Citi Bike Usage Trends in New York City

This project analyzes Citi Bike usage patterns in New York City to help Citi Bike and their parent company, Lyft, make smarter business decisions. By uncovering insights into when, where, and how people use Citi Bikes, this analysis aims to optimize bike availability, improve user experience, and guide operational strategies.

13 May 2025

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Tools Used

The analysis was conducted using a *Jupyter Notebook* with the following *Python packages*:

- → **pandas** for data cleaning, manipulation, and analysis
- → **matplotlib** for data visualization

Key Questions + Insights Discovered

1. **Which start and end stations are the most and least popular?**

   Most high traffic stations are concentrated around Central Park and downtown Manhattan while some stations in Queens and the Bronx had only 1-3 rides during the entire month.

2. **Which types of riders (members vs casual) have the longest trip duration?**

   Casual riders had an average trip duration of 19.1 minutes, compared to 12.3 minutes for members.

3. **What percentage of rides are taken on each bike type (classic vs electric)?**

   Electric bikes accounted for 68.1% of all rides, reflecting rider preference and growing demand.

4. **What days of the week and times of day have the highest ride volume and duration?**

   Weekends and Thursdays saw the highest ride volumes while early morning and late night trips had the longest durations.

Recommendations + Future Work

- ★ ***Increase the number of total electric bikes, particularly at the most popular/busiest stations.***
- ★ ***Introduce marketing strategies including weekday promotions targeting casual riders to improve usage during non peak times.***
- ★ ***Reallocate resources away from consistently underused stations and focus on inventory management at busier stations***
- ★ ***Expand staffing and maintenance support during peak weekend hours and peak locations.***
- ★ ***Integrate weather data to analyze its impact on ride volume and trip duration and use predictive modeling to forecast demand by station and hour.***