

# Uber Data Analysis: Understanding NYC Ride Trends

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## Abstract

This project explores Uber pickup data in New York City from April to September 2014. Using Python tools, the data was cleaned, processed, and visualized to discover meaningful trends related to time, location, and ride frequency. The goal is to understand urban mobility patterns and offer insights for future data-driven transportation planning.

**Keywords:** Uber, Data Science, NYC, Visualization, Python

## 1 Introduction

Uber has transformed urban travel. With millions of rides recorded daily, analyzing this data helps us understand how people move around the city. This project focuses on Uber pickups in New York City during a six-month span to explore when and where rides are most common, and what patterns emerge.

## 2 Materials & Methods

The dataset used is from FiveThirtyEight and includes over 4.5 million Uber pickups. Each record contains a timestamp and location.

### Tools and Libraries:

- Python 3.12
- Pandas and NumPy for data handling
- Matplotlib, Seaborn, and Plotly for visualization
- Datetime for date-time operations

We created new columns for hour, weekday, and month. Visualizations were made to analyze temporal and spatial trends.

### 3 Results

Key findings from the dataset:

- **Time:** Most rides occur between 5 PM and 8 PM.
- **Weekdays:** Highest activity on Fridays and Saturdays.
- **Monthly:** Steady rise in rides from April to September.
- **Location:** Manhattan has the highest density of rides.

### 4 Discussion

These trends reflect commuting habits, nightlife, and tourism in New York. The results can help improve ride allocation, traffic management, and pricing strategies.

### Conclusions

The project successfully uncovers useful insights from Uber ride data using basic data science tools. It highlights how large datasets can support smarter city planning and transportation systems.

### Acknowledgements

Thanks to the VCET faculty and mentors for their guidance, and to FiveThirtyEight for making the dataset available.

### References

- [1] FiveThirtyEight Uber NYC Data. <https://github.com/fivethirtyeight/uber-tlc-foil-response>