

Maximizing Revenue for Taxi Drivers through Payment Type Analysis

Good morning, everyone! Today, I'm excited to present an analytical study that explores how **payment methods** can influence taxi drivers' revenue — a critical factor in today's fast-moving transport economy. Let's dive into the data-driven strategies that could transform revenue generation for New York City taxi drivers.

Agenda

- Data Overview
- Problem Statement
- Methodology
- Insights and Findings
- Hypothesis Testing
- Recommendations
- Conclusion



Problem Statement

In a competitive and dynamic industry like taxi services, **maximizing driver revenue** is essential. This project investigates if **payment methods**, such as card or cash, influence the **fare amount** — and whether nudging customers towards specific payment options can benefit the driver without harming user experience.

Research Questions

- Is there a relationship between **total fare amount** and **payment type**?
- Can we **influence customer payment preferences** in a way that boosts revenue?

Data Overview

We used the NYC Yellow Taxi Trip Records and focused on the following attributes:

- Passenger Count
- Payment Type (Card/Cash)
- Fare Amount
- Trip Distance
- Trip Duration

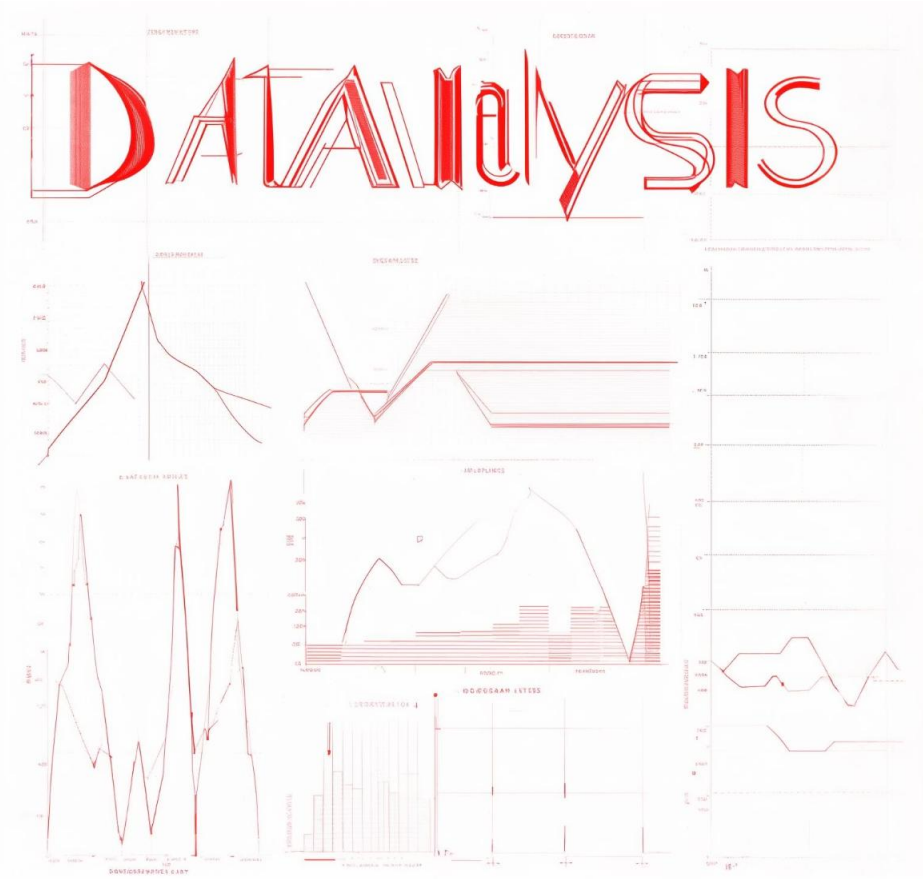
After cleaning and filtering the dataset, we were ready to begin our analysis.

Methodology

Our approach consisted of three core methods:

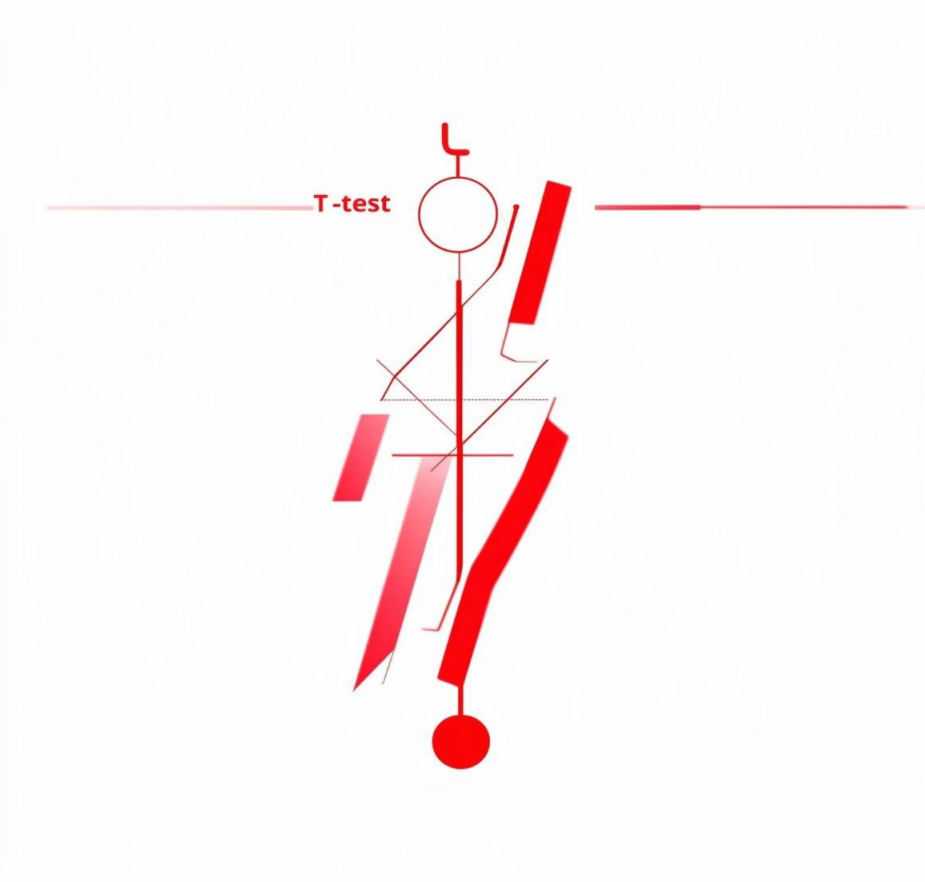
Descriptive Statistics

to understand patterns in payment and fare behaviour



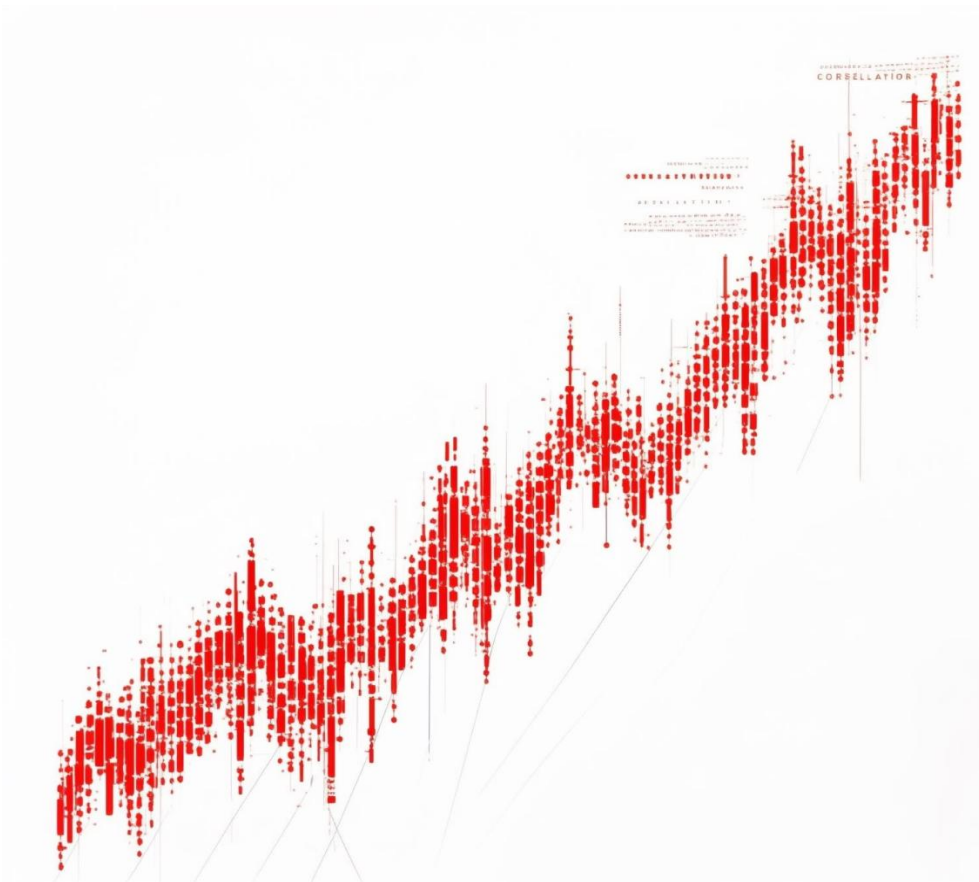
Hypothesis Testing

using a T-test to validate assumptions



Correlation analysis

to explore how trip duration influences fare



Analysis – Fare vs Payment Type

From the analysis:



Card Payments

Average fare amount for card users.

Card users also had **longer trip distances** (1.64 miles vs 1.4 miles). This suggests customers **pay more** and **travel farther** when using cards.

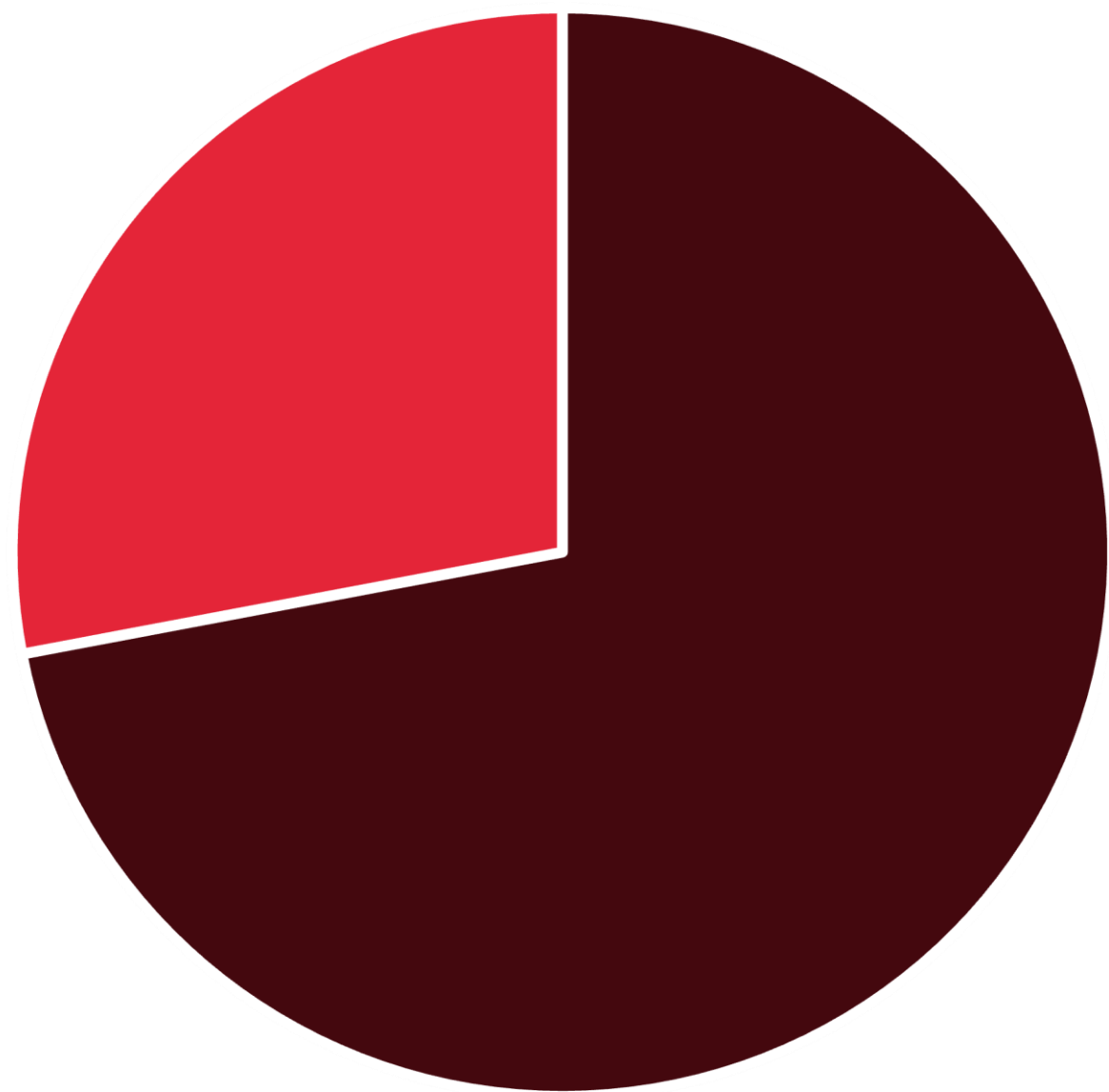


Cash Payments

Average fare amount for cash users.

Payment Type Preference

Interestingly, card payments made up 72% of all transactions, while cash only accounted for 28%. This reveals a strong customer preference for digital payment methods — likely due to convenience and security.

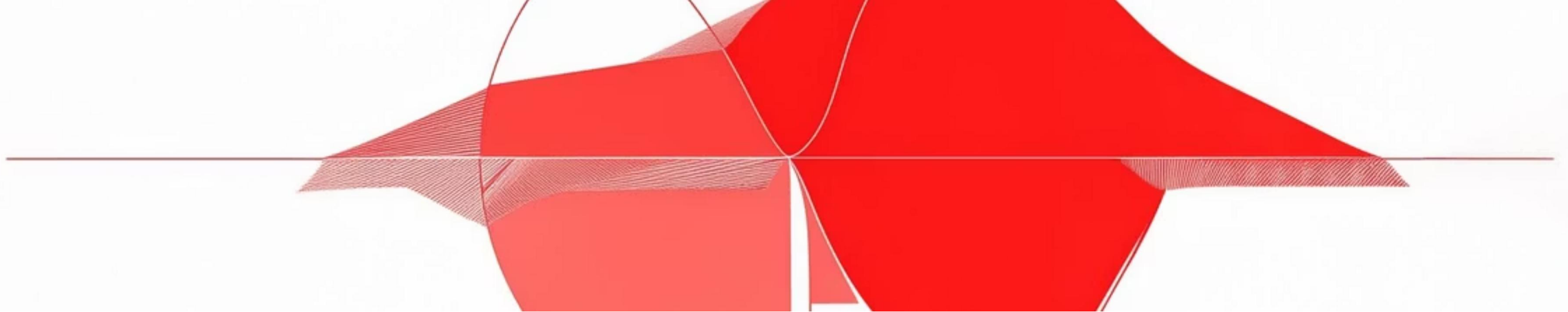


Passenger Count Analysis

Most transactions — both card and cash — were single passenger rides.

- 55% of all card transactions
- 22% of cash

As passenger count increases, usage decreases, suggesting group riders might prefer alternate options or ridesharing services.



Hypothesis Testing

To statistically test the fare difference, we performed a **T-test**.

- The **T-statistic** was 2.47.
- The **p-value** was 0.0137, which was less than 0.05.

This means we can confidently **reject the null hypothesis** — confirming that payment method significantly impacts the fare amount.

Recommendations

Based on these insights, we propose:



Offer Incentives

Encourage card payments through discounts or loyalty points.



Seamless Experience

Ensure smooth and secure card transactions.



Target Areas

Promote card payments in high-fare potential zones.

Conclusion

To wrap up — by leveraging data and analyzing customer payment behaviour, we can **optimize revenue strategies** for taxi drivers. Simple changes in how we **guide payment preferences** can lead to tangible increases in daily income — a win-win for both drivers and the service platform.



Thank You

Thank you for your attention. I'd be happy to take any questions or feedback!