Subject: Analysis Report and Recommendations

Dear Gala Groceries,

I hope this email finds you well. I wanted to provide you with an update on the task I've recently completed, which involved analyzing transaction data from approximately a week. Here's a brief summary of my findings:

1. Payment Types:

- We have identified four types of payment: cash, credit, e-wallet, and debit card.

- The majority of customers prefer using cards, and these payment classes are uniformly distributed.

2. Data Summary:

- The data types for the columns are as follows: transaction\_id (object), timestamp (object), product\_id (object), category (object), customer\_type (object), unit\_price (float), quantity (int), total (float), and payment\_type (object).

- The range of unit\_price is 23.8, while the range of quantity is 3.

3. Scatter Plot Analysis:

- When analyzing the scatter plot, we observed that the points are horizontally aligned in relation to quantity.

4. Popular Products:

- Fruit and vegetables are the most frequently purchased items.

5. Price and Buying Behavior:

- We noticed a trend where customers tend to buy fewer quantities when the price is higher.

Based on these findings, I would like to provide the following recommendations:

1. Enhanced Feature Set:

- It would greatly benefit our analysis if we had access to more features. A larger number of features would lead to more accurate predictions, as too few features may hinder precise forecasting.

2. Expanded Data for Training:

- To facilitate effective model training and feature engineering, it would be beneficial to obtain a larger dataset for creating training and test sets. This will enable us to improve the performance of our models.

3. Classification Model for Stock Management:

- In order to optimize stock management, I suggest implementing a classification model. However, for reliable predictions, it is crucial to have uniformly distributed data. Therefore, as we increase the dataset size, we should ensure the classes are balanced.

Thank you for your attention to this report. If you have any further questions or require additional information, please don't hesitate to reach out to me.

Best regards,

Duong Nhat Thanh