Subject: Summary of Data Analysis Findings and Next Steps

Dear Mr. Fetch,

I hope this message finds you well. I'm writing to share key findings from my recent analysis of Fetch's data, highlighting data quality issues, an important trend I uncovered regarding new user account creation, and next steps to address outstanding questions. The goal is to provide a clear understanding of the insights I've gathered to help inform future strategic decisions.

1. Key Data Quality Issues

During the data exploration, I identified several data quality issues across the products, transactions, and users datasets that may be impacting the accuracy of our insights and decision-making:

- **Missing Data**:
    - **Products Table**: Approximately 226,000 records are missing values in both the **Brand** and **Manufacturer** fields, and there are about **4,000 missing Barcodes**. Barcodes are essential for linking product and transaction data, and this gap affects our ability to accurately track sales
    - **Transactions Table**: The data shows **12,500 missing Final Sale values**, even when there's a valid Final Quantity. Additionally, there are nearly **6,000 missing Barcodes**, preventing us from linking these transactions to products
    - **Users Table**: **3,675 missing Birth Dates** and **5,892 missing Gender values** were found, though these gaps likely have less impact on demographic analysis compared to the product and transaction tables
- **Data Consistency Issues**:
    - **Duplicate Barcodes**: I found two duplicate Barcodes that represent different brands (Schwarzkopf vs. Göt2b), which likely reflect a product catalog inconsistency
    - **Final Quantity**: There are **321 transactions** where the Final Quantity is greater than 1, but the Final Sale is zero. These could indicate data entry errors, or potentially reflect free product offers, which should be confirmed
- **Formatting Errors**:
    - **Store Names**: There are inconsistent entries for store names (e.g., "Dick's" vs. "Dick's Sporting Goods") that should be consolidated for clearer analysis

2. Key Trend: Decline in New Account Creation in 2023 and 2024

One key trend that stands out is the **decline in the number of new accounts created in 2023 and 2024**. While Fetch showed strong growth in new users between 2014 and 2022, the number of new accounts has dropped significantly over the past two years:

New Account Creation by Year
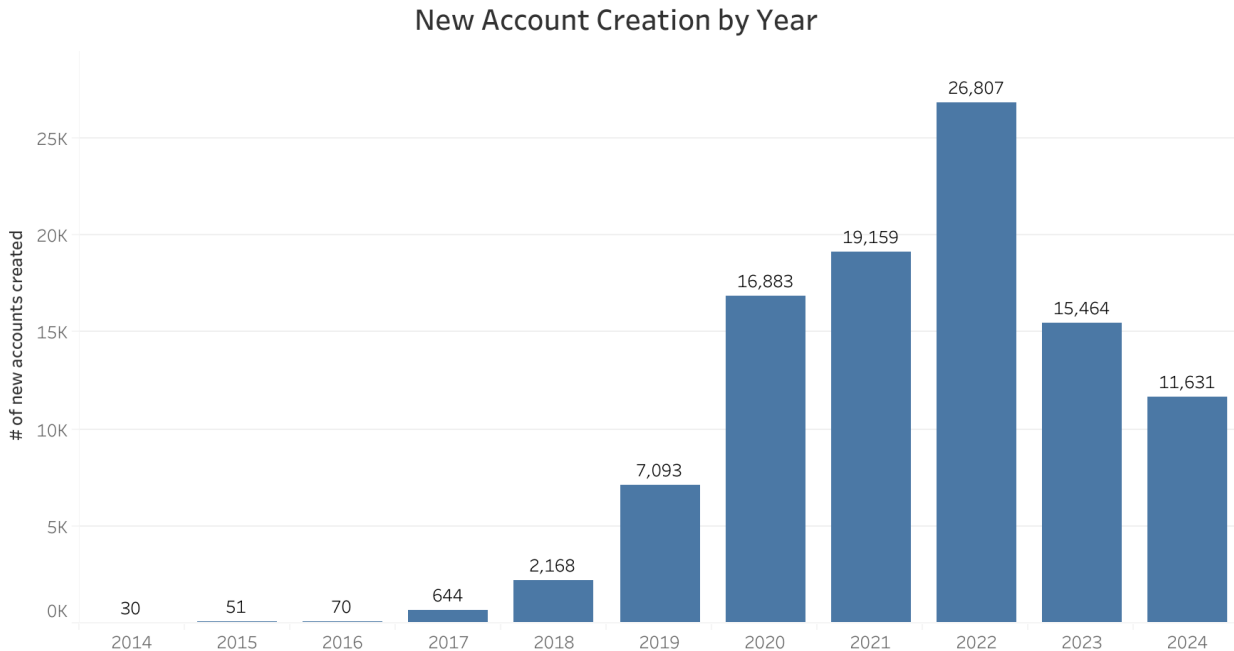
- **2023**: A **42.31% decline** in new accounts compared to 2022
- **2024**: A further **24.79% decline** compared to 2023

This trend could indicate that Fetch is facing challenges in acquiring new users, possibly due to:

- **Market Saturation**: Fetch may have already captured a large portion of its target audience, leading to a slowdown in growth.
- **Competition**: New competitors or enhanced features from existing competitors may be drawing potential users away from Fetch.
- **Changes in Marketing Strategy**: A reduction in marketing efforts or a shift in user acquisition tactics could explain the lower growth in new accounts.

3. Request for Action: Additional Help Needed

To fully address these data quality issues and uncover deeper insights into the user loss trend, I would appreciate the following support:

- **Clarification on Business Rules**: Understanding why **some transactions have Final Quantity but a Final Sale of zero** would help determine if these are valid (e.g., free products, returns) or errors. Similarly, guidance on the meaning behind **decimal values in Final Quantity** would clarify whether these represent products sold by weight
- **Standardization of Product Data**: A review of the **duplicate Barcodes** and inconsistent store names is needed to ensure that our product and transaction data accurately reflects reality. Additionally, input on how deeply products should be categorized (given that many products lack CATEGORY_4) would help refine our category analysis

- **Further User Acquisition Review:** I suggest reviewing **Fetch's marketing spend and user acquisition strategy** for the past two years to identify any changes that might explain the slowdown in new sign-ups

Thank you for your time, Mr. Fetch. I'm happy to discuss these findings further or provide additional analysis as needed. Addressing these areas will help Fetch maintain its growth and improve data quality for future analysis.

Best regards,
Abinav Bharadwaj