Alt Mobility – Data Analyst Assignment

Summary of findings

This report presents key insights derived from customer and payment data for Alt Mobility, an electric vehicle leasing company. Through structured SQL analysis and cohort-based visualizations, the findings offer actionable recommendations to improve customer retention and operational efficiency.

Key Metrics Derived

- Total Orders, Revenue, and Average Order Value
- Order Volume by Status (Delivered, Pending, Shipped)
- Repeat Customer Rate and Segmentation
- Payment Completion and Failure Rates
- Order-to-Payment Timing Classification

Task 1: Order and Sales Analysis

- **Total Unique Customers:** Counted using DISTINCT customer_id.
- **Revenue Trends:** Yearly and monthly revenue patterns reveal periodic surges in sales, with identifiable peak months.
- **Order Fulfilment Insight:** Delivered orders lead, followed by shipped and pending statuses, indicating a generally efficient order pipeline with minor delays**.**
- **Monthly Revenue & Order Pivot Tables:** Clearly illustrate seasonal behaviours and can guide inventory and marketing planning.

Task 2: Customer Analysis

- **Repeat Behaviour:** Analysis: Identified Customers Who Place Multiple Orders
- **Segmentation:**
  - **New Customers:** 1 order
  - **Returning Customers:** 2 to 4 orders
  - **Loyal Customers:** 5 or more orders
- **Monthly Trend of New Customers:** This analysis revealed periods of high customer acquisition, which can be useful for optimizing marketing strategies.
- **Insight:** The majority of customers are either returning or loyal, indicating a high level of satisfaction and a tendency to reuse the leasing service.

Task 3: Payment Status Analysis

- **Payment Breakdown:** The majority of payments are successful, however, failures represent a small but significant percentage.
- **Monthly Analysis:** Visual trends indicate which months experience higher failure rates, highlighting the need for a closer examination of operational processes.
- **Failure Rate:** The failure rate is calculated to be 33.35% across the dataset.
- **Correlated Trends:** Failed payments are often linked to orders that are still in pending or shipped states, suggesting possible transactional delays.

Task 4: Order Details Report

- **Unified Report:** Successful Integration of Customer Orders and Payments
- **Order-Payment Relationship:**
  - Some orders do not have corresponding payments, which may indicate cancellations or cash-on-delivery (COD) options.
  - A few discrepancies exist between the order amounts and the payment amounts.
- **Timing Classification:**
  - **Majority:** Orders processed before payments, and payments processed before orders.
  - **Some:** Orders and payments are recorded at the same time.
- **Insight:** The system accurately tracks payments, however, it is essential to monitor edge cases for reconciliation and audits.

Task 5: Customer Retention Analysis

- **Method:** Utilized Python (with pandas and seaborn) to create cohort tables and visualize customer retention using a heatmap.
- **Retention Pattern:**
  - Most repeat activity occurs within the first two months after customer acquisition.
  - Retention gradually declines in the following months.
- **Insight:** Initial customer engagement is critical—after the second month, the rate of drop-off significantly increases.

Recommendations

1. **Focus on Early Retention:** Launch loyalty offers within the first 30 to 60 days to boost long-term engagement.
2. **Address Payment Failures:** Pay special attention to orders with failed payments and pending statuses to reduce friction.
3. **Capitalize on Seasonal Peaks:** Utilize high-sales months for targeted marketing or new leasing programs.
4. **Monitor Data Quality:** Investigate order-payment discrepancies and negative payment timings for possible system enhancements.

Thank you for the opportunity to showcase my analytical skills. I look forward to contributing to Alt Mobility's mission of electrifying India's transportation ecosystem.