Maximizing Revenue of Taxi Drivers

NYC TAXI

Agenda

✓Problem Statement

✓Research Questions

✓Data overview

✓Analysis and finding

✓Recommendations

Problem statement

The project aims to help taxi drivers maximize their revenue using data-driven insights. Specifically, it **investigates whether different payment methods (like cash, card, or digital wallets)** affect fare pricing, by analyzing the relationship between payment type and fare amount.

Research Questions

❑ Distribution of fare amount Trip

❑ Distance vs fare amount

❑ Average fare by payment method

❑ Most common payment method

❑ Passenger count vs average fare

❑ Duration vs fare (to check if time plays a role)

Data overview

|	passenger_count	trip_distance	payment_type	fare_amount	duration
0	5	5.62	Cash	14.84	36.58
1	6	4.61	Card	11.95	12.46
2	6	11.35	Card	30.75	28.18
3	5	5.49	Cash	13.02	14.29
4	2	3.66	Cash	13.56	9.27

Analysis and finding

1. **Observations**:

- card payments appear more frequently across almost all distance ranges.

- The **card segment consistently higher**, especially in medium to longer **trip distances (10–25 km range).**

2. **Actionable Takeaway**:

- Drivers should be prepared with **card facilities**, especially in areas or times where long trips are more common **(airports, business zones, late hours**).

- Targeting promotions or loyalty programs for long-distance customers may be more effective if aligned with card usage.


Distribution of Trip Distance
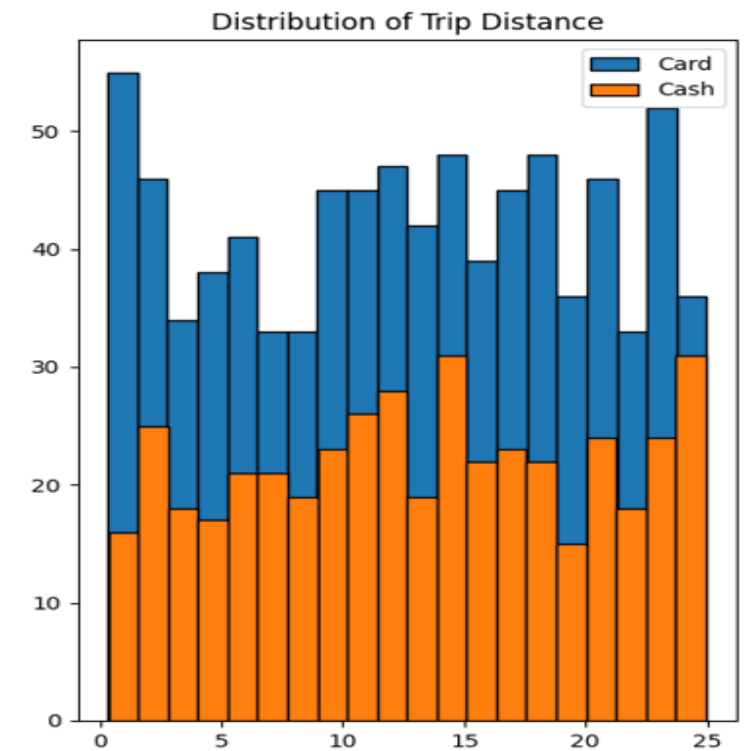
Analysis and finding

1. **Observations**:
- Card payments are significantly higher than cash, especially from **20 to 60 units.**
- Very high fare amounts **(50+) are rarely paid in cash**, and almost exclusively paid by card.
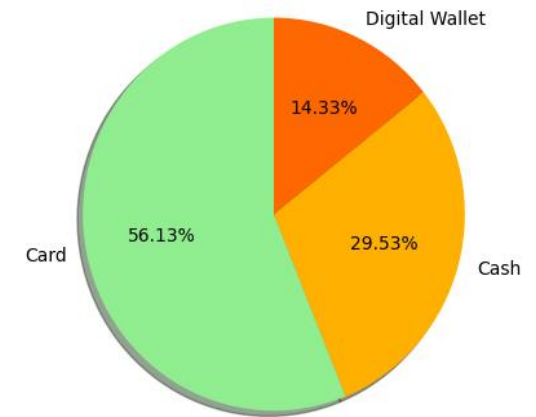
2. **Actionable Takeaway**:
- Taxi service providers and drivers should ensure card facilities are available, especially for premium and long-distance services.
- Cash support remains necessary for short, everyday routes, possibly in local areas or with elderly passengers.

Distribution of Fare Amount
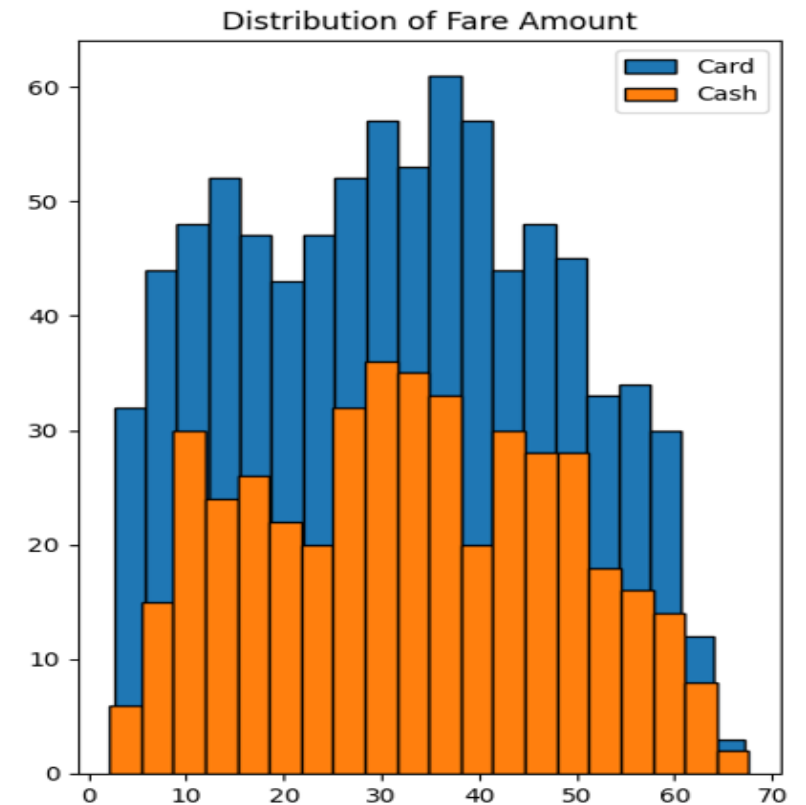
Analysis and finding

1. **Observations**:

- Card payments represent the majority share at 56.13%, making them the most preferred option.

- Cash payments come next at 29.53%, still maintaining

   a significant presence.

- Digital Wallets, although increasingly popular in urban

   areas, are the least used at 14.33%.

2. **Actionable Takeaway**:

- Ensure POS terminals are functional and readily available

- Explore partnerships with digital wallet providers to offer cashback or discounts and boost usage
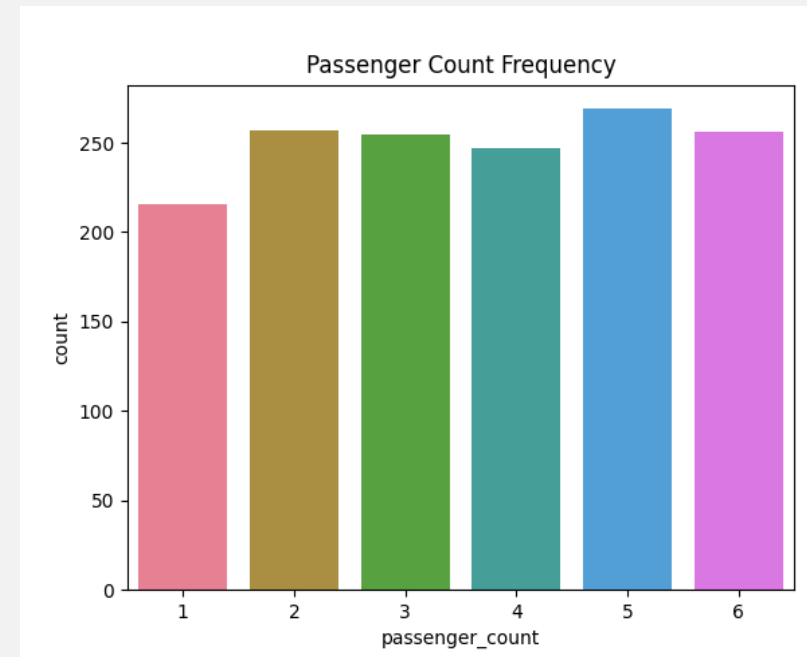
Analysis and finding

1. **Observations**:

- the most frequent **trips involve 5 passengers, followed closely by groups of 2 to 6.** Trips with a single passenger are the least common.

2. **Actionable Takeaway**:

- Target areas with group traffic like **hotels, event venues, or airports.**

- Ensure vehicles are clean and spacious to comfortably accommodate larger groups.

- Drivers can benefit from offering group-friendly options or collaborating with hotels for shared ride booking


Passenger Count Frequency

Analysis and finding

1. **Observations**:

- Card payments are the dominant choice across all group sizes, especially for groups of 2 to 4 passengers.
- Cash payments follow, with a notable peak at 5 passengers — possibly family or group travel.
- Digital Wallet usage is consistently the lowest, but slightly increases with group size, especially from 4 to 6 passengers.

2. **Interpretation**:

- Card remains the most accepted mode for individuals and groups.
- Cash is likely used by smaller groups or for quick, local trips.

Count by Payment Type and Passenger Count
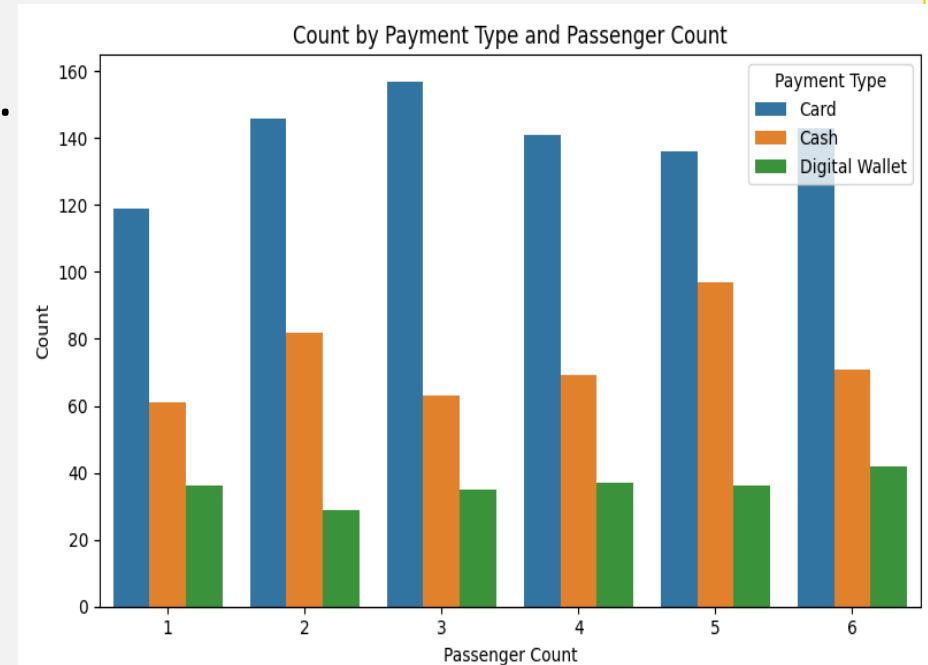
Analysis and finding

1. **Observations**:

- All payment types follow a similar fare-distance trend.

- However, **Card payments** are dominant in longer and **higher-fare** trips.

- **Cash** and **Digital** Wallets appear more frequently in **shorter-distance**, lower-fare ranges.

2. **Actionable Takeaway**:

- Promote card payment availability, especially in high-traffic zones like airports or hotels.

- Consider offering fare incentives or quick checkout features for Digital Wallet users to increase adoption.

Trip Distance vs Fare Amount

payment_type
- Cash
- Card
- Digital Wallet
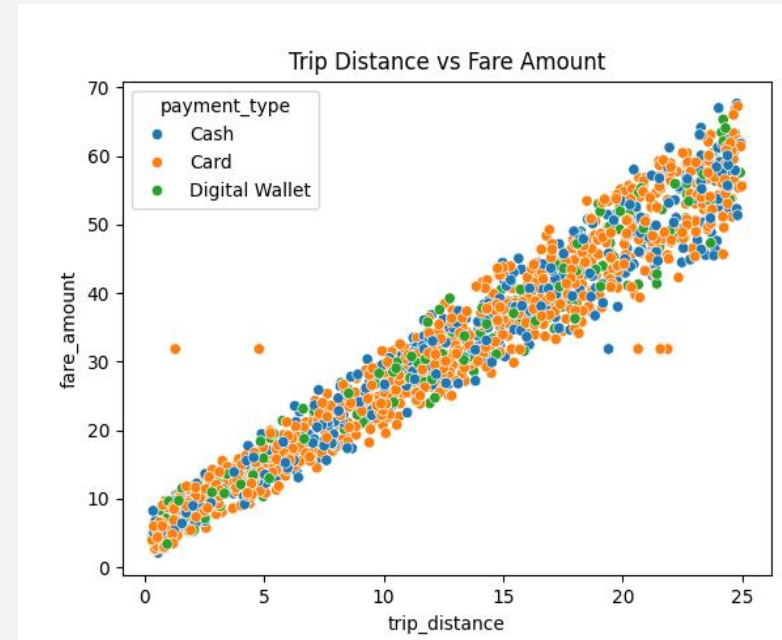
Recommendations

- Encourage card usage through loyalty programs, **cashback offers** or tiered discounts.

- Target **high-fare** and **long-distance** riders who already prefer this mode.

- Offer incentives for first-time wallet users or **referral bonuses**.

- **Offer group** discounts to attract **group bookings**.

- Bundle services (e.g., **music, snacks, or premium rides**) when 3+ passengers are detected.

- Implement **smart pricing** strategies that reward longer distances, e.g., distance-based discounts or flat fares after a threshold.

- Ensure more **vehicle availability** in zones with higher card-paying, long-distance riders to increase conversion rate.