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# Movie ticket Analysis



Personal Project



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# Problem

Assume you are in the role of an Analyst in the product development department of the company. To help increase the volume of orders and customers purchasing movie tickets online, you need to analyze data of customers' booking history over the past years. From there, provide informative insights about customer behavior and corresponding recommendations.

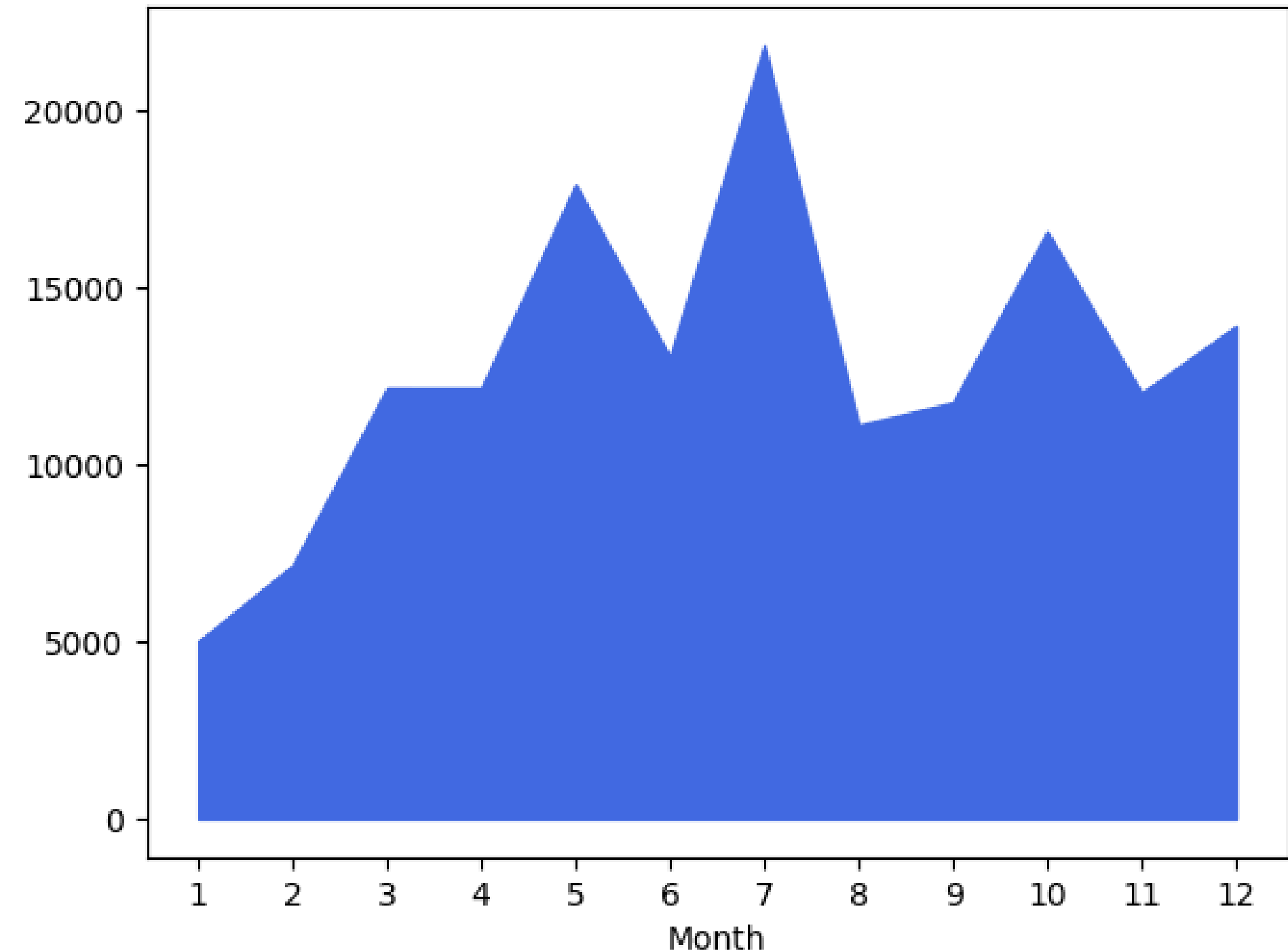


# Order trend

Overall, the number of orders tends to rise sharply during the summer months, peaking in July and gradually decreasing in the subsequent months.

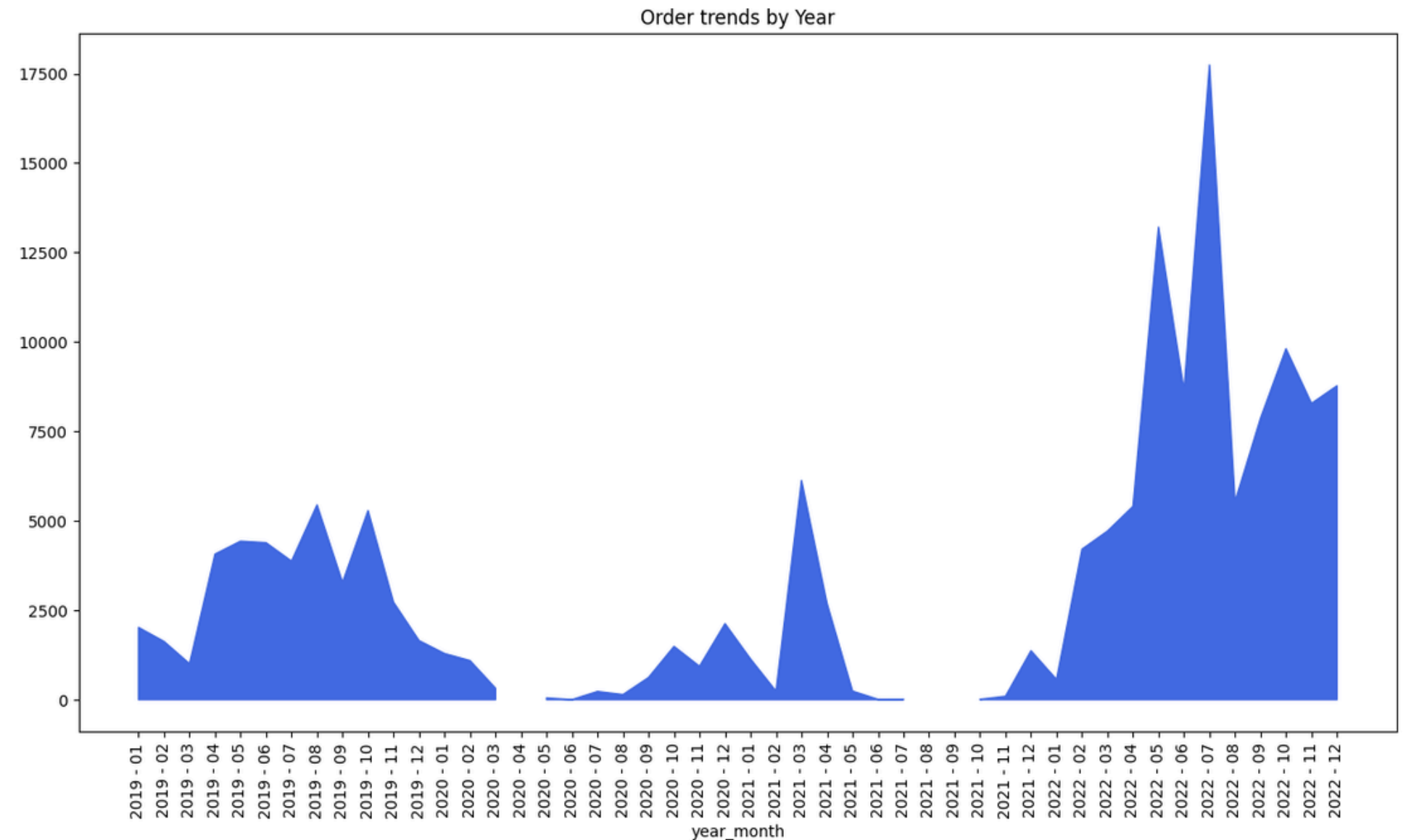


Order trends by Month



**The number of orders in 2020 was relatively low due to the COVID-19 pandemic.**

The number of orders dropped significantly during the COVID-19 pandemic; however, it surged strongly afterward as customer demand for going to the movies increased.

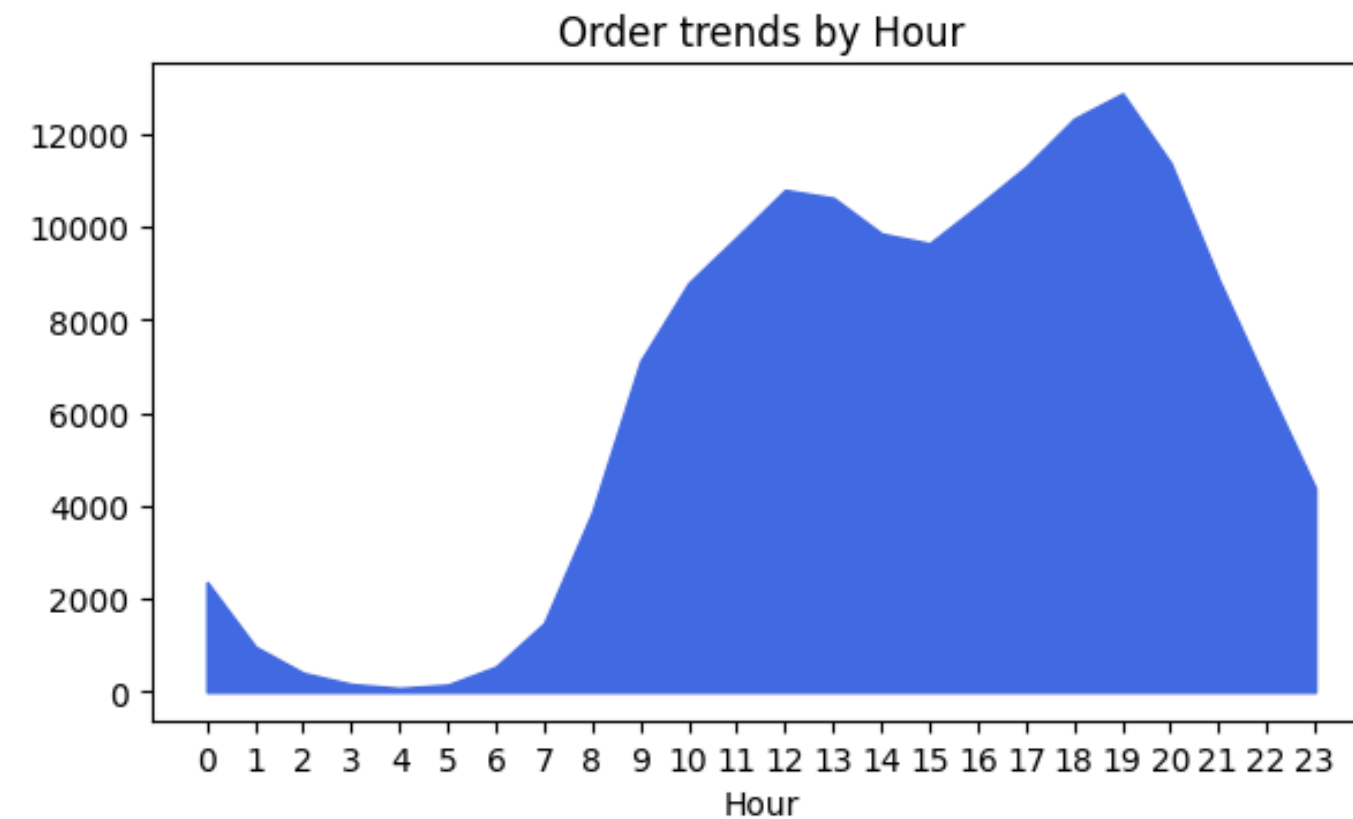
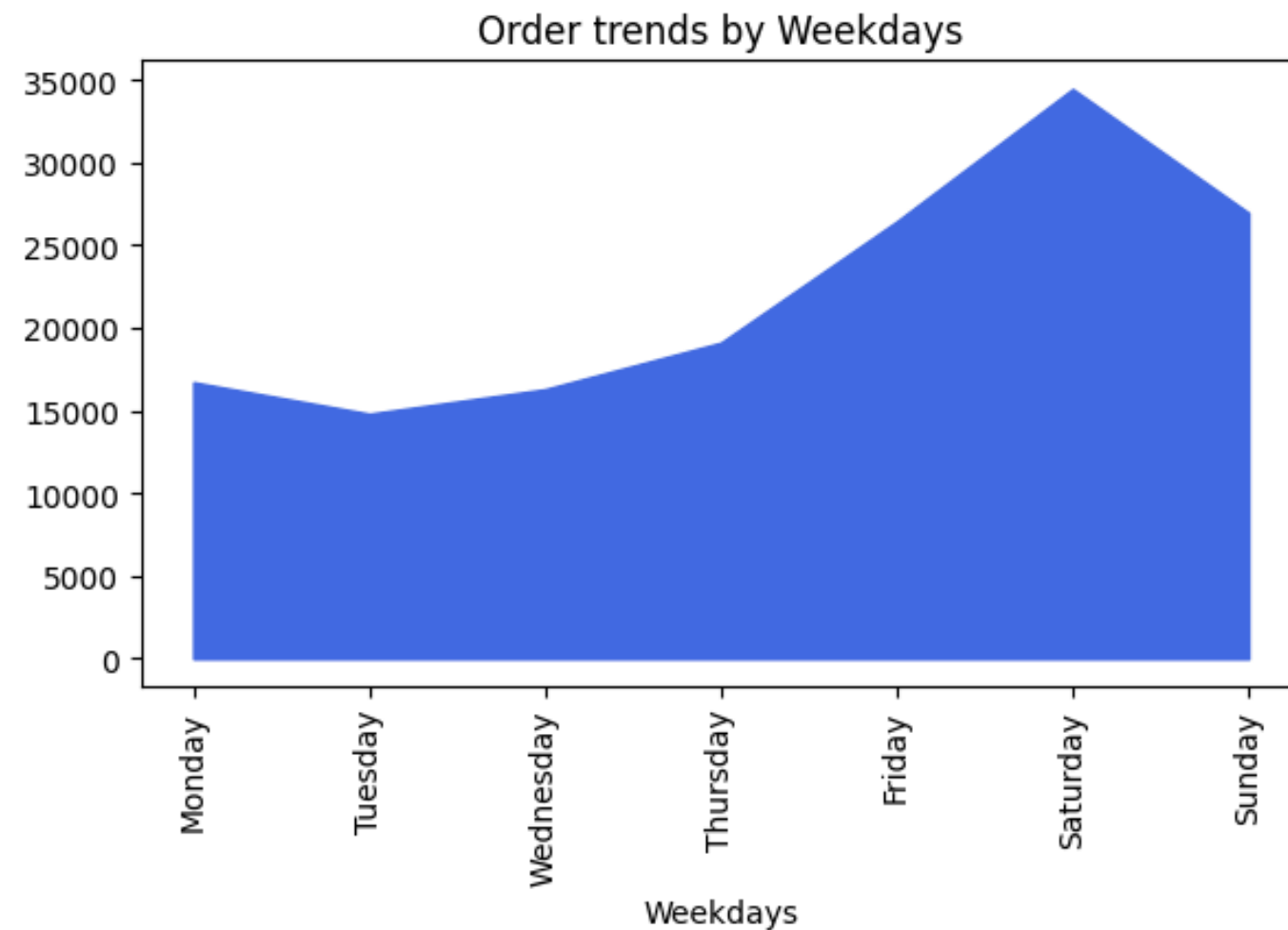


## Recommendation

Promoting more discount campaigns after the pandemic to attract new customers while also showing appreciation to loyal customers who had previously purchased movie tickets before COVID-19.



**The peak period during the week is the last two days of the weekend, while the peak hours of the day are from 3 PM to 8 PM.**



## Recommendation

Inform the IT department to ensure that the ticket booking apps operates smoothly and efficiently during these peak period, so as not to disrupt the customer booking experience.

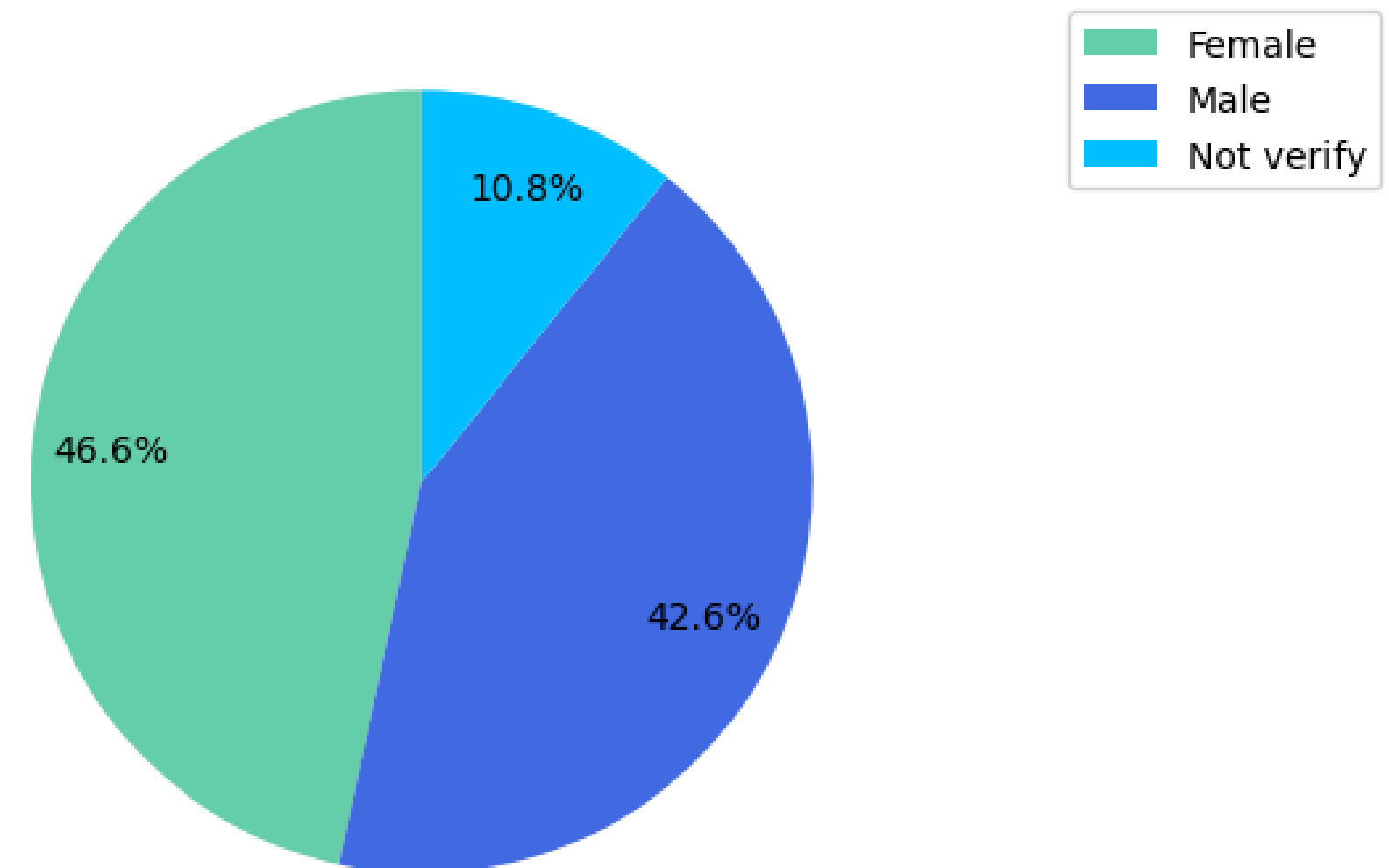
# Customer Portrait

The proportion of female customers is 4% higher than that of male customers, as illustrated in the accompanying chart. Among all customers, 10.8% haven't verified their accounts.

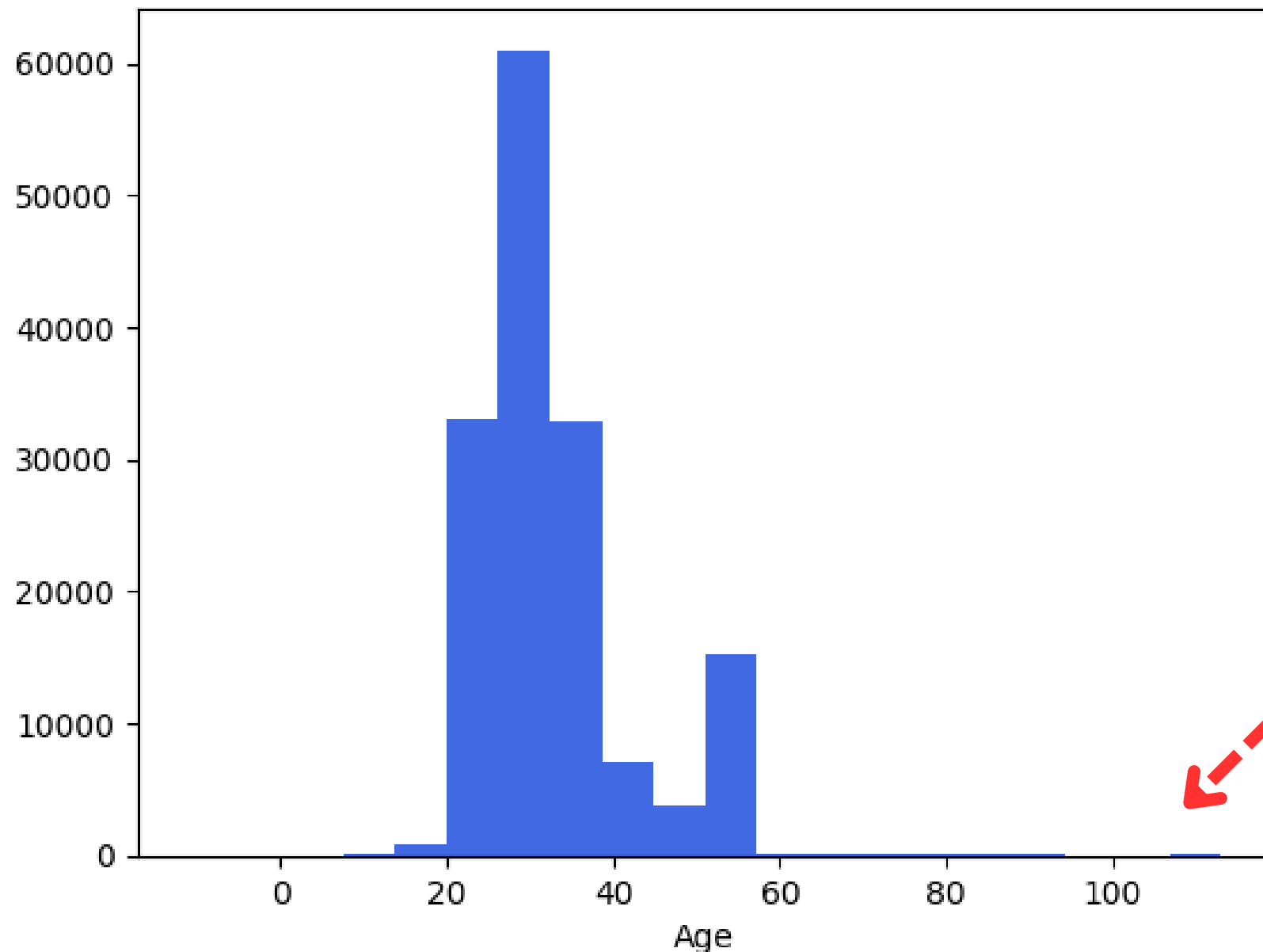


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Genders pct



Age Distribution



The age of customers primarily ranges from 20 to 55 years old, with the majority belonging to the 27-30 age group.

### Warnings

An anomaly has been identified where a few customers are listed as being over 100 years old, which is likely due to errors in customer data entry.

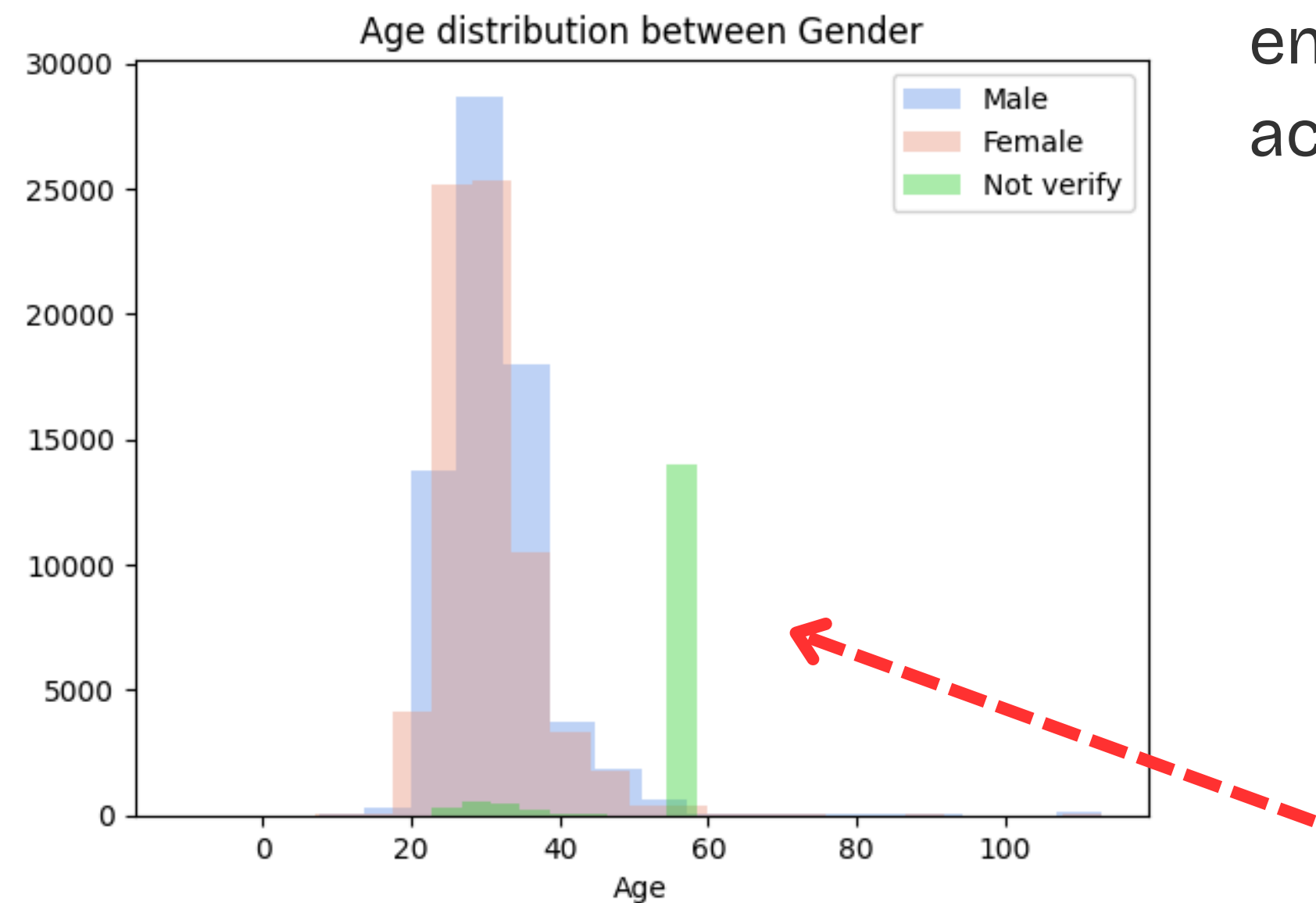
### Recommendation

The IT department and the customer relations department need to carefully verify whether this issue stems from a system error or inaccuracies during the customer data entry process.



# Unverified accounts are unusually concentrated among 54-year-olds.

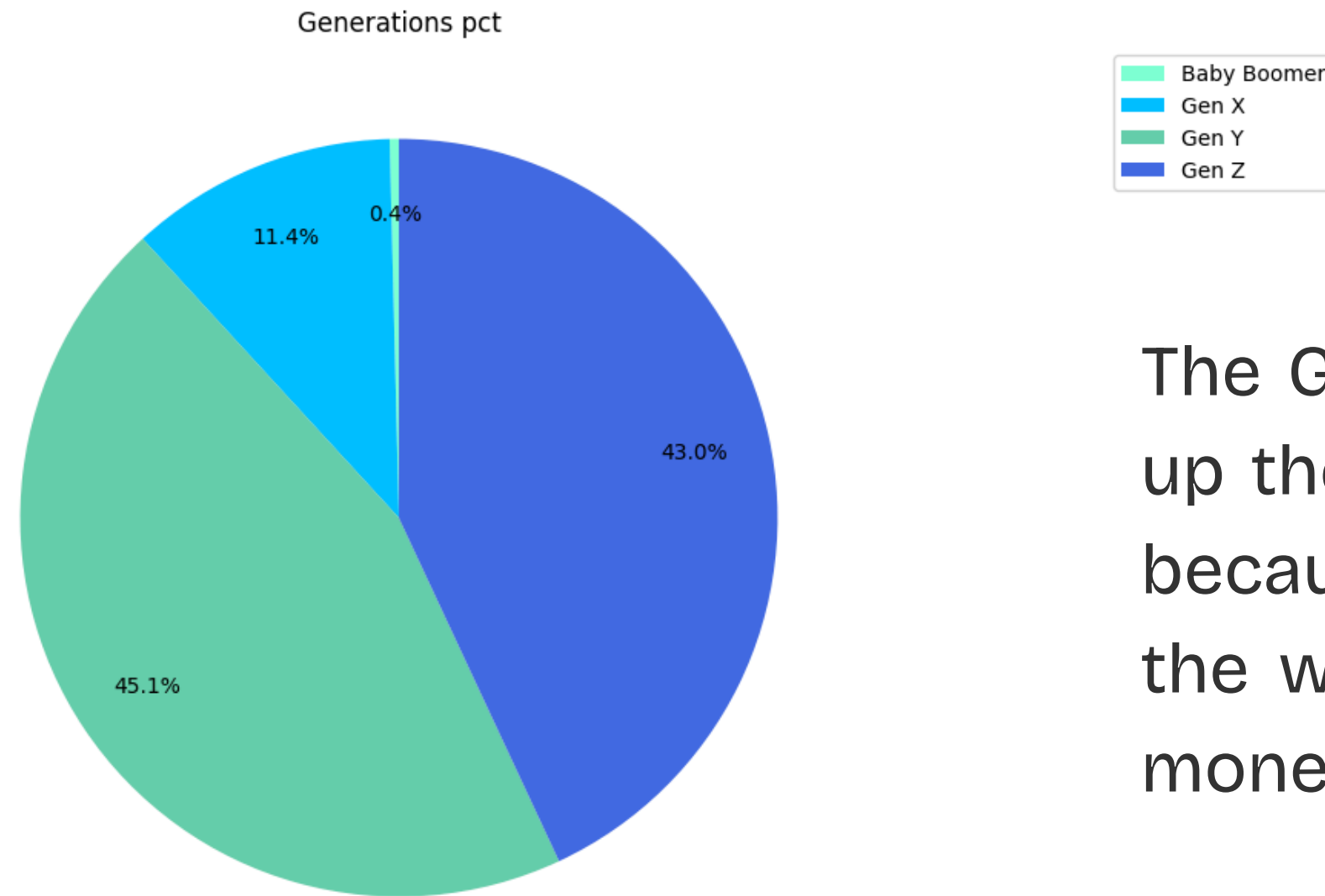
A small number of unverified accounts fall within the 20-40 age range, likely from customers who entered their DOB but haven't verified their accounts.



## Warnings

Unverified accounts are unusually concentrated among 54-year-olds, possibly due to customers not entering their DOB or verifying their accounts.

**The two groups with the highest proportions of customers are Gen Y and Gen Z.**



The Gen Y and Gen X customer groups make up the majority of the customer base. This is because both Gen Y and Gen X have entered the workforce, allowing them to spend more money on going to the movies.

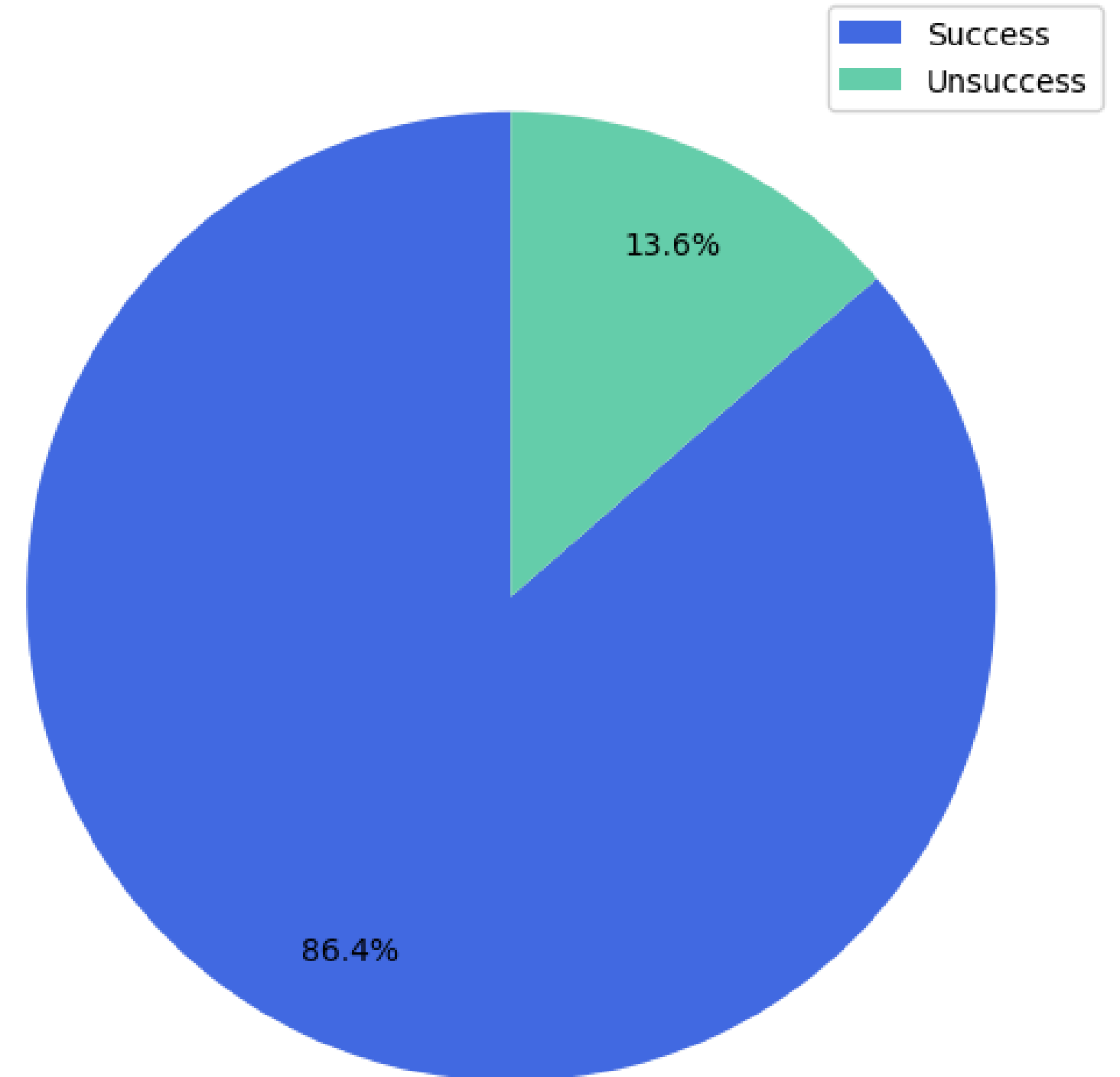
## Recommendation

Gen Z is still a promising customer segment, so offering discount promotions for students could help stimulate greater demand from this group.

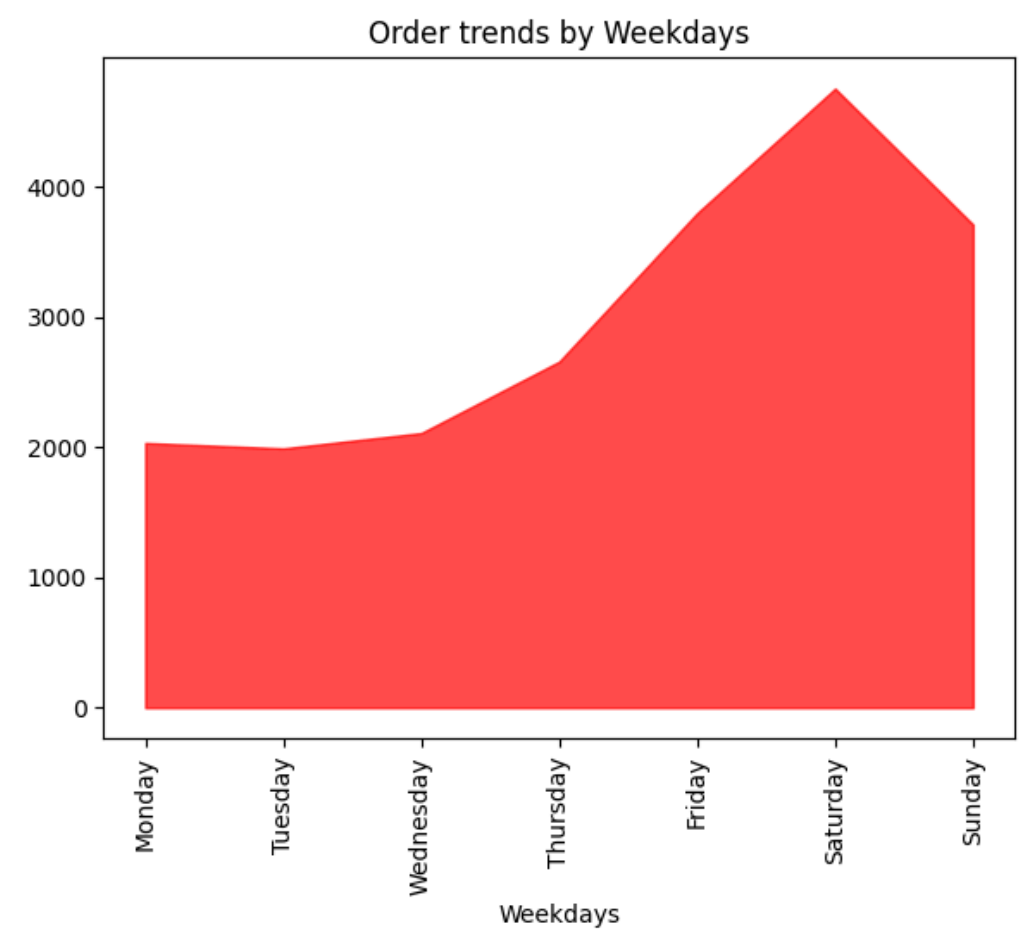
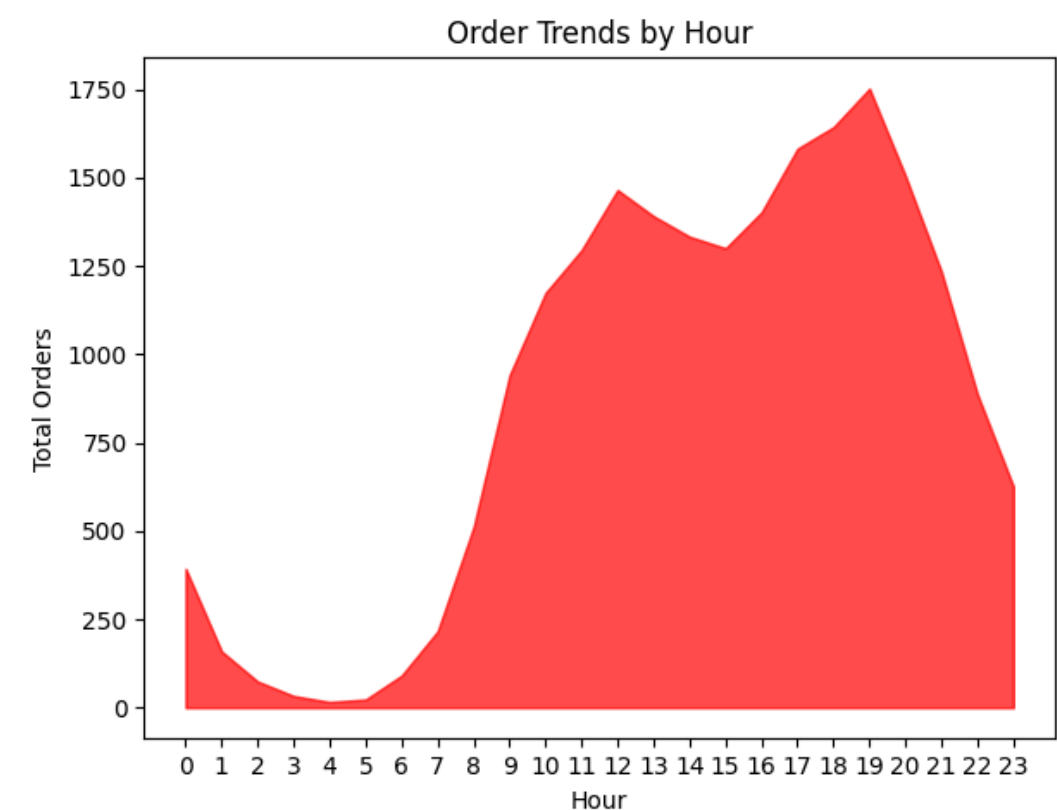
# Success Rate

Out of the total orders, 86.4% were successfully completed, while 13.6% failed. Therefore, I will conduct an in-depth analysis to identify the causes behind these unsuccessful orders.

Success & Unsuccess rate



The number of unsuccessful orders rises sharply on weekends, between 10AM and 8PM.



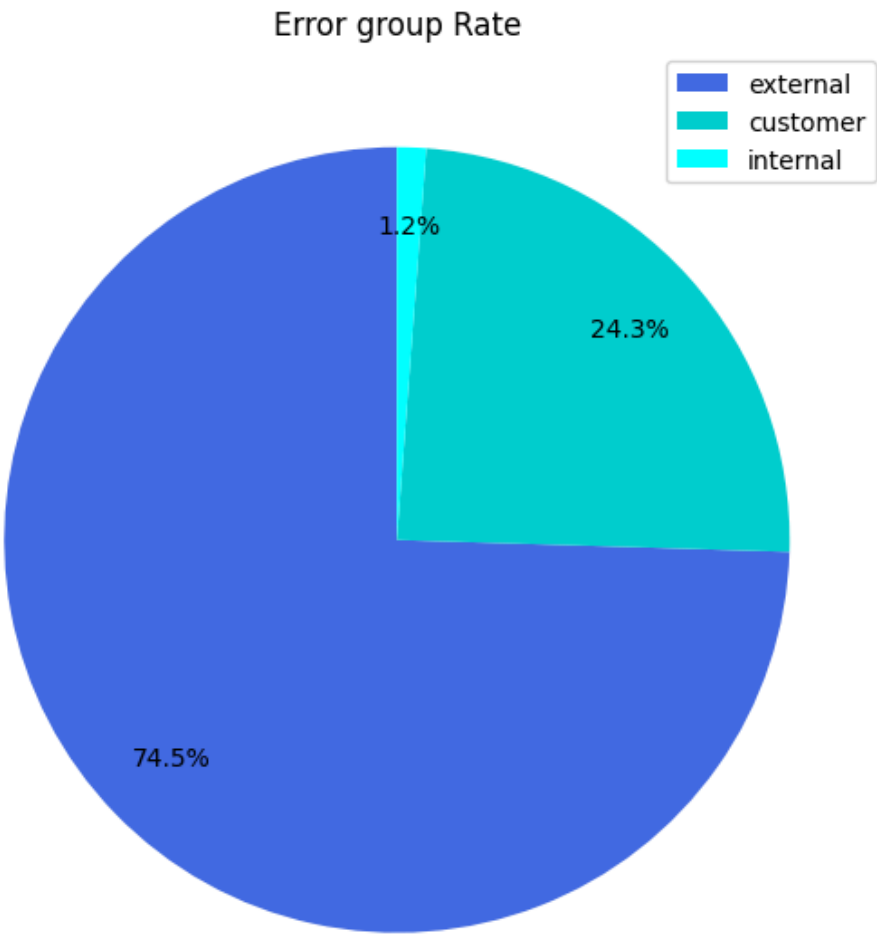
The number of successful orders increases proportionally with the total orders over time.



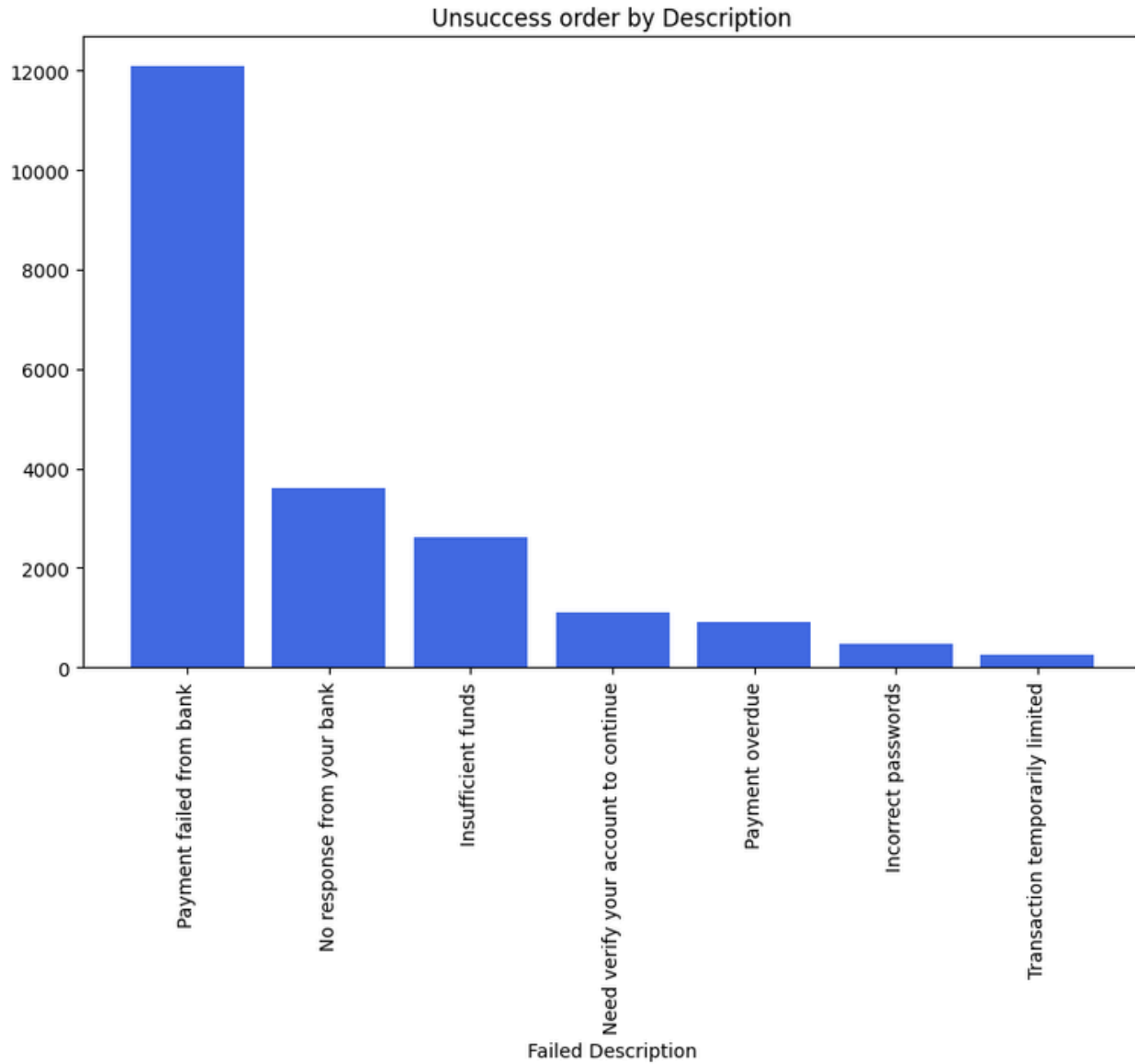
## Recommendation

It is crucial to thoroughly investigate the causes of unsuccessful orders during peak hours to identify timely solutions and prevent any negative impact on customer experience.

# The majority of issues stem from external factors, with two significant ones linked to banks.



System-related factors account for a very small proportion, around 1.2%, with the rest stemming from external factors and customer-related issues.

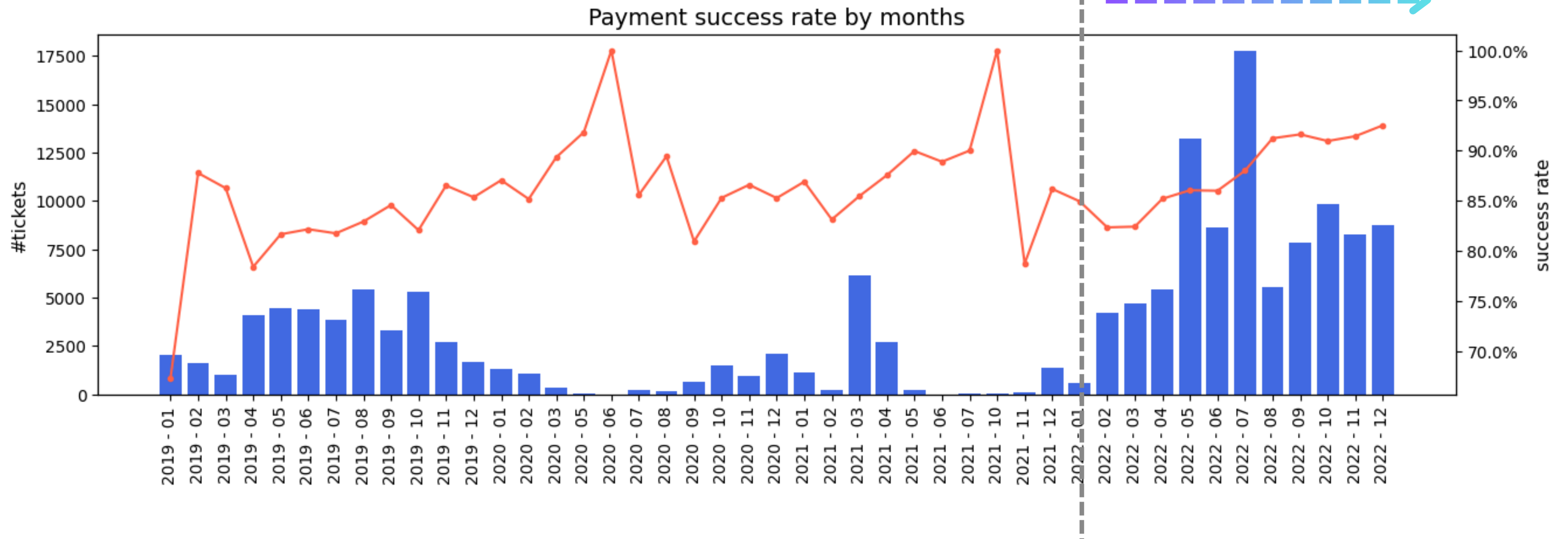


## Recommendation

It is crucial to thoroughly investigate the causes of unsuccessful orders during peak hours to identify timely solutions and prevent any negative impact on customer experience.

# Payment Success Rate by Month

After the COVID pandemic, there has been a sharp increase in the number of orders, along with a steady rise in the success rate of orders, indicating a slight improvement in service quality.



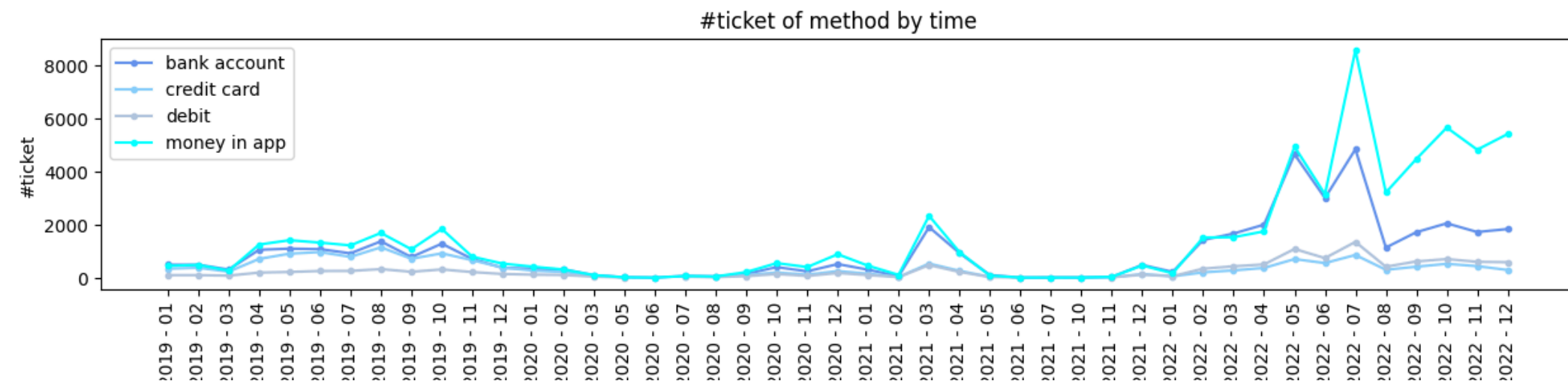
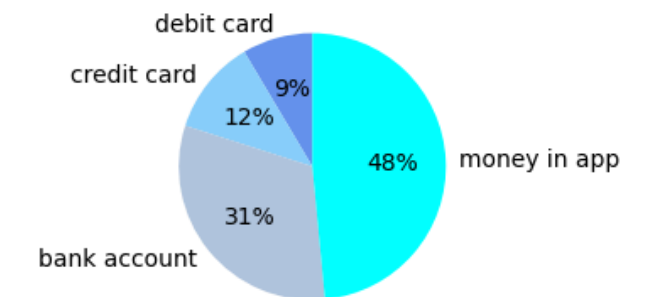
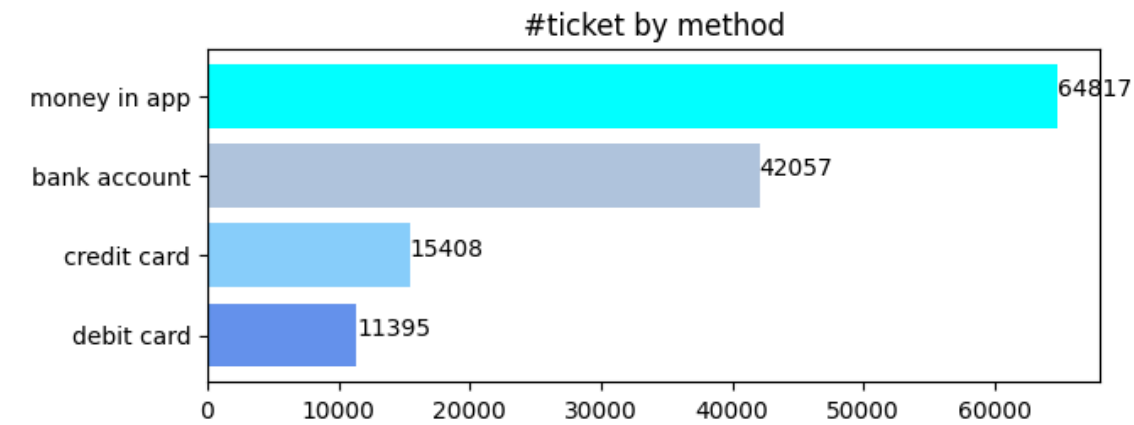


# Factors Analysis

# By method

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The use of money in app payment services has increased significantly after the pandemic, indicating an improvement in the quality of the ordering application.

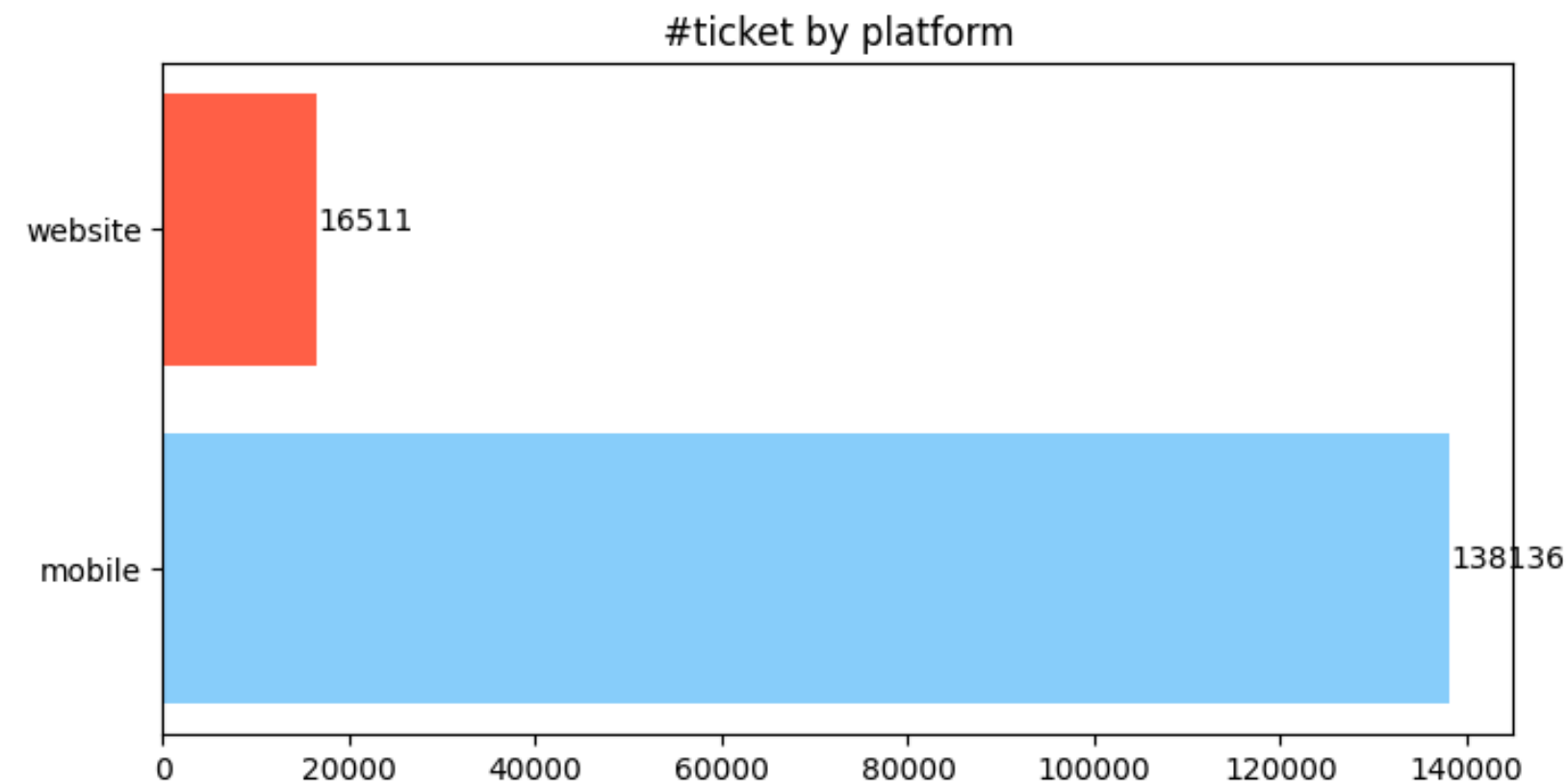
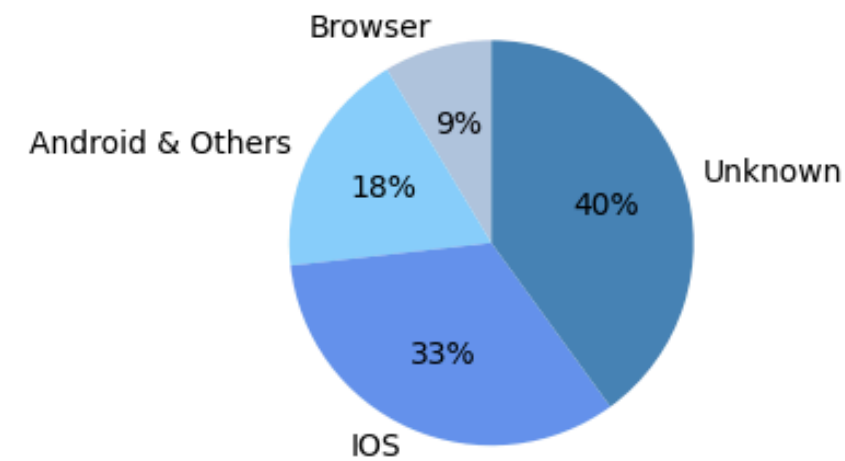
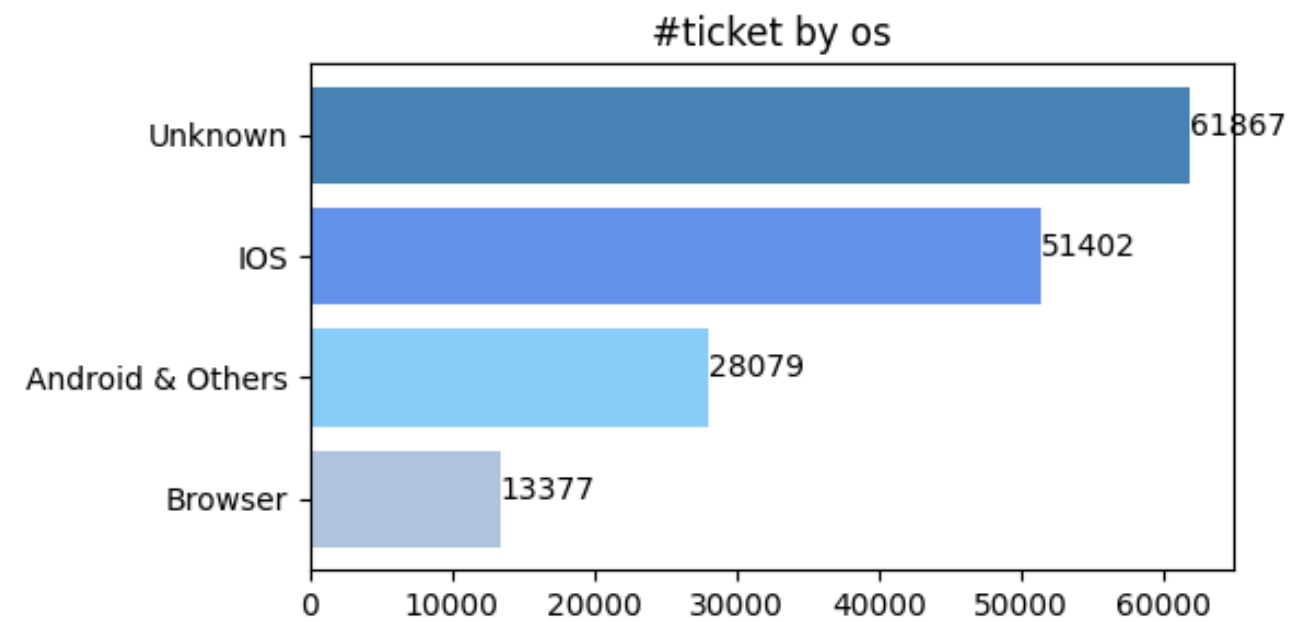


## Recommendation

We can collaborate with banks to launch campaigns issuing credit cards to students, targeting the potential of the Gen Z customer segment.

# By platform & OS

Author: Khang Le



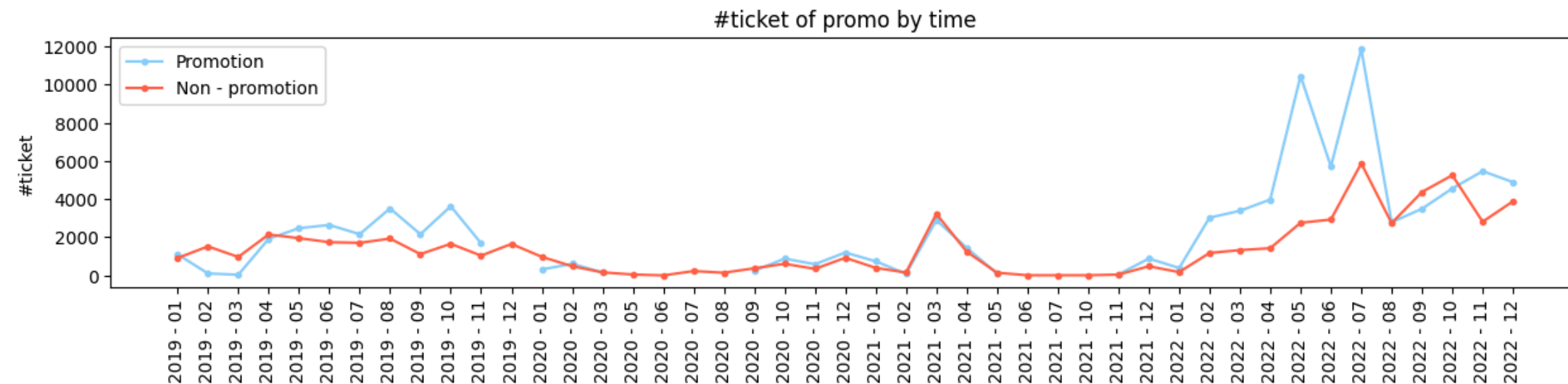
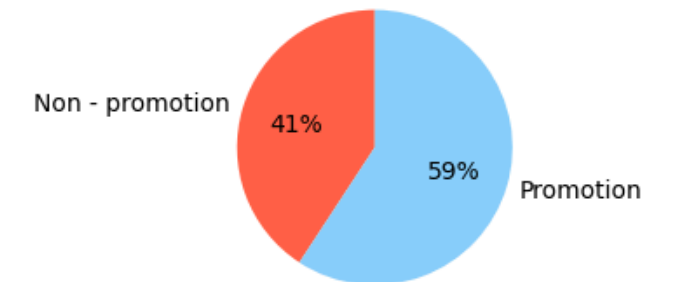
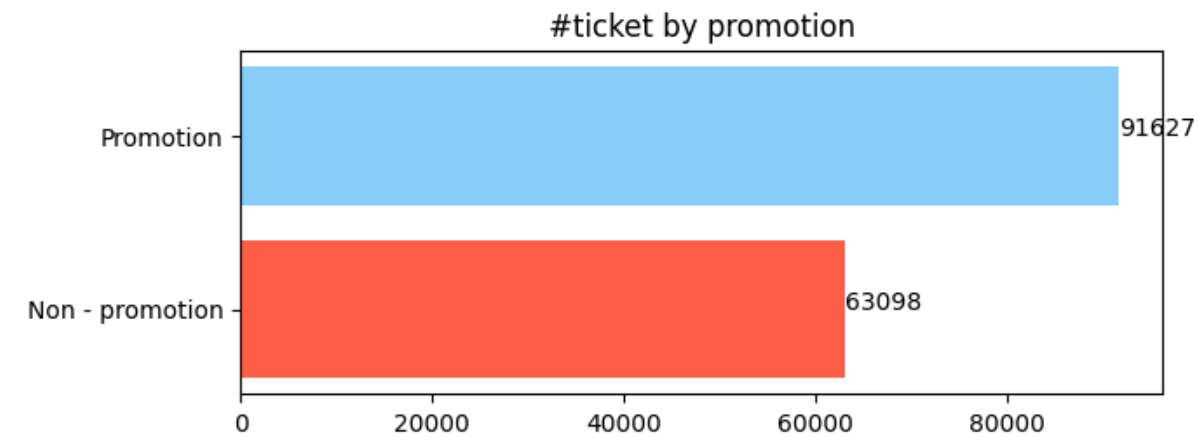
Customers prefer booking movie tickets via mobile devices, with the largest share in the OS category belonging to "Unknown," indicating customers who did not specify their OS version.



# By promotion

Author: Khang Le

During the pandemic, the number of orders with promotions was limited. However, the company introduced more promotional programs after the pandemic to drive sales growth.



59%

Promotion orders

41%

Non - promotion orders

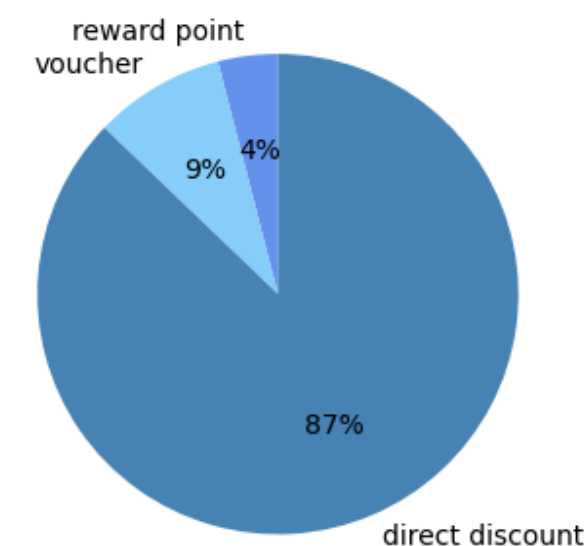
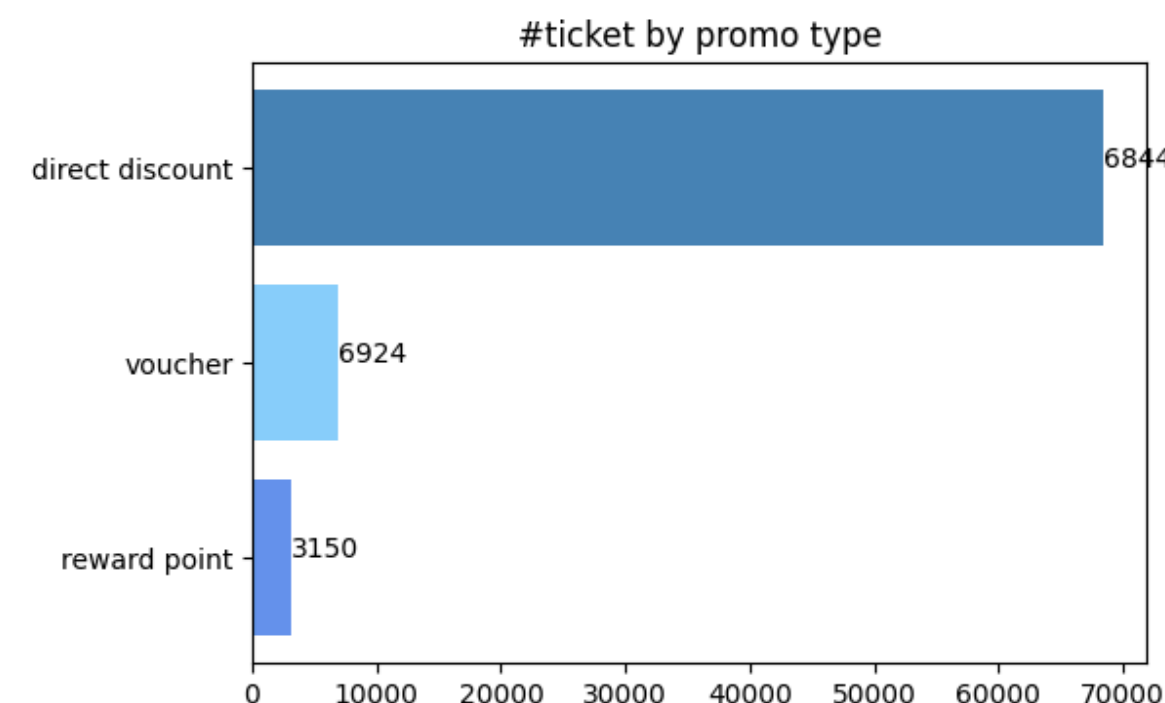


# By promotion type



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The direct discount campaign was the most successful and accounted for the largest share of all promotional orders. Customers responded more enthusiastically to this campaign compared to the other two: vouchers and reward points.

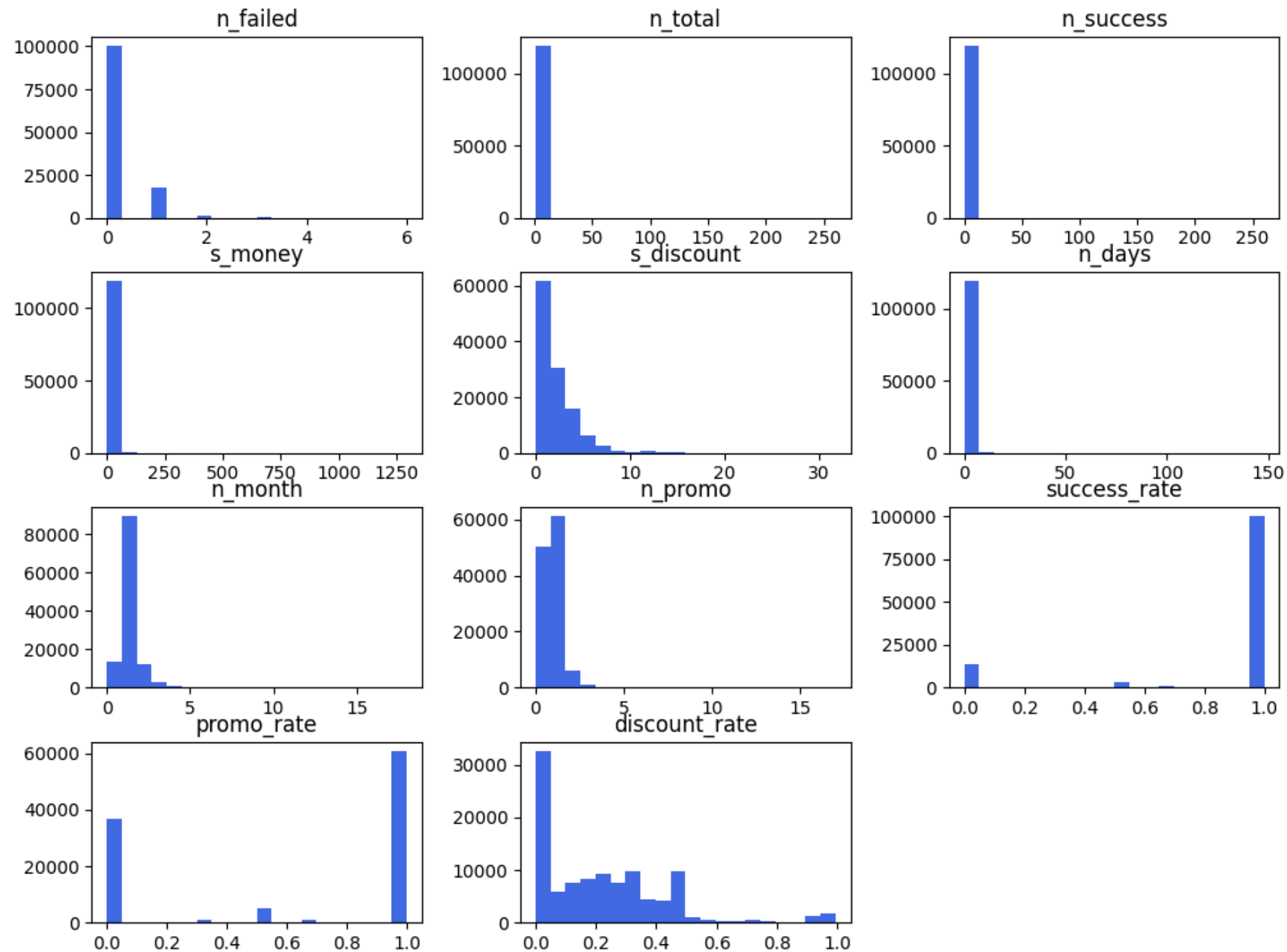


## Recommendation

Focus on enhancing the direct discount strategy to boost sales further. At the same time, investigate why the voucher and reward point strategies have not performed as strongly as this approach.

# Customer Values





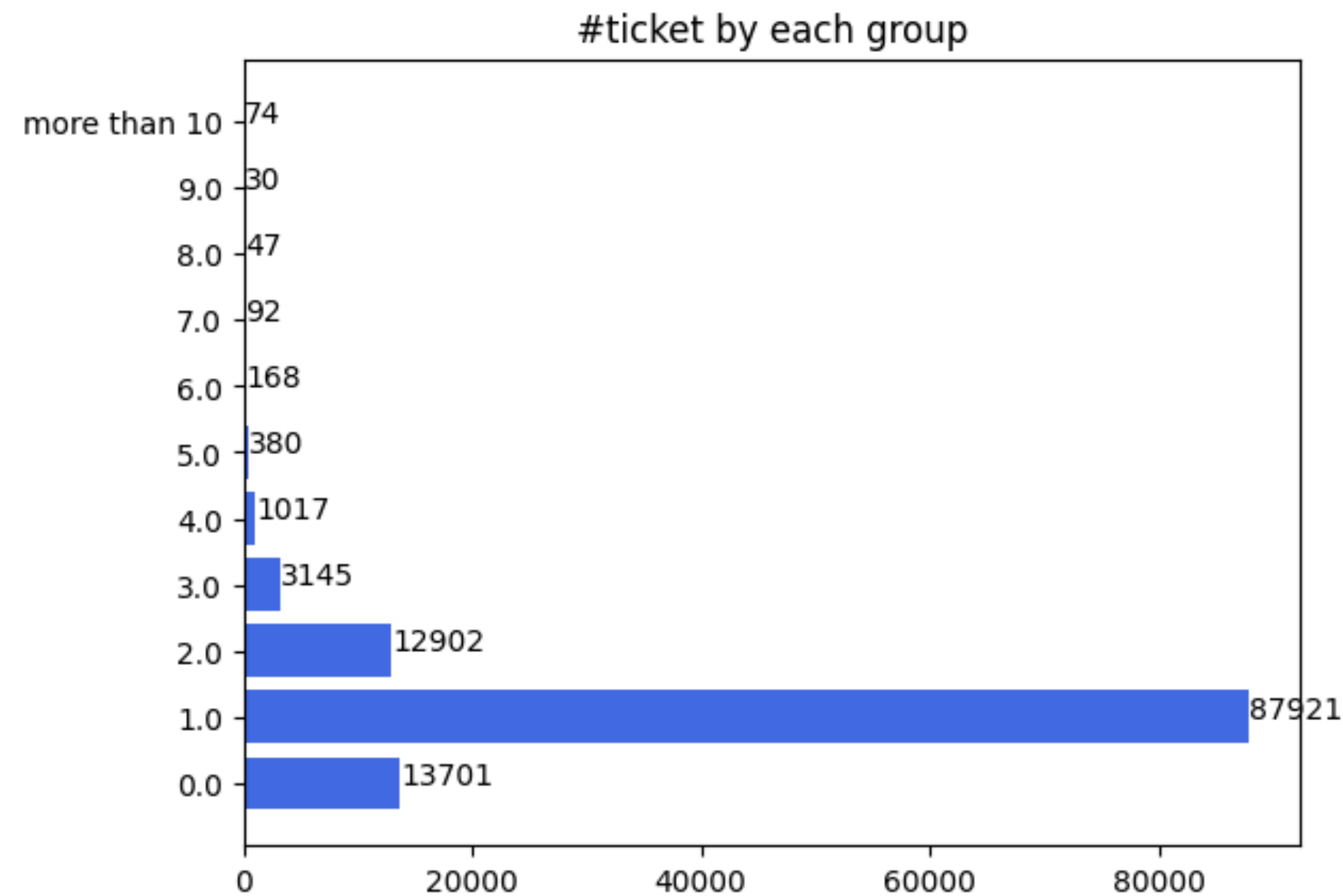
## Warnings

Some anomaly behavior that catch our attention:

- Some customers bought lots of tickets - Need to check.
- There are 60,000 customers with a promo rate of 100%.
- 60,000 customers had only one promotion and then stopped. (Is there any relationships with the customers group who have discount rate = 100%? )



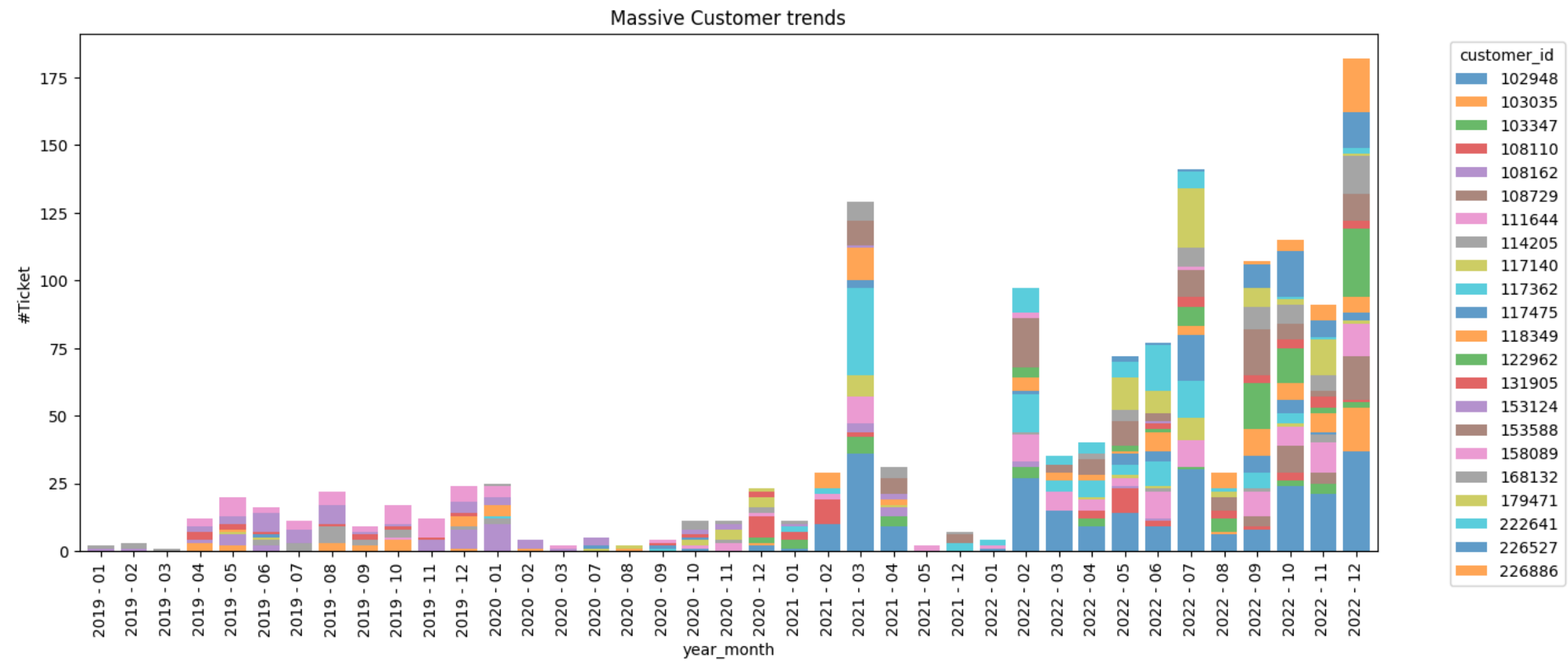
75% of customers purchase tickets and use the service only once, without returning.



## Recommendation

It is essential to investigate why customers use the ticketing service only once and do not return. The bank-related issues mentioned earlier could be a contributing factor, so addressing these problems is crucial.

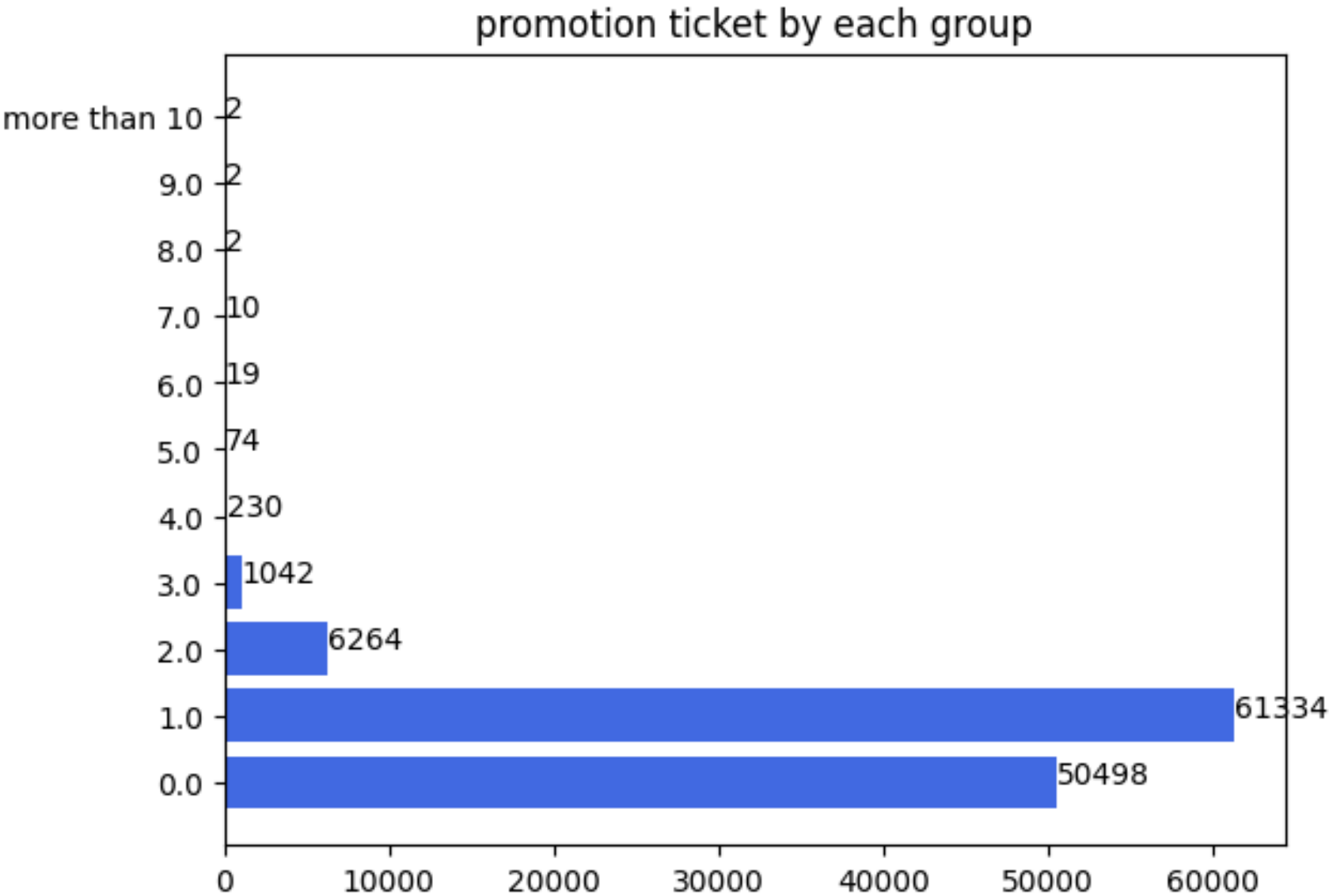
There are customers who buy more than 250 movie tickets, but the most they purchase at one time is 30 tickets.



Some customers purchase and use a large number of tickets, but they spread out their purchases, likely buying for their families. Therefore, these behaviors are not unusual.



The majority of customers received a promotion only once, and after that, they did not return to use the service again.



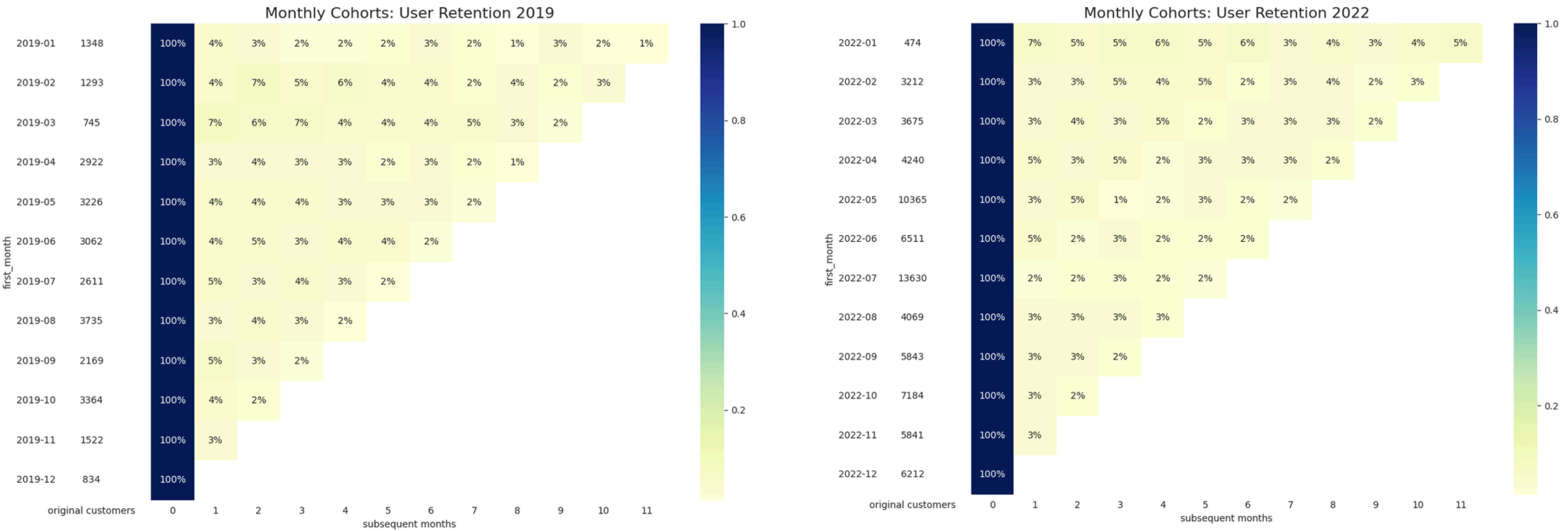
n_promo	n_customer	total	discount_pct	voucher_pct	reward_pct
0	1	61334	87%	9%	5%
1	2	6264	90%	9%	2%
2	3	1042	89%	9%	1%
3	4	230	90%	9%	1%
4	5	74	87%	12%	1%
5	6	19	89%	11%	0%
6	7	10	77%	20%	3%
7	8	2	88%	12%	0%
8	9	2	67%	33%	0%
9	10	1	90%	10%	0%
10	17	1	0%	100%	0%

Another detail is that most customers across the groups predominantly prefer direct discount programs, making up nearly 90% of all customer groups.



# Retention Analysis

# The retention rate remains very low, averaging only 3% per month.



Although the number of customers surged after the pandemic, the 2022 retention rate showed no significant improvement, averaging only 3% per month. This is likely because the company focused heavily on attracting new customers without implementing programs to encourage former customers to return.





# Insights mindmap

## Movie ticket analysis

### Insights

#### 1. Define problem

- Situations** — The product team wants to evaluate customer behavior when using the product to propose new improvements.
- Complication** — The data is collected from customers' online booking history from 2019 to 2022.
- Questions** — What are the special characteristics of customer behavior & what should we do to improve product quality?

#### 2. Customer Behaviors

- Demographic** — Nearly 70% of customers come from the working-age group (25 - 37).
  - The group **under 18** faces barriers with payment accounts.
  - Customers **aged 19-24** are a promising segment needing further exploration.
  - Customers **aged 60-100** make up less than 1% of our customer base.
  - 10% of customers with unverified information need to be addressed. (55 years old)
- Trends**
  - Ticket sales sharply declined in 2020 and 2021 due to the COVID-19 pandemic, followed by a **significant increase in 2022**. — **Focus on boosting marketing efforts during these months to increase sales.**
  - Peak months of the year are during the summer (May - July) and the end of the year (October - December). — **Create a program to boost customer engagement from Monday - Thursday.**
  - Weekend sales are **1.5 times higher** than Monday to Thursday sales.
- Payment**
  - The two most popular payment methods are **money in app (48%)** and **banking account (31%)**. — **Prioritize upgrading the experience of these payment channels.**
  - 40% of orders have an unidentified device. — Review the system to fix this issue.
  - 89% of orders are made **using mobile devices**, with **iOS** accounting for **31%**. — **Evaluate product experience and make improvements.**
  - The debit card ownership rate is **very low** among the **19-25 age group**. — **Partner with universities to issue debit cards to students.**

#### 3. Customer Values

- 75% of customers** use the product only once.
  - Most customers **come from promotions** and visit only once.
  - Customers highly appreciate the **direct discount** program (accounts for 90% across most customer groups).
- The one-month retention rate is very low, averaging **only 3%**.
  - Focusing too much on acquiring new customers without having a program for existing customers.
  - 63% of customers** participate in the **promotion** program. — **Create a loyalty program to attract returning customers.**

#### 4. Success Rate

- Over the past four years, the rate of unsuccessful orders has been as high as **13.6%**.
  - The top 2 most common issues stem from **external factors**, specifically banks, accounting for 75% of all failed transactions. — **Customers cannot resolve these issues on their own, so system intervention is needed to assist them.**
  - Customer-related issues account for 25%, specifically **forgotten passwords** and **insufficient funds** in accounts. — **Send notifications to customers when their account balance is low, Offer security questions as an alternative method to verify the customer's identity.**
  - Internal errors account for only a small portion, about 1%.

# Thank You



This is a personal project of mine analyzing movie ticket sales data. Thank you for taking the time to review my analysis.

