Metrocar Project: Performance Analysis Overview

This project leverages **data analytics** to identify and address user drop-offs, improve conversions, and optimize revenue strategies for the Metrocar platform. By using robust data analysis techniques, the goal is to optimize the user experience, boost engagement, and unlock new growth opportunities.

Methodology:

1. **Data Extraction**:

Connected to a PostgreSQL database using **SQLAlchemy** to retrieve key datasets such as app downloads, ride requests, and user demographics. This provided insights into platform usage and user behavior.

2. **Exploratory Data Analysis (EDA)**:

Applied **Pandas** and **NumPy** for data cleaning and preprocessing, while using **Plotly** for interactive visualizations. This allowed for detailed insights into user trends, drop-offs, and platform usage patterns.

3. **Funnel Analysis**:

Identified critical **drop-off points** in the user journey, including:

- Signup process (25.4% drop-off)
- Ride requests (29.6% drop-off)
- Ride completions (49.8% drop-off)

4. **Demographic Insights**:

Analyzed **age group performance** and **platform usage** to identify target customer segments. This helped prioritize marketing efforts towards high-engagement demographics.

5. **Surge Pricing Analysis**:

Evaluated ride request patterns to identify peak demand hours (e.g., 8 AM). This insight was used to recommend **dynamic pricing** strategies during high-demand periods.

Key Findings:

1. **Drop-Off Challenges**:

- **High cancellation rates** were observed during the "Ride Accepted → Ride Completed" stage. To improve conversions, there is a need to focus on driver availability, pricing clarity, and building user trust through better app performance.

2. **Platform Preferences**:

- **iOS users** dominate, with **60.5%** of the user base. This indicates a better app experience and higher purchasing power.
- Opportunities exist to **optimize Android** (29.4%) and **web platforms** (10.1%) for broader user engagement.

3. **Target Demographics**:

- The **35-44 age group** is the leading demographic (29.4%), followed by **25-34** (19.56%).
- **Younger users** (18-24) show potential for future growth, as they are tech-savvy and engaged with mobile platforms.
- A significant portion of users (30.1%) has **no age data** recorded, suggesting that data collection improvements are necessary for more targeted marketing.

Recommendations:

1. **Simplify User Flows**:
   - Focus on streamlining the **signup** and **payment processes** to reduce friction and boost conversions.
   - Implement onboarding perks (e.g., free first rides) and simplify account management features to retain users through their journey.
2. **Platform-Specific Marketing**:
   - Prioritize marketing campaigns focused on **iOS** due to its dominant market share while optimizing **Android** and **web experiences** to engage broader user bases and address the untapped potential of these platforms.
3. **Surge Pricing and Dynamic Adjustments**:
   - Implement **surge pricing** during **peak hours** (e.g., 8 AM) and evaluate the impact on **revenue** and **user satisfaction**.
   - Monitor real-time demand trends to adjust pricing strategies dynamically and enhance profitability.
4. **Increase Driver Availability & Professionalism**:
   - Improve **driver availability** by offering incentives and expanding the driver network, particularly during peak hours.
   - Focus on building **user trust** through enhanced **driver professionalism** and **ratings**.

Conclusion:

This project demonstrates the effectiveness of **data-driven strategies** to tackle operational challenges and optimize Metrocar's platform for improved user retention and engagement. By addressing key drop-off points, refining the user experience, and targeting specific demographics, Metrocar can significantly improve its service delivery, increase conversions, and unlock new growth opportunities.