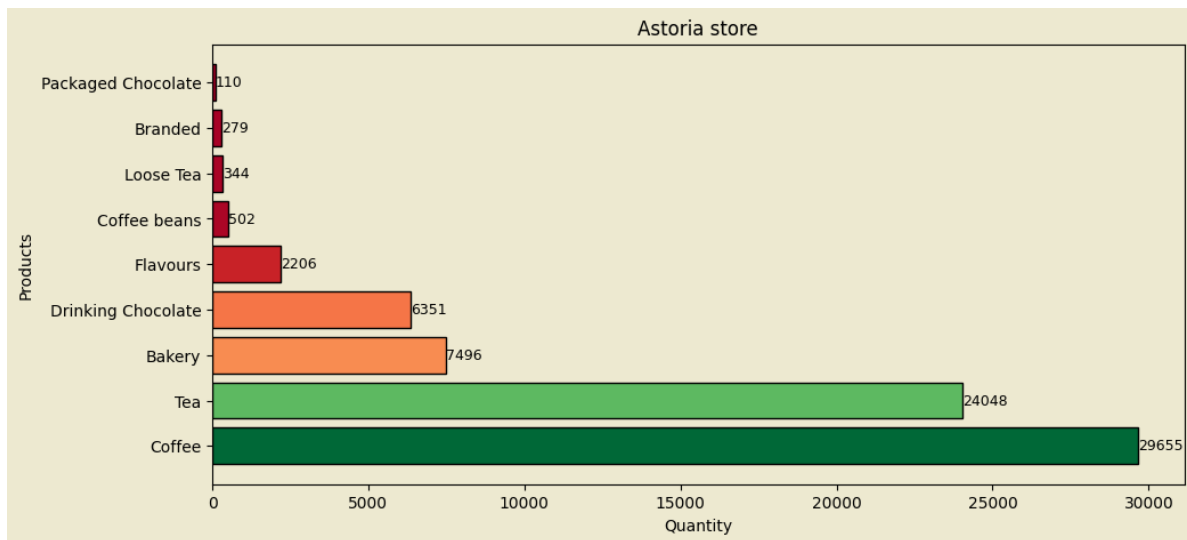




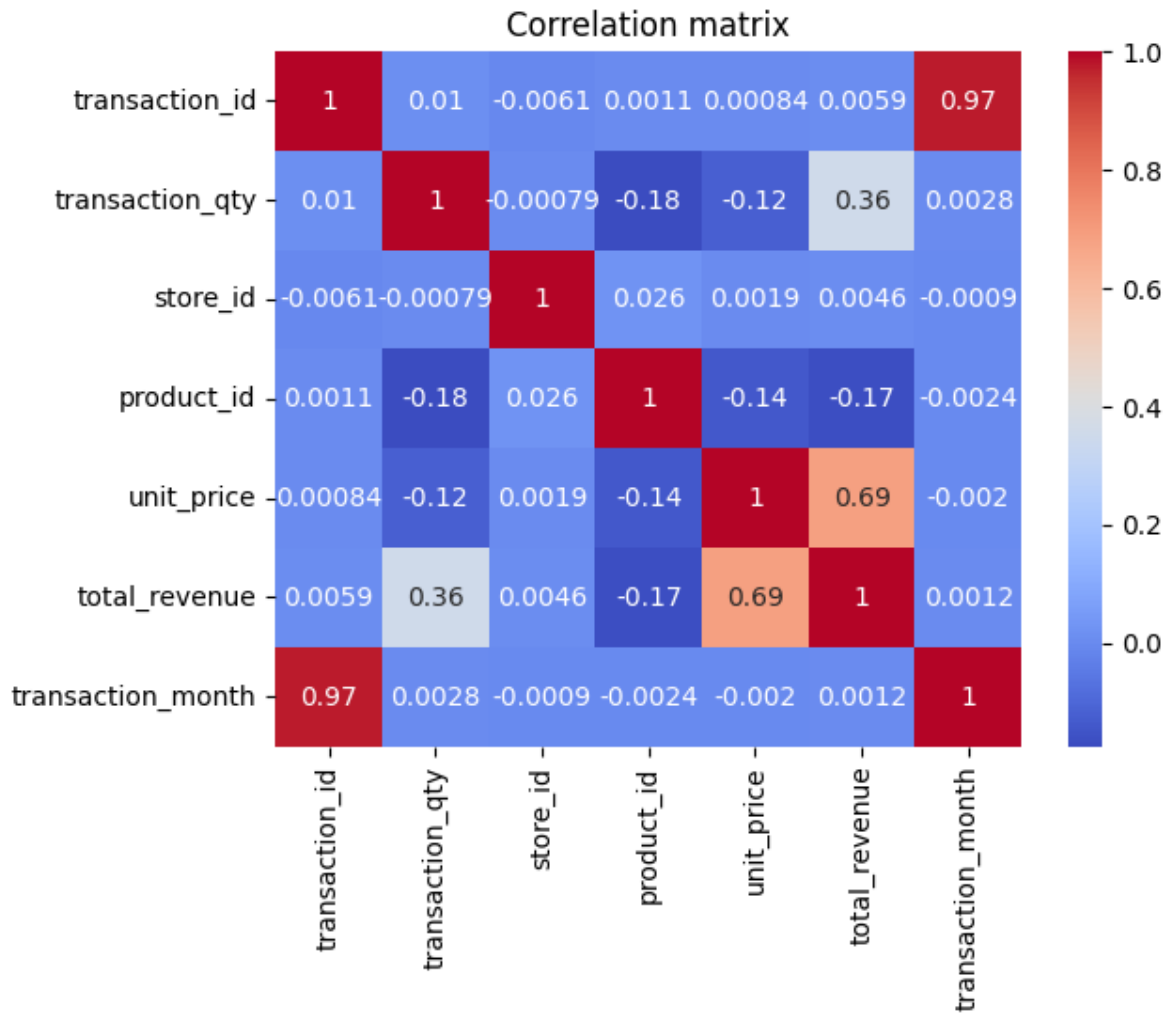
How does the popularity of each product category differ by store?

Across all store locations, the top four product categories are consistently Coffee, Tea, Bakery, and Drinking Chocolate. This indicates that customer preferences are relatively uniform regardless of location, with beverages (especially coffee and tea) dominating sales





Total revenue Prediction for a transaction based on store location, time of day



fit_intercept	True
copy_X	True
tol	1e-06
n_jobs	None
positive	False

r2 score is 0.6649849321138901

Summary and Recommendations

- Hells Kitchen topped in revenue, but all three major stores (Hells Kitchen, Astoria, Lower Manhattan) performed similarly — keep pushing promotions evenly across them.

- Sales are rising month by month, doubling from Jan to June — plan ahead for even higher demand in the coming months.
- Mornings drive the most sales (43%), especially between 9–11 AM — make sure your team and stock are ready before the rush.
- Coffee and Tea dominate revenue, while Dark Chocolate and Civet Cat are top individual products — focus promos and bundles around these.
- Customer tastes are similar across locations — no need to over-customize. Keep your winning categories consistent and experiment with new product bundles to boost average sales.