Business Performance Report: E-Bike Sharing Startup

This report analyzes the operational performance of an **e-bike sharing startup** using data processed in Google BigQuery to identify key trends and operational challenges.

1. Operational Scale and Data Volume

The startup currently operates at the following scale:

- **Total Rides:** 15,000 recorded trips.
- **Total Stations:** 25 charging and docking stations.
- **Total Registered Users:** 1,000 customers.

2. User Behavior and Segmentation

Analysis of user types reveals distinct usage patterns between different membership levels:

- **Casual Users:** This segment appears to be driven by leisure or tourism. They account for a **significantly higher number of rides** and have **much higher averages for both trip distance and duration** compared to subscribers.
- **Subscribers:** These are primarily commuters who use the service frequently but for shorter distances and more predictable timeframes.
- **Ride Duration:** The vast majority of rides fall into the **medium (11–30 min)** and **long (>30 min)** categories, with very few extremely short trips.

3. Temporal Demand and Peak Hours

- Demand follows a clear commuting pattern throughout the day:
- **Morning Peak:** Usage spikes at **07:00 AM**, reaching approximately 1,200 rides.
- **Afternoon Peak:** A second surge occurs between **03:00 PM and 05:00 PM**.
- **Off-Peak:** Demand slows significantly around 10:00 AM and late at night after 11:00 PM.

4. Geographical Dynamics and Inventory Net Flow

By calculating the difference between arrivals and departures, we identified critical inventory imbalances:

- **"Source" vs. "Sync" Stations:** Some stations end the day with too many bikes, while others run out completely.
- **Critical Case: Jennifer Lens Street** is the most popular station but suffers from a significant inventory deficit, with a **negative net flow of -66**, meaning bikes are leaving much faster than they arrive.

5. Business Growth and Retention

- **Seasonality:** Month-over-month (MoM) growth shows fluctuations, such as a **13% decrease in new users in January 2025** compared to the previous month.
- **Data Integrity:** Statistical analysis flagged **106 "false starts"** (rides under 2 minutes or with zero distance), which likely represent user errors or bike malfunctions and should be excluded from financial reporting

7. Strategic Recommendations

Based on the insights generated from the analysis, the following recommendations are proposed to strengthen operational performance, optimize asset utilization, and support scalable growth:

1. **Proactive Fleet Rebalancing**
   Deploy logistics teams between 10:00 a.m. and 2:00 p.m. to proactively reposition bicycles from low-utilization ("sink") stations to high-demand ("source") locations, such as Jennifer Lens Street. This measure ensures system readiness ahead of the afternoon demand peak and reduces service disruptions.

2. **Dynamic Incentive Mechanisms**
   Introduce targeted, low-cost incentive mechanisms (e.g., ride credits or discounts) to encourage users to conclude trips at stations with critically low inventory. This data-driven approach improves network balance while minimizing operational rebalancing costs.

3. **Monetization of Off-Peak Demand (Casual Users)**
   Launch dedicated pass offerings for casual users designed to stimulate demand during off-peak periods. This strategy increases asset utilization, unlocks incremental revenue, and maximizes return on existing infrastructure.

4. **Executive-Level Growth Monitoring**
   Adopt a 7-day moving average as a core performance indicator to reduce short-term volatility and provide leadership with a clear, reliable view of underlying growth trends for informed strategic decision-making.