



Weather-Influenced Sales Analysis

Exploring the impact of weather on Coffee Shop Sales

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PROJECT OVERVIEW

Weather-Influenced Coffee Shop Sales Analysis project explores how different weather conditions affect the sales performance of a coffee shops. The analysis helps identify sales trends, top-performing stores, and product preferences under changing weather conditions. By combining sales data and weather data, we uncover useful insights that will help business drive-decisions.

Tools Used: Python (Pandas, Matplotlib, Seaborn)



OBJECTIVES

- Identify sales trend over time.
- Understand how weather condition impact on sales performance.
- Identify the best performing product categories on the basis of weather conditions and top performing weather based on total sales.
- Analyze sales pattern by store locations.
- Detect sales pattern in weekdays vs. weekends to inform marketing strategies.



DATA USED

- **Sales Data:** date, transaction_qty, unit_price, total_price, store_location, product_category
- **Weather Data:** Location, temp, conditions, date
- **Merged On:** date and Location

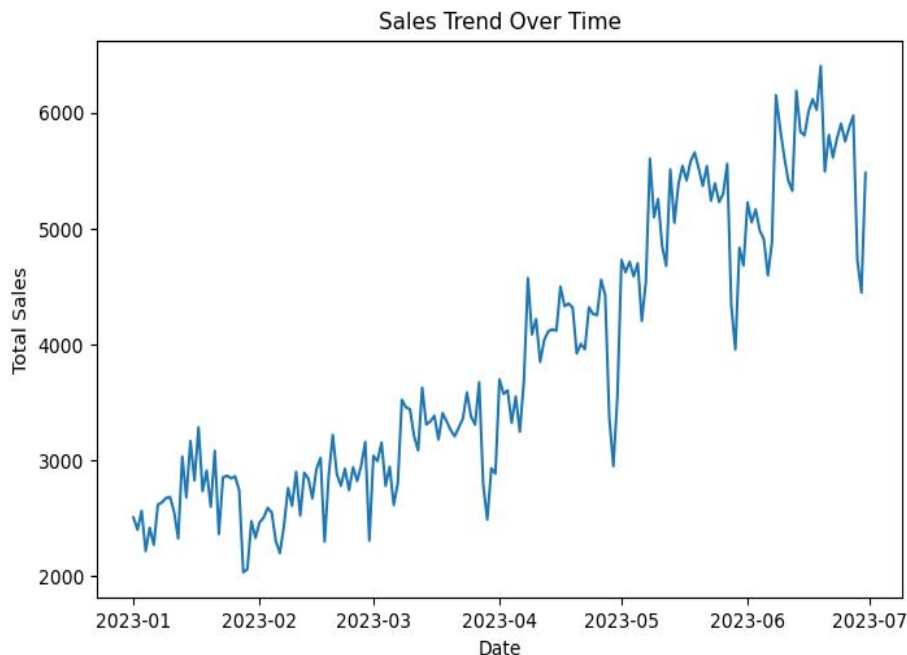


Visual Insights

- Sales Trend Over Time
- Weather Impact On Sales
- Sales by Product Category and Weather Conditions
- Top Performing Store Locations
- Sales by Week



Sales Trend Over Time



Insight:

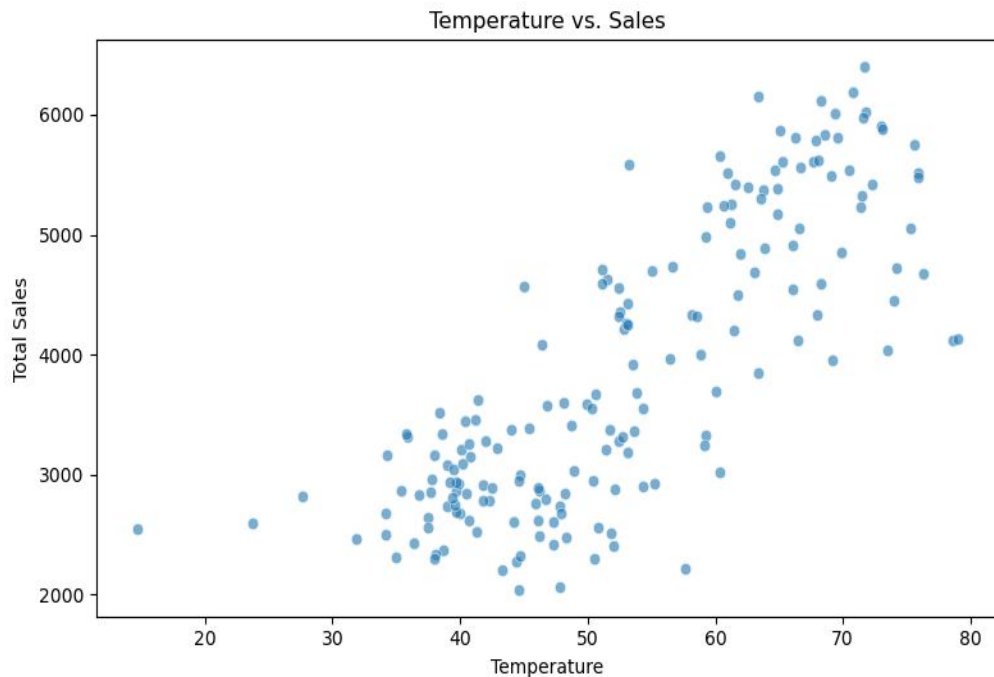
- Sales are growing continuously overtime, with some ups and down. It means business is doing well.

What we suggest:

- Look at what caused those sales ups - Is that a sunny weather? Or a special offer or discount? If yes, then try to repeat those ideas.



Weather Impact On Sales



Insight:

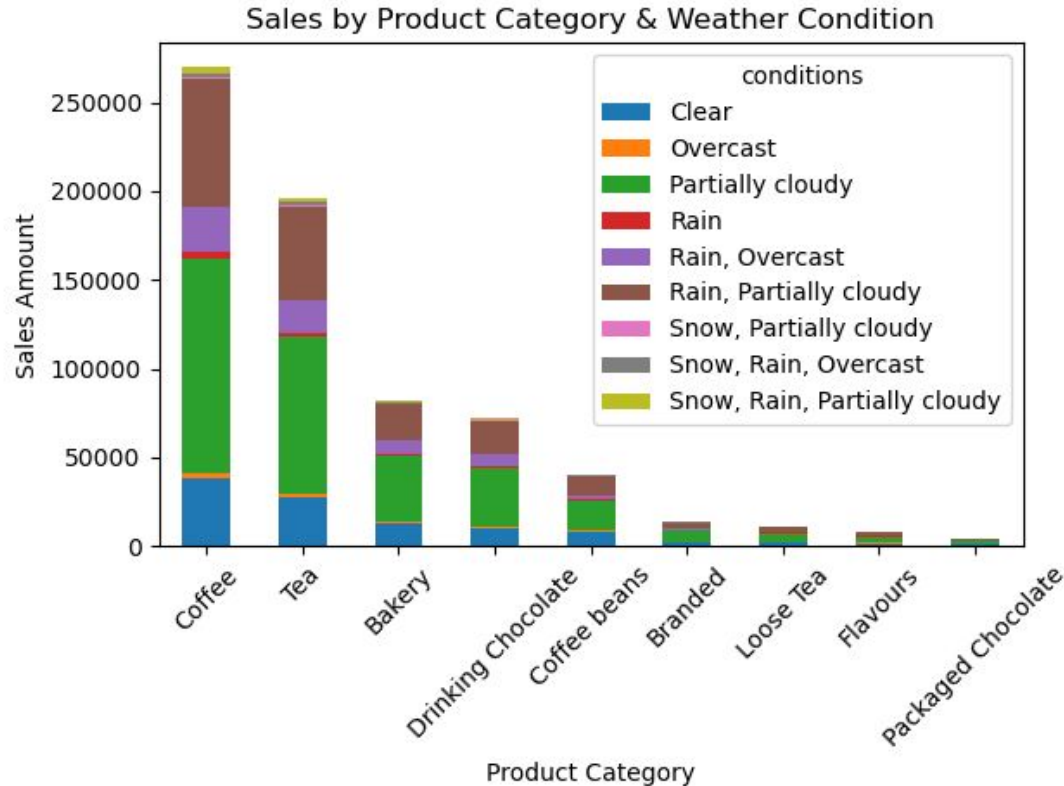
- Higher temperature leads to higher sales volumes - there is positive correlation between temp and sales.
- People buy more, probably want cold drinks on warm weather.

What we suggest:

- Use weather forecast to prepare ahead and promote for cold drinks.



Sales by Product Category and Weather Condition



Insight:

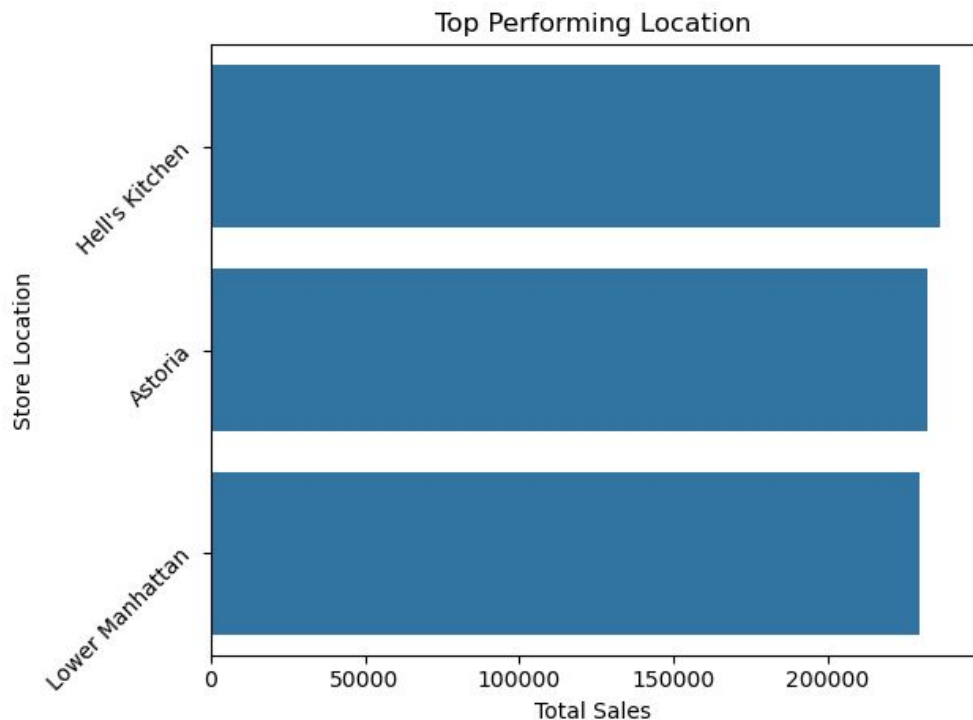
- Coffee and tea sells most especially when it's partially cloudy and rainy days.
- Partially cloudy is the top performing weather by sales.

What we suggest:

- Keep extra stock of top selling product.
- Boost the sales of other product by offering combos like "Coffee + Brownie".



Top Performing Store Location

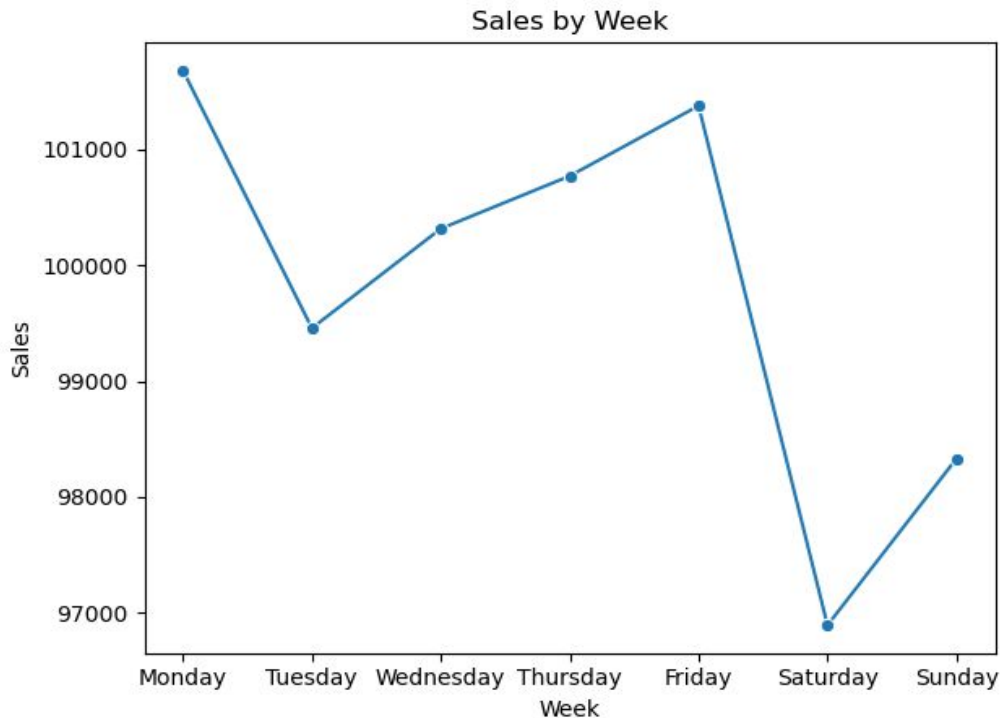


Insight:

- All the location are close on total sales, but Hell's Kitchen is leading.

What we suggest:

- Figure out what's happening in Hell's Kitchen and apple it to the other branches.



Insight:

- Sales are strong on weekdays(Monday-Friday), as compared to weekends.
- Weekdays might attract office workers.

What we suggest:

- Try running offers or discounts on weekends to boost more weekend customer.

Final Recommendations:

- **Use Weather Forecast for promotions**
Plan daily offers (like cold drink discounts on summers or a special offer on bakery products), and keep extra stock for top performing product when sunny and rainy weather is forecasted.
- **Create product combos**
Offer value combos like “Coffee + (baked item)” to increase avg billing or cross-selling.
- **Plan for Weekend Sales**
Weekdays have more sales, attract more weekends customers with offer, live music or special discount.
- **Boost Other Locations**
Look what’s happening in the Hell’s Kitchen and apply it to the other locations.
- **Focus on Customer Behaviour**
Collect feedback or run a small survey on customers favourites in different weather, then advertise them on the basis of their favourite items.



Thank You!