Bank Statements (P1- BankStatements.json)

1. **Transaction Analysis:**

   - What is the total number of transactions made over the year?

   - **Total number of transactions: 985**

   - What is the distribution of transaction amounts (e.g., small vs. large transactions)?(define small and large transactions by yourself)

   - Small threshold 1000

   Distribution of transaction amounts:

   Transaction   Size

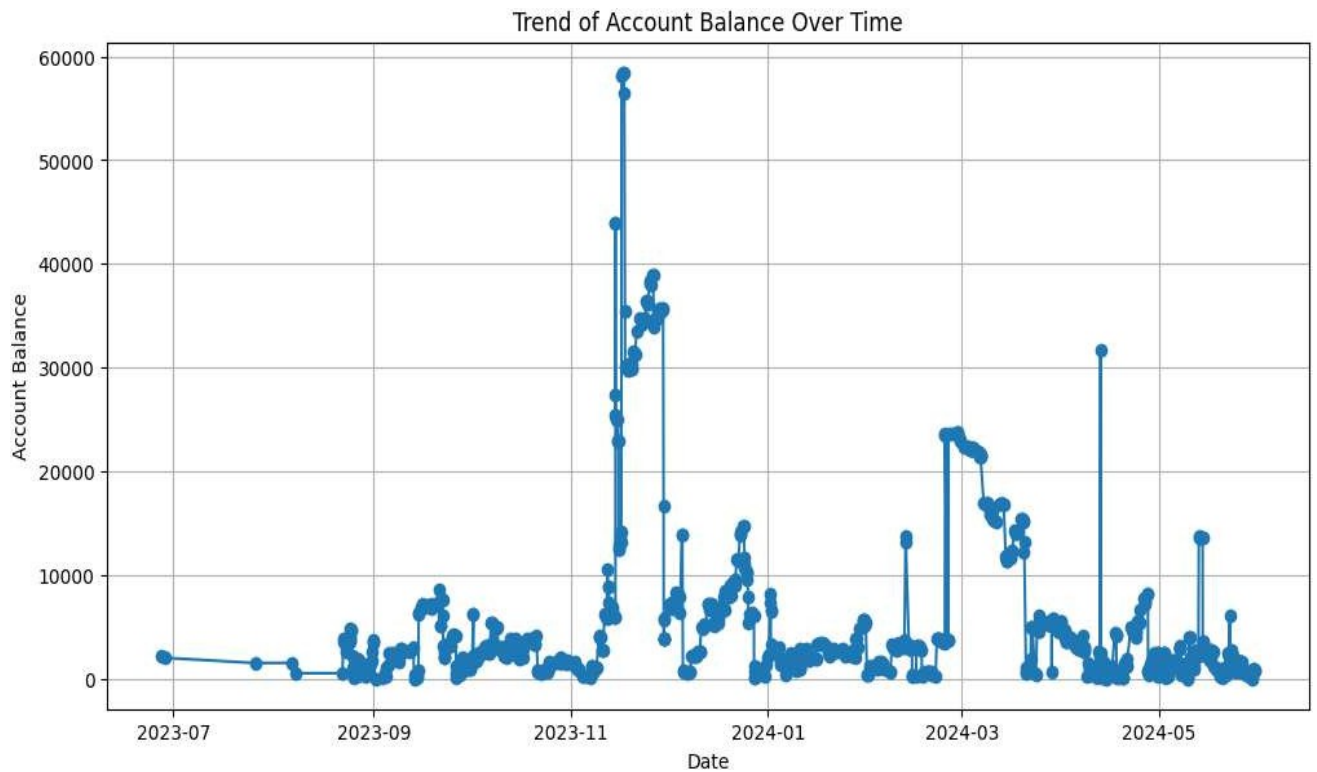   - **small   836**
   - **large   149**

   - Analyze the frequency of different transaction types (debit vs. credit).

   Frequency of different transaction types (debit vs. credit)type:

   - **Debit   695**
   - **Credit   290**

2. **Balance Analysis:**

   - What is the trend of the account balance over time?

   - Identify any periods with significant changes in the account balance.

   ➢ **Early November 2023:**

   ·   There is a sharp and significant increase in the account balance, peaking at around
       60,000. This might be due to a large credit transaction or multiple credit transactions.

   ➢ **Mid to Late November 2023:**

   ·   After the peak, there is a noticeable decline in the balance, suggesting substantial debit
       transactions following the peak.

➢ **Early 2024 (January to March):**

• Several significant fluctuations are observed during this period, indicating a mix of large debit and credit transactions that cause the balance to rise and fall.

➢ **April to May 2024:**

• Another period of fluctuations, although the changes are less dramatic compared to November 2023. There are multiple peaks and troughs, indicating ongoing significant transactions.

3. Spending Patterns:

- What are the main categories of expenses (e.g., fuel, Ecommerce, food, shopping, ATM withdrawals, UPI transactions)?

Spending patterns by category:

Category	Frequency	TotalAmount
ATM Withdrawals	3	3
Other	193	242067.51
UPI Transactions	789	587092.90

- Analyze the frequency and amount of spending in each category.

Total Amount Spent by Category

Frequency of Transactions by Category
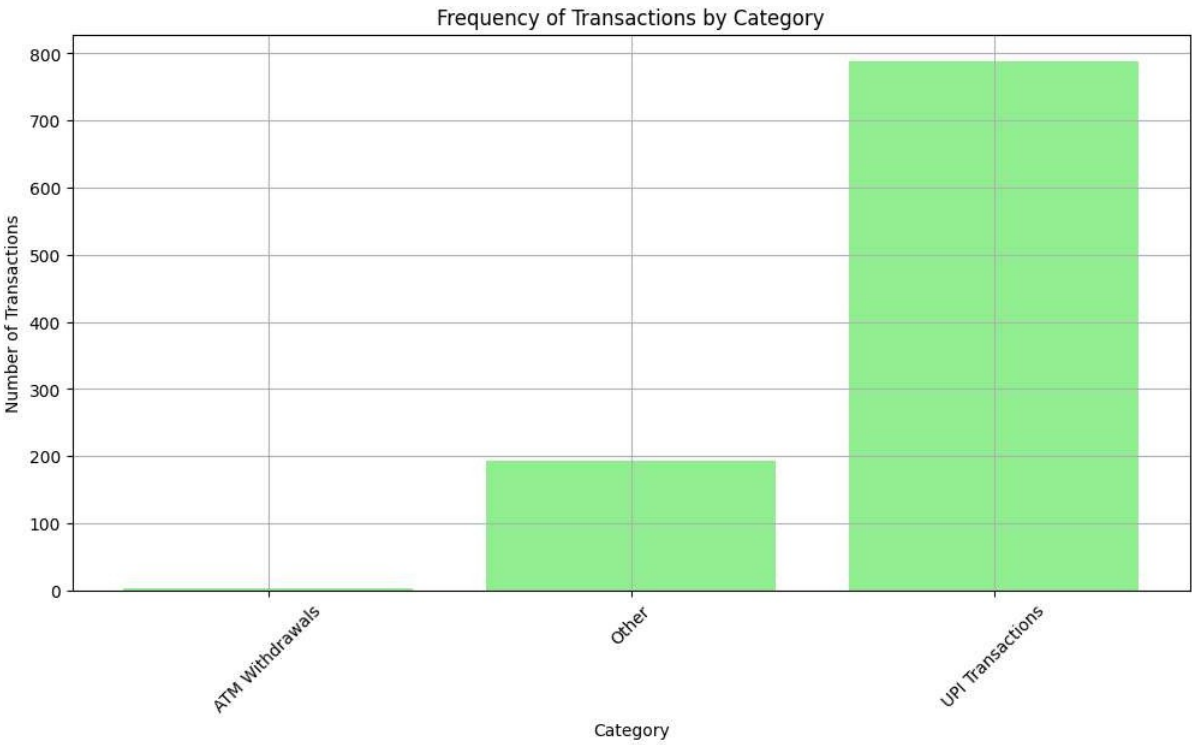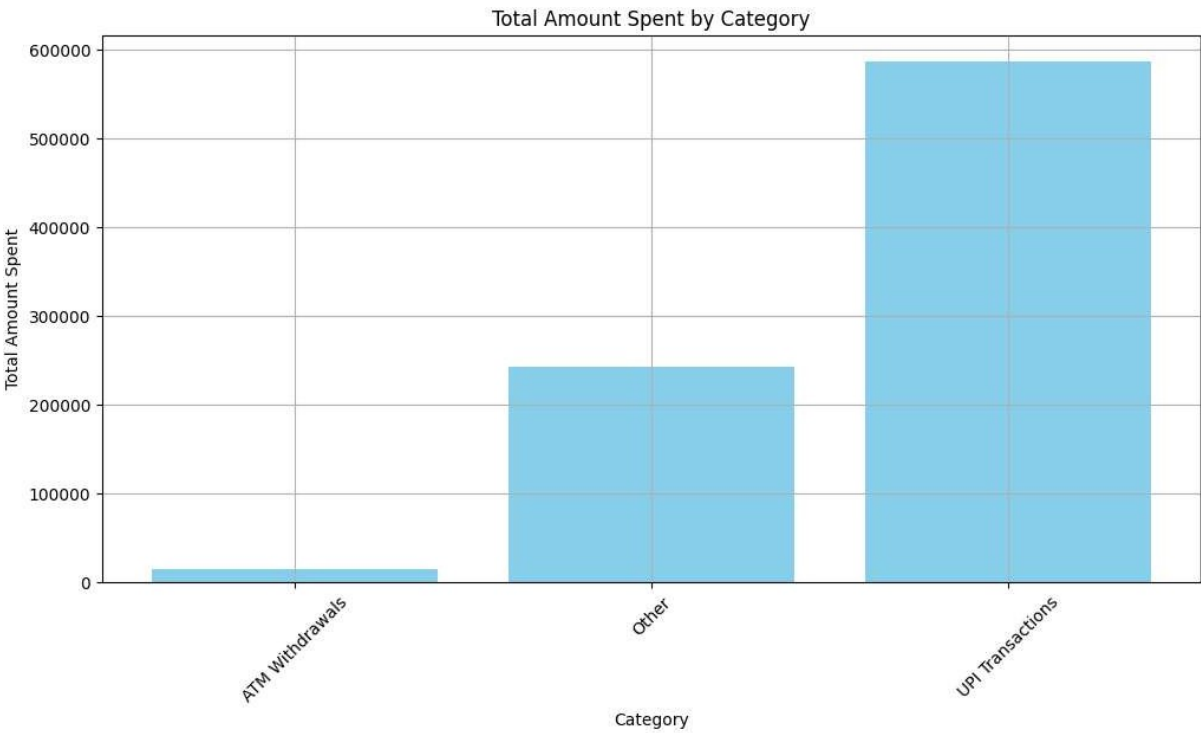
4. Income Analysis:

- What are the main sources of income (e.g., salary, UPI credits)?

Income patterns by category:

IncomeCategory	Frequency	TotalAmount
Other	189	241237.51
Salary	2	2600.00
UPI Credits	99	176733.00

- Identify any patterns in the timing and amount of income received.

➢ **November 2023 Peak:**

- There is a significant spike in income received in November 2023. The total amount received in this month is noticeably higher compared to other months.
- The majority of the income in November comes from the "Other" category, with additional contributions from UPI credits and a smaller portion from salary.

➢ **Regular Income Distribution:**

- In several months (e.g., August, September, October, December 2023, and February, March, April 2024), there are smaller but consistent amounts of income from various sources.
- These regular income months show contributions from UPI credits and "Other" categories, with salary contributions in some months.

➢ **UPI Credits Contribution:**

- UPI credits are a consistent source of income, appearing in almost all months. They contribute significantly in February, March, and April 2024, highlighting their importance as a recurring income source.

➢ **Monthly Fluctuations:**

- The income received each month fluctuates, with notable high points in November 2023 and February 2024.
- Other months show moderate income levels, suggesting a variation in income sources or amounts received.

Frequency of Income by Category

Total Amount of Income by Category
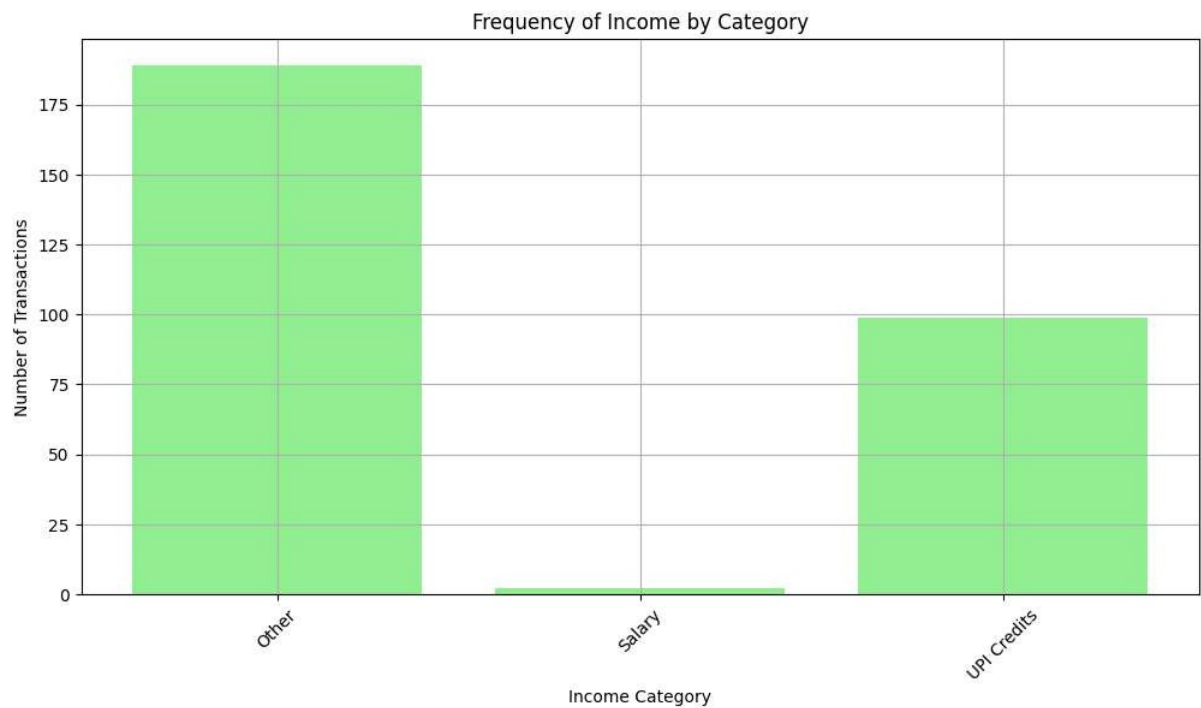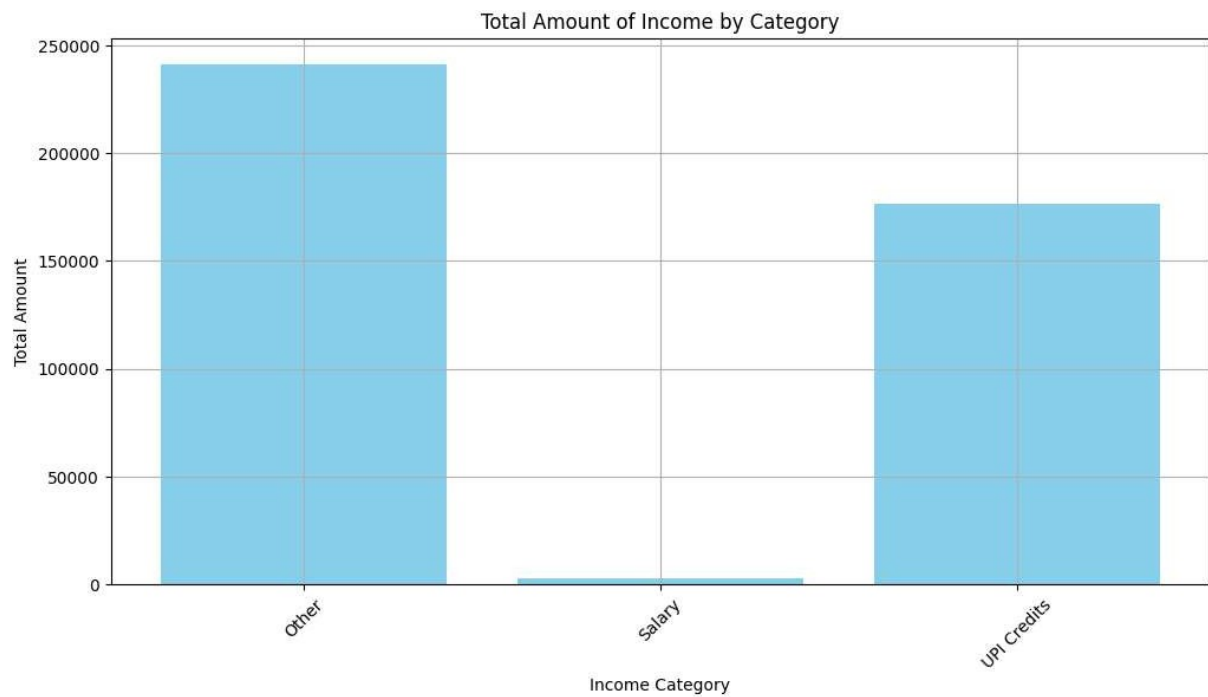
Timing patterns of income received:

| Income Category	Other	Salary	UPI Credits
month			
2023-08	3388.00	0.0	9291.0
2023-09	18740.00	0.0	3865.0
2023-10	17352.00	0.0	4120.0
2023-11	72286.00	2000.0	41451.0
2023-12	35602.51	0.0	2351.0
2024-01	14657.00	0.0	7470.0
2024-02	9788.00	0.0	53994.0
2024-03	14400.00	0.0	11020.0
2024-04	25159.00	0.0	33501.0
2024-05	29865.00	600.0	9670.0

Timing Patterns of Income Received
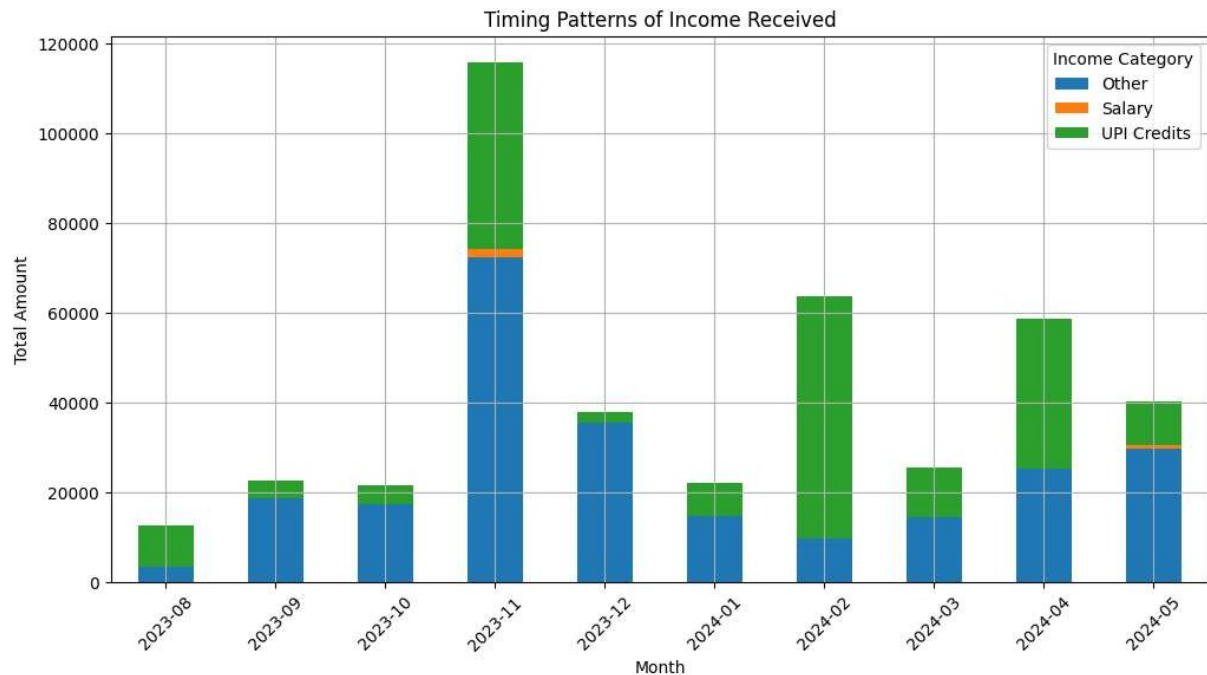
5. Alert Generation:

- Identify any unusual or suspicious transactions.

1. **Large Increase in November 2023**: - Around November 2023, there is a significant spike in the account balance, reaching approximately 60,000 units. This is a substantial increase compared to other months and could be flagged **as an unusual transaction**.

2. **Frequent Fluctuations**: - From November 2023 to December 2023, there are frequent and significant fluctuations in the account balance. The balance goes up and down rapidly within short periods, indicating possible unusual activity.

3. **Smaller Spikes**: - There are smaller, noticeable spikes in the account balance around: - March 2024 - May 2024 These spikes, while not as significant as the one in November 2023, still stand out compared to the surrounding data points

Account Balance Trend with Low Balance Threshold

Monthly Expenditure with High Expenditure Threshold
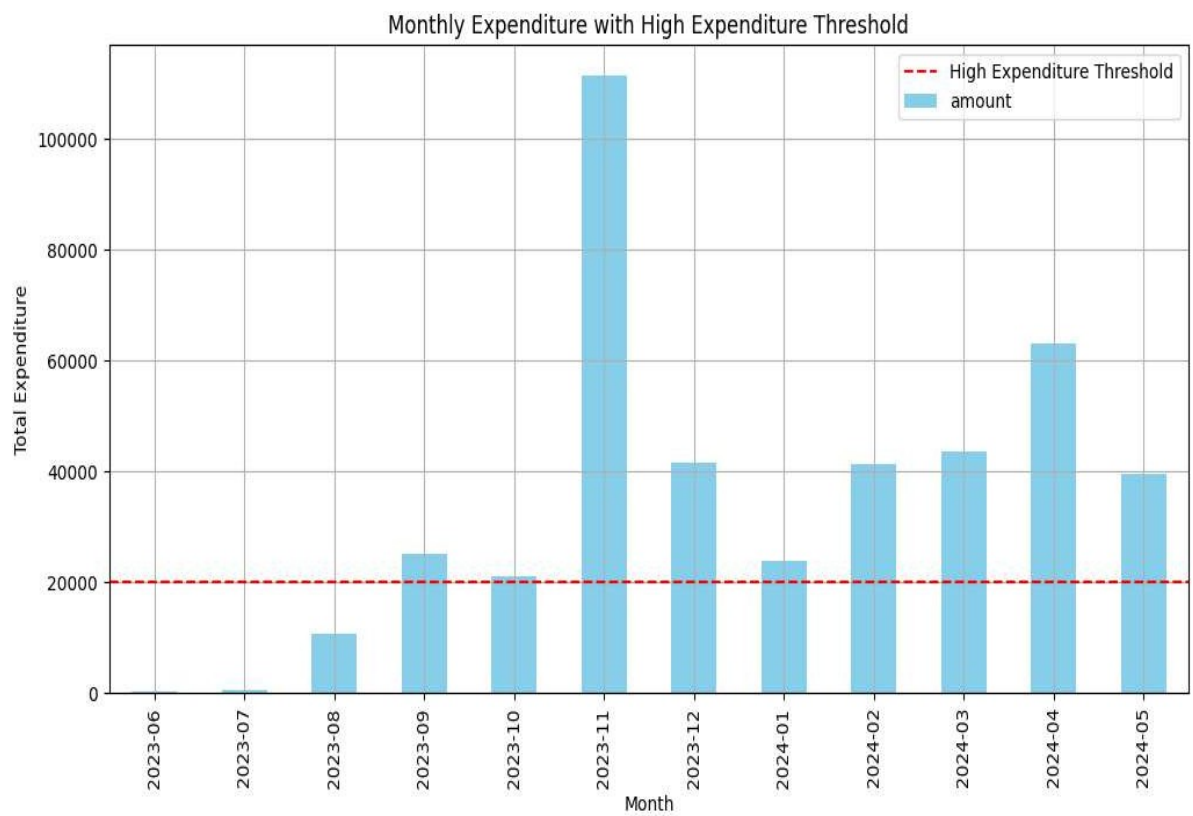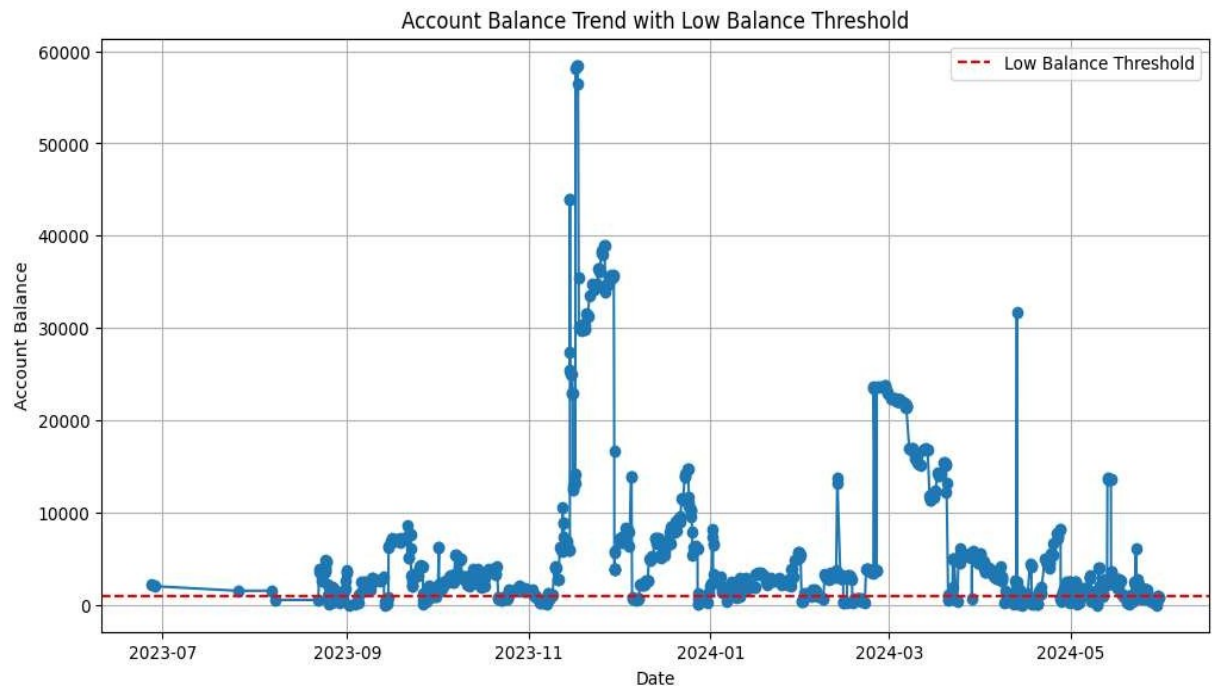
- Generate alerts for low balance or high expenditure periods.

High Expenditure Alerts

an alert is generated if the total expenditure for a month exceeds the high expenditure threshold (20,000 units). From the graph, high expenditure alerts would be triggered for the following months:

- November 2023

Low Balance Alerts

an alert is generated if the total expenditure for a month is below a certain threshold (let's assume 10,000 units as a sample threshold). From the graph, low balance alerts would be triggered for the following months:

- June 2023
- July 2023
- August 2023
- January 2024

Sample Alerts

-High Expenditure Alert:

 - **November 2023:** Total expenditure is 110,000 units, which exceeds the high expenditure threshold of 20,000 units.

-Low Balance Alerts:

 - June 2023: Total expenditure is less than 10,000 units.
 - July 2023: Total expenditure is less than 10,000 units.
 - August 2023: Total expenditure is less than 10,000 units.
 - January 2024: Total expenditure is less than 10,000 units.