Subject: Data Quality Issues and Key Insights from Fetch Data Analysis

Dear [Stakeholder's Name],

I hope you're doing well. I recently conducted an in-depth analysis of the Fetch datasets to identify critical trends and potential data quality concerns that could affect business decisions. Working under the assumption that the sample data is evenly distributed over the years, I explored user behavior, transaction patterns, and data inconsistencies. Through this process, I uncovered meaningful insights that can help refine engagement strategies and enhance data integrity. Below is a summary of my key findings, along with recommended next steps.

Key Data Quality Issues

During my initial review, I have identified several data quality concerns that could impact the analysis.

1. **Products Data**
   - **Missing Values:** Several product entries have missing barcodes, which disrupts the connection between transactions and products.
   - **Unclear Product Fields:** Columns such as CATEGORY_1, CATEGORY_2, etc., lack clear descriptions, making it difficult to analyze product performance.
2. **Users Data**
   - **Incomplete Demographics:** Missing birthdate values hinder generational analysis.
   - **Inconsistent Gender Labels:** Variations like "prefer_not_to_say" vs. "Prefer not to say" create redundancy and inconsistency in DEI-related analysis.
3. **Transactions Data**
   - **Invalid Transaction Dates:** Some purchases have scan dates that precede the purchase date, suggesting potential data entry errors.
   - **Quantity and Sales Mismatches:** Some transactions have some final quantity but missing final sale values, making revenue calculations unreliable.
   - **Duplicate Transactions:** Multiple identical transactions were detected, leading to potential inflation of revenue and engagement metrics.

Key Insights & Trends:

My analysis reveals significant patterns in user behavior and product interactions, shedding light on Fetch's competitive positioning and growth opportunities. While fetch experienced remarkable growth in the early years, recent trends indicate a decline in user engagement. Addressing these trends proactively can help sustain Fetch's market position.

1. **User Engagement Trends**
   - **Strong Early Growth:** Between 2017 and 2020, Fetch experienced high growth, with an exceptional 820% year-over-year increase in 2017 and 138% growth through 2020.
   - **Recent Slowdown:** From 2021 onward, new user registrations dropped significantly, reaching 42% in 2023 and 25% in 2024. This slowdown could point to market saturation, reduced marketing effectiveness, or evolving user preferences. Further investigation into acquisition channels and retention initiatives may clarify root causes.
2. **Power Users Insights**
   - **Defining Power Users:** For this analysis, I categorized the top 1% of users (by receipts scanned) as "power users." This group drives a significant share of Fetch's transaction volume, making them vital to retention and engagement strategies.
   - **Behavior Analysis:** Understanding their motivation and behaviors may help optimize rewards, incentives, and engagement techniques for the broader user base.

Next Steps & Request for Support

Based on these findings, I recommended the following actions to improve data accuracy and strengthen our engagement strategies:

- **Clean up missing values:** Focus on missing barcodes in products and demographic details in user profiles.
- **Remove Duplicate Transactions:** Ensure that our reports accurately reflect actual revenue and engagement metrics.
- **Clarify Product Category Fields**: Additional documentation or input from the product team is needed to refine our understanding of these fields.
- **Resolve Transaction Date Errors:** Correct any mismatches between purchase and scan dates to improve transaction validity.

Once these issues are addressed, I can refine the analysis and provide more precise recommendations. If you could offer additional context on product categories- or if a meeting would be helpful to discuss these findings- please let me know.

I look forward to your thoughts and support you can provide. If you would like a deeper analysis or have further questions, feel free to reach out to any time.

Best,

Nikhila Chowdary Vaitla