

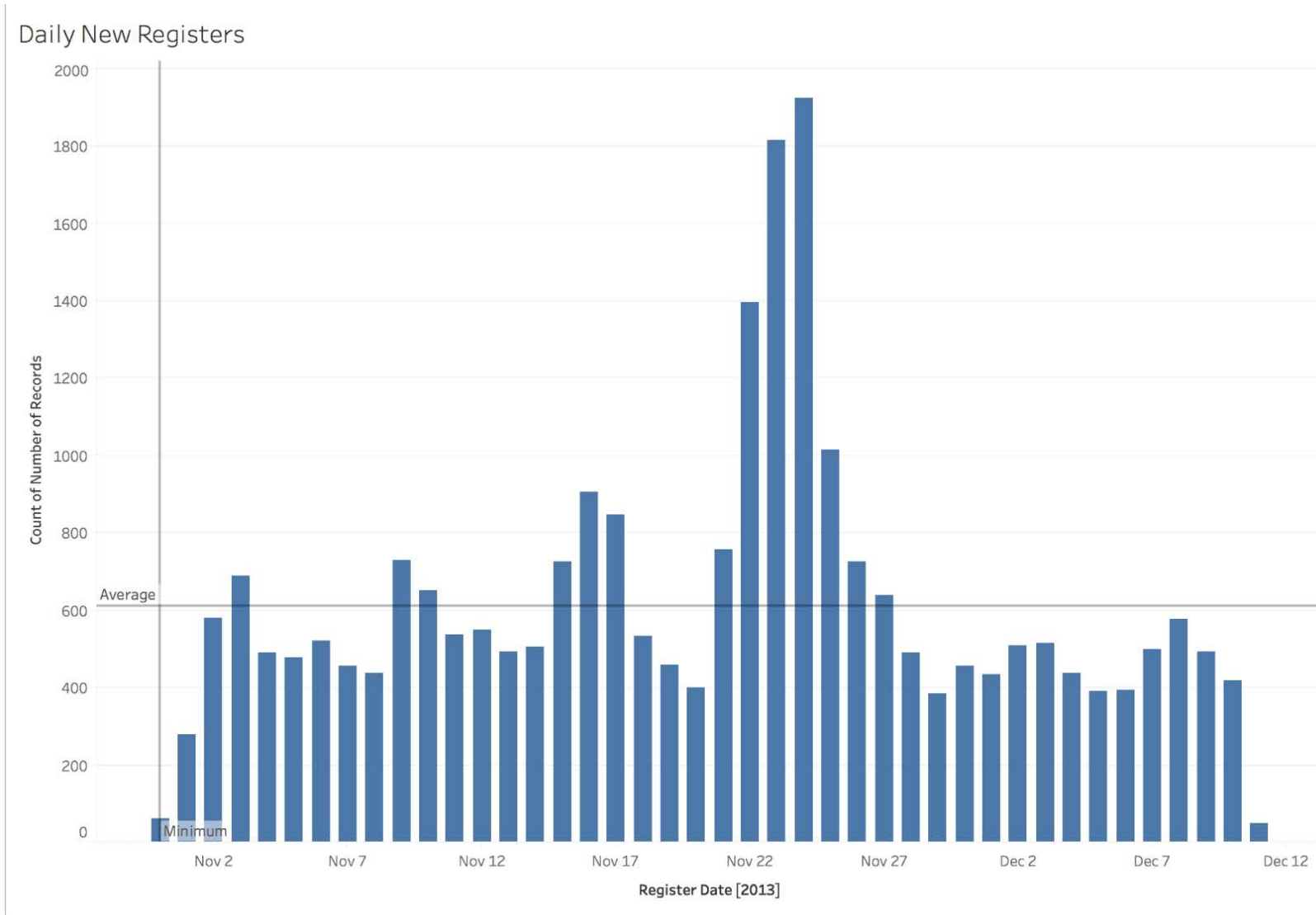
# Business Case Analysis

*Where are my golden goose? -Yuhong*

# Content

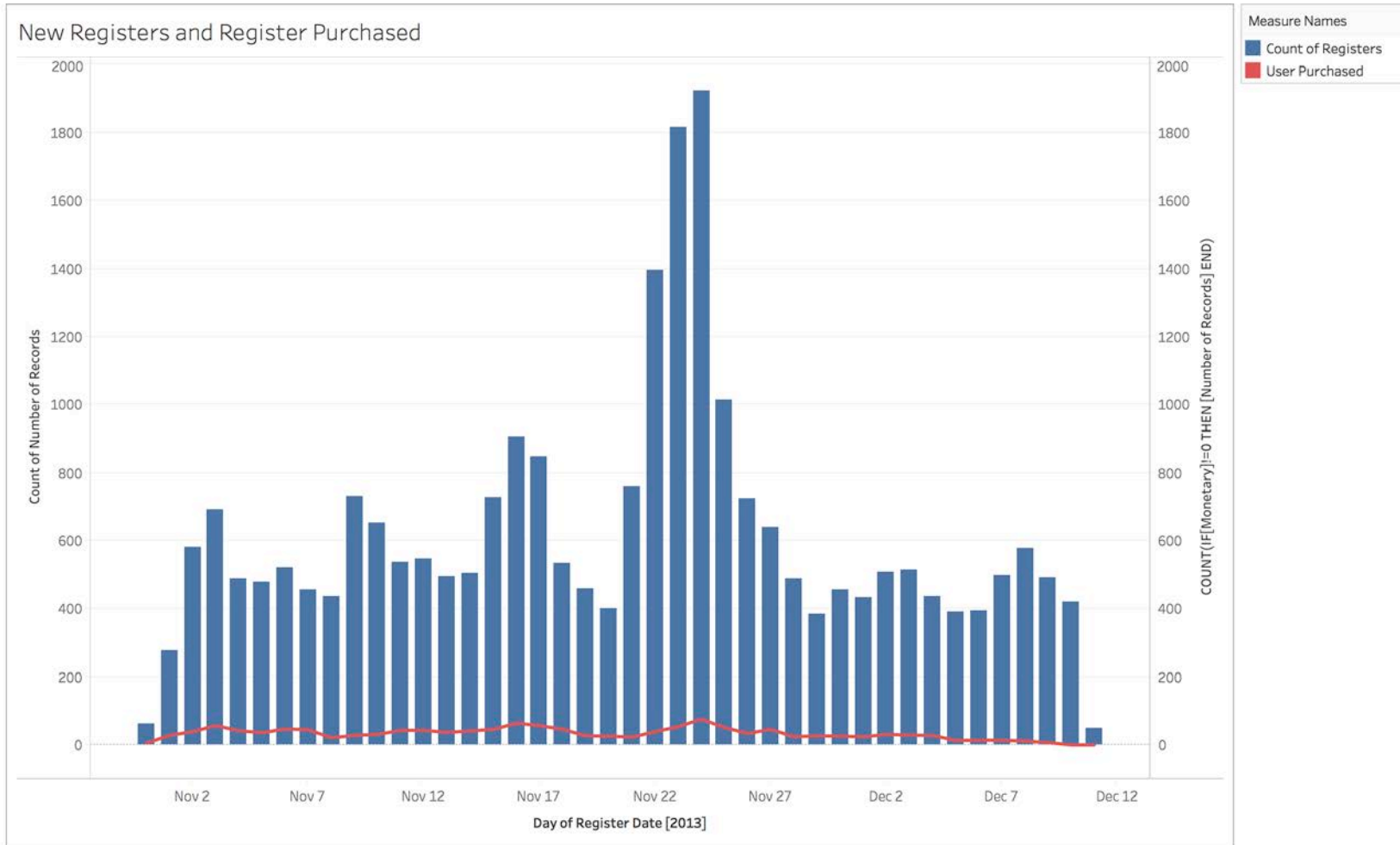
- User Analysis
  - Acquisition
  - Activation
- Trend Analysis
- Customer Segmentation by Using FRM Analysis
  - Brief introduction of FRM model
  - How FRM mode is constructed in this case
  - Further analysis and discussion of key segments
- Appendix

# User Analysis



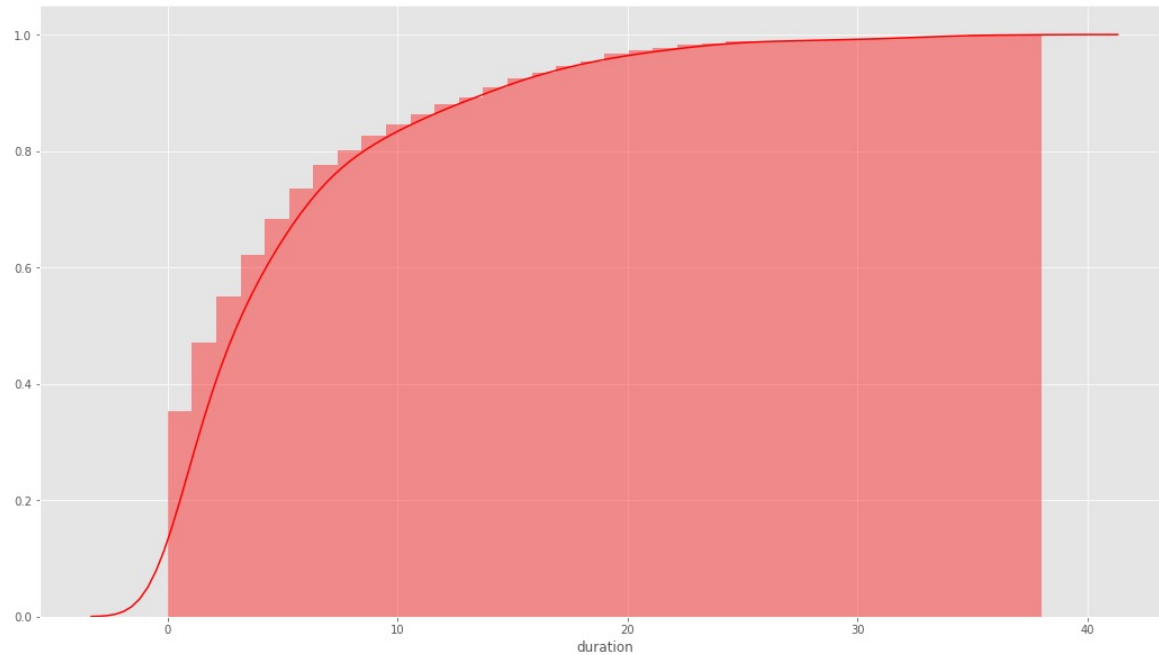
- Daily register number fluctuates instead of growing steadily, suggesting that user registration is most likely driven by independent marketing campaigns.
- Data point of how registers direct to our platform and GMV of first 30 days should be captured. By doing so, we can optimize marketing channels.
- User referral program is recommended to incentivize existing customers to invite new registers.

# User Analysis

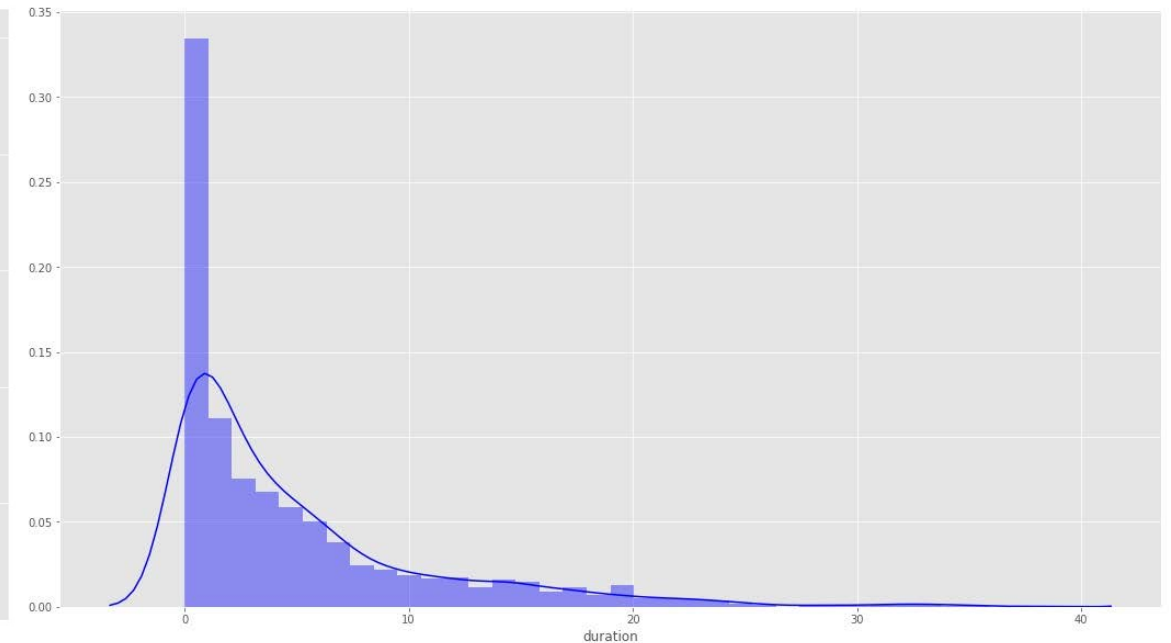


- Within daily registers, the number of registers who purchased on platform is low. This might suggest opportunities to optimize user activation process.
- A further study is required to understand user activation behavior and optimize activation process. A A/B testing is suggested when implementing those changes.

# Duration Analysis from Register to First Purchase



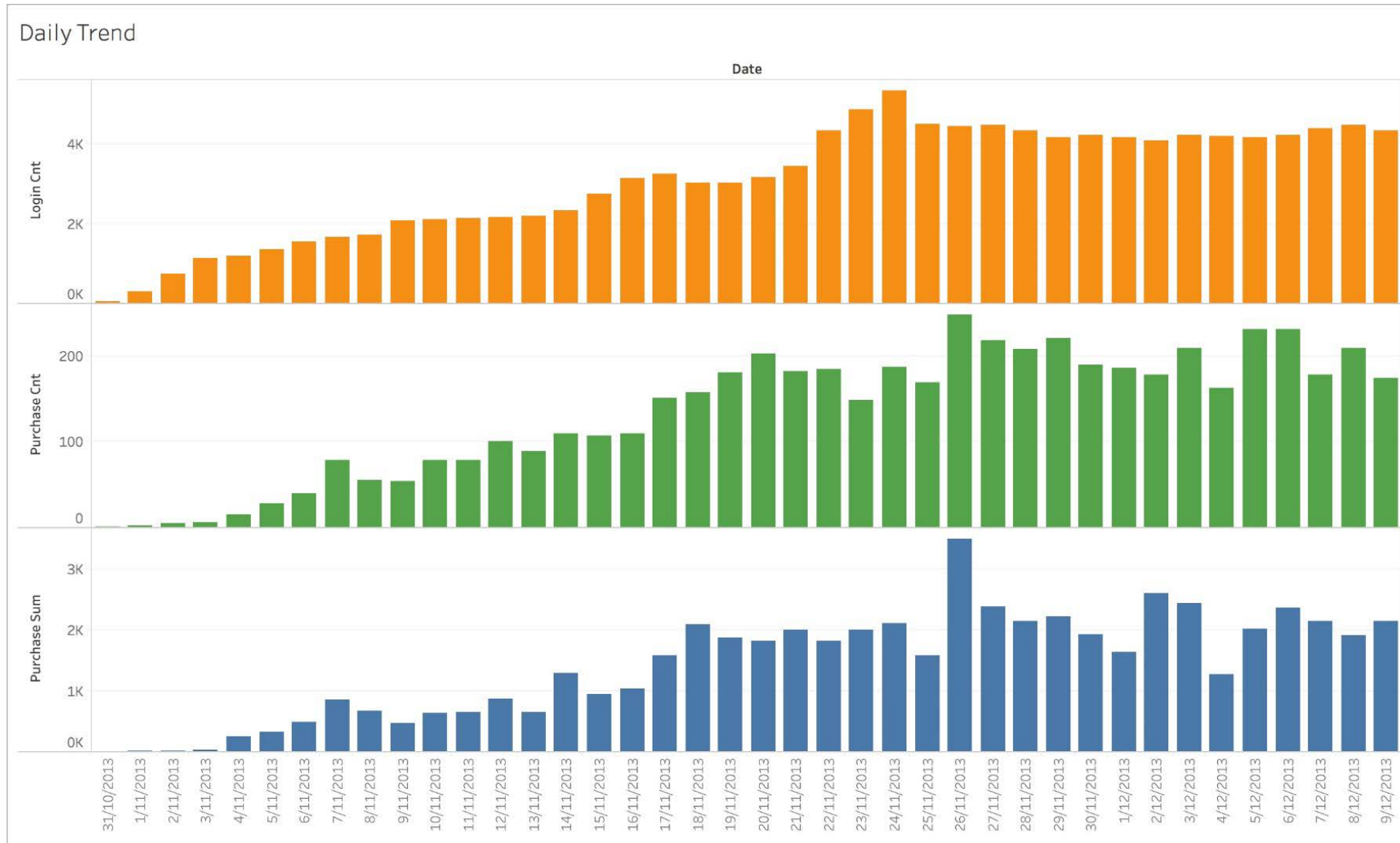
CDF Distribution



PDF Distribution

- We also try to understand the distribution of time duration between the register to first purchase. For this analysis, the CDF (Cumulative Distribution Function) and PDF (Probability Density Function) are plotted, which indicates some interesting insights. For example, for users with at least one purchase, around 80% of the first purchase happens within 10 days, 90% happens within 20 days. Around 35% of the users have same day purchase. We may use this data to guide our activation process, e.g. providing incentive to activate new user within the first 10 days.

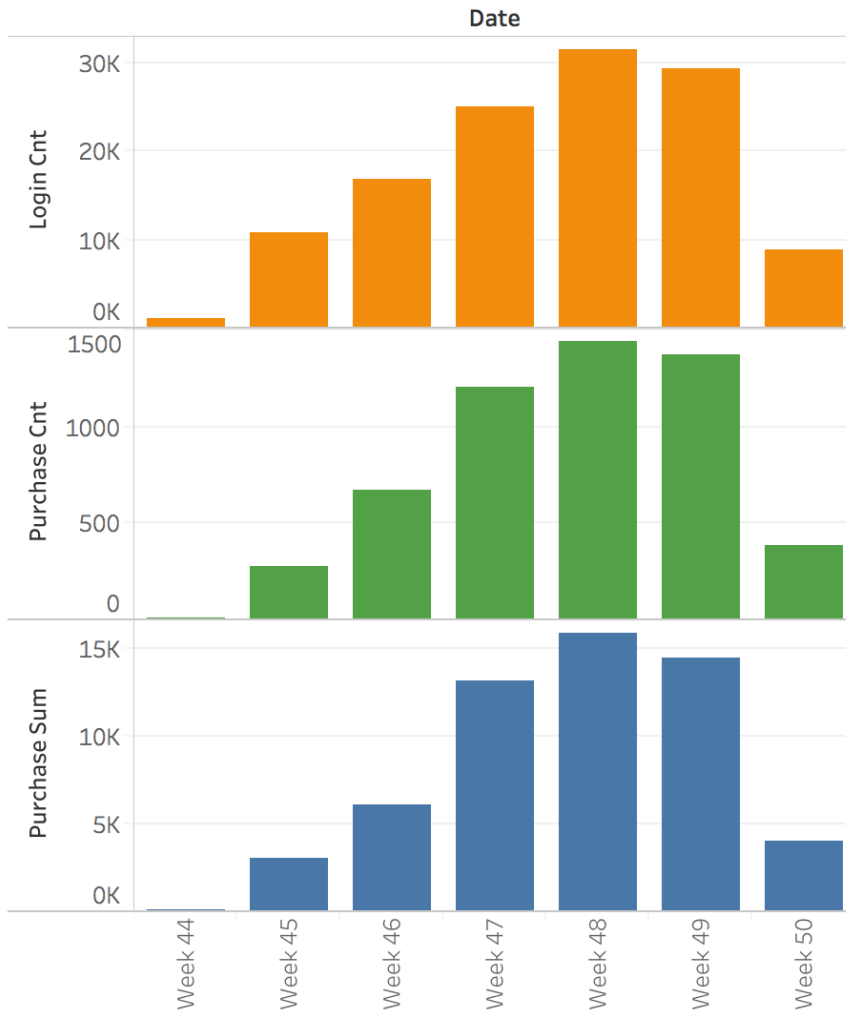
# Daily Trend Analysis



- All three indicators grow steadily from Nov to 24<sup>th</sup> Nov. after that, daily user login and transactions slowed down and reached plateau. Most worriedly, both transactions and GMV dropped on few days after 24<sup>th</sup> Nov.
- If the business is still in growth stage, a slow down signals weak engagement etc. a further study is required.

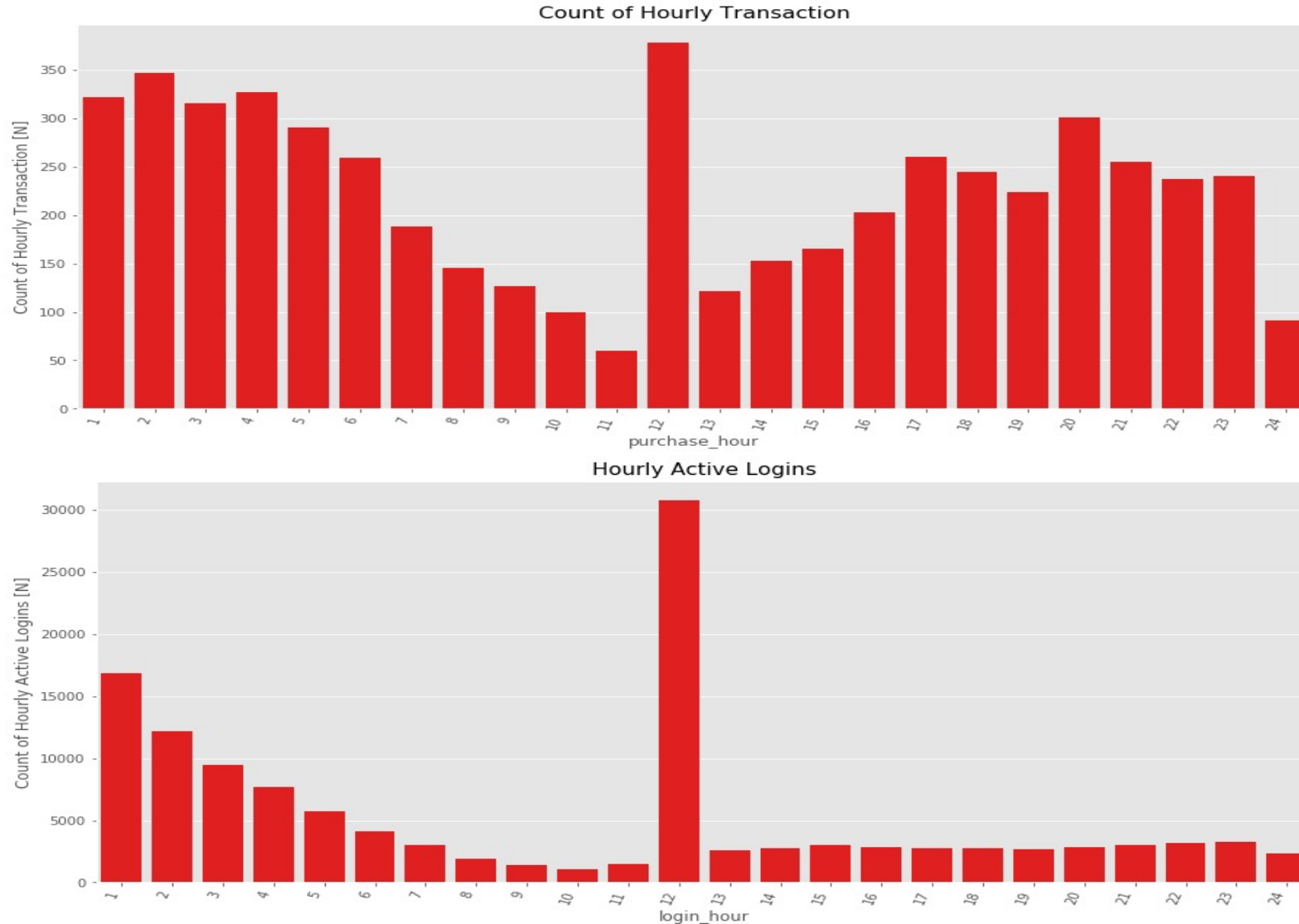
# Weekly Trend Analysis

Weekly Trend



- The weekly trend is also provided as to provide a monitoring and diagnosis of how the business is going.
- Compared to the daily trend, weekly trend is more smooth and noise robust.

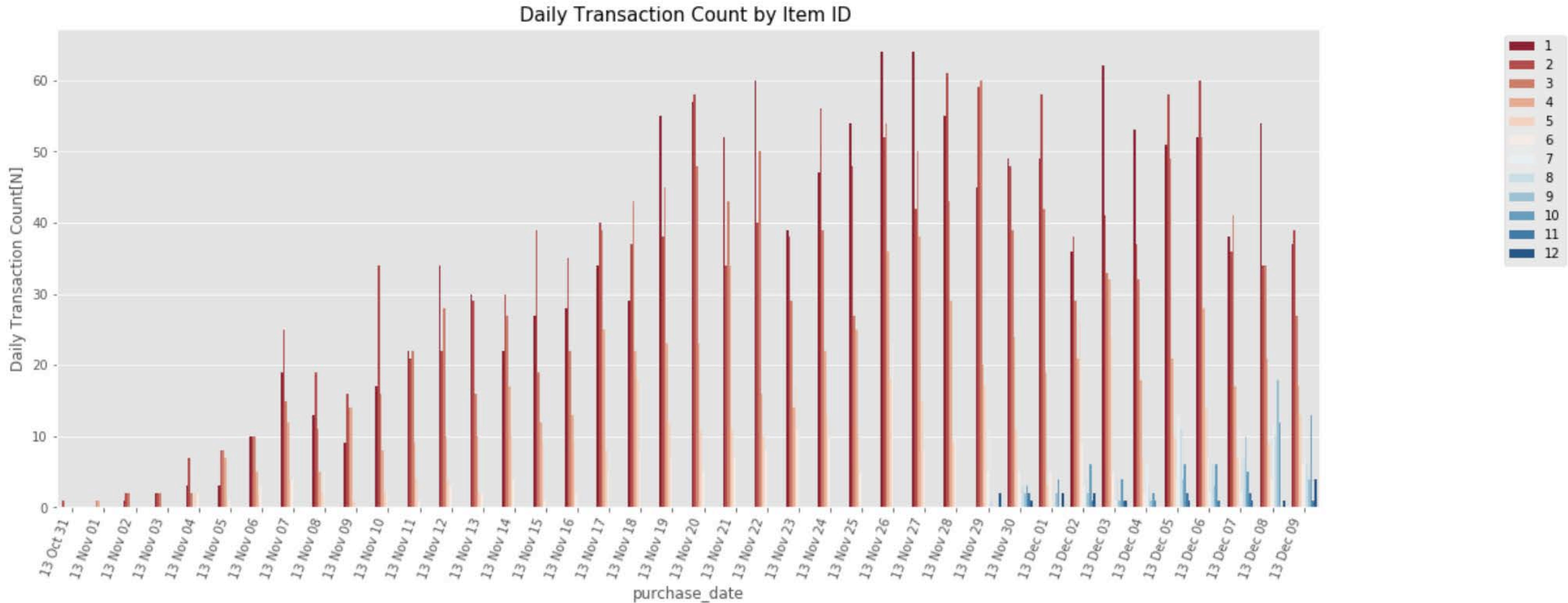
# Hourly Trend Analysis



- From the hourly login and transaction trend, we can identify the daily peak and off-peak periods when users come to the platform.
- The data can be used to guide on (1) deciding when we should use push notifications to engage users; (2) hours for system upgrade as to minimize the business impact.



# Daily Trend by Items



decreasing. A decision-making process might be required to determine if a particular SKU should be kept or discontinued. So the company can reduce inventory costs, simplify the procurement, and avoid cannibalization.

# FRM Analysis

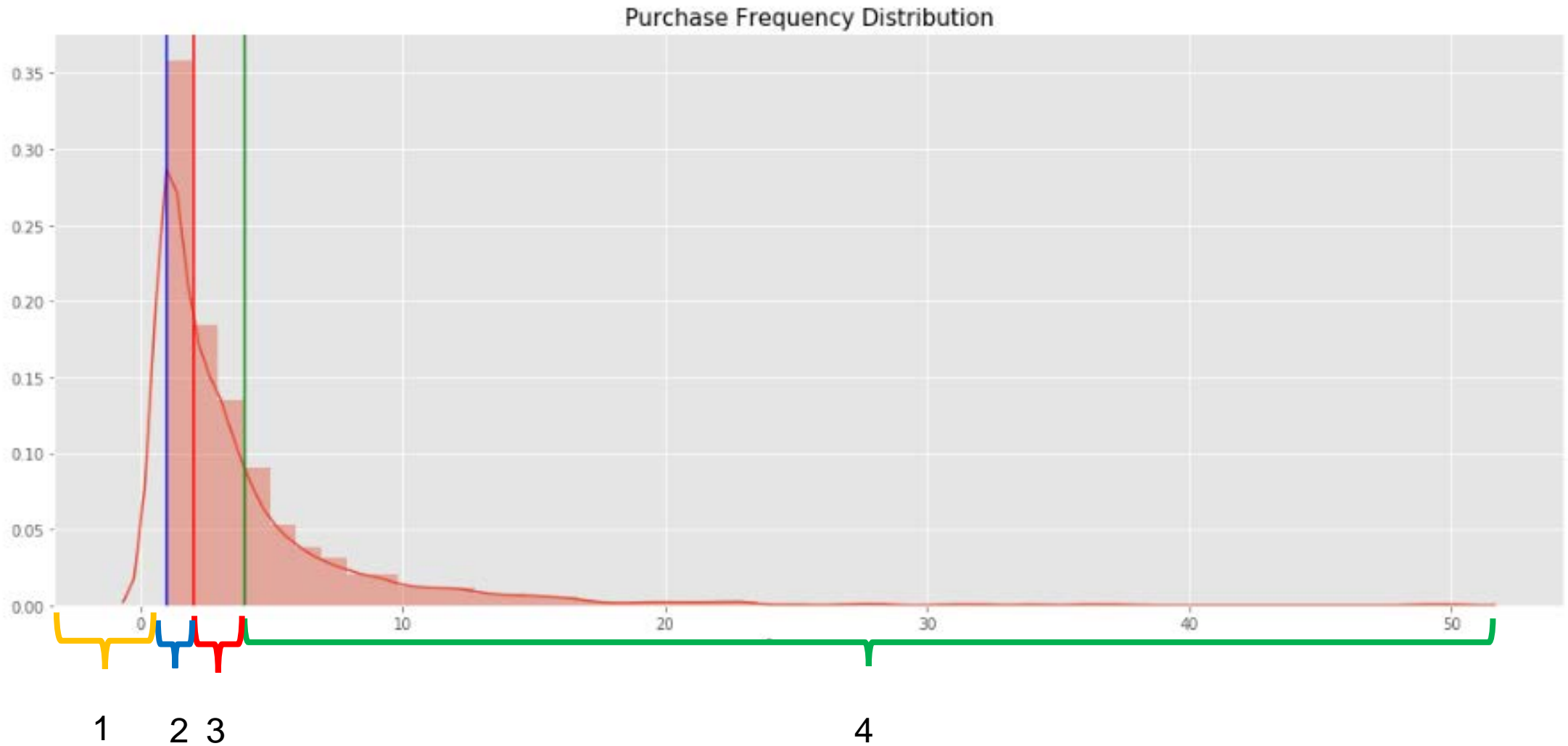
- What is FRM model?
  - FRM model segment customers based on customer purchase history data, so that company can adjust marketing/customer experience strategy accordingly.
- What FRM stands for?
  - Recency (R) - Days since last purchase
  - Frequency (F) - Total number of purchases
  - Monetary value (M) - Total merchandise value
- Benefits of RFM analysis
  - Increased customer retention e.g. higher incentive to retain champion customers.
  - Increased response rate e.g. different response level based on segments
  - Increased conversion rate e.g. adjust marketing strategy to move customers to champion segment.
  - Increased revenue

# FRM Model

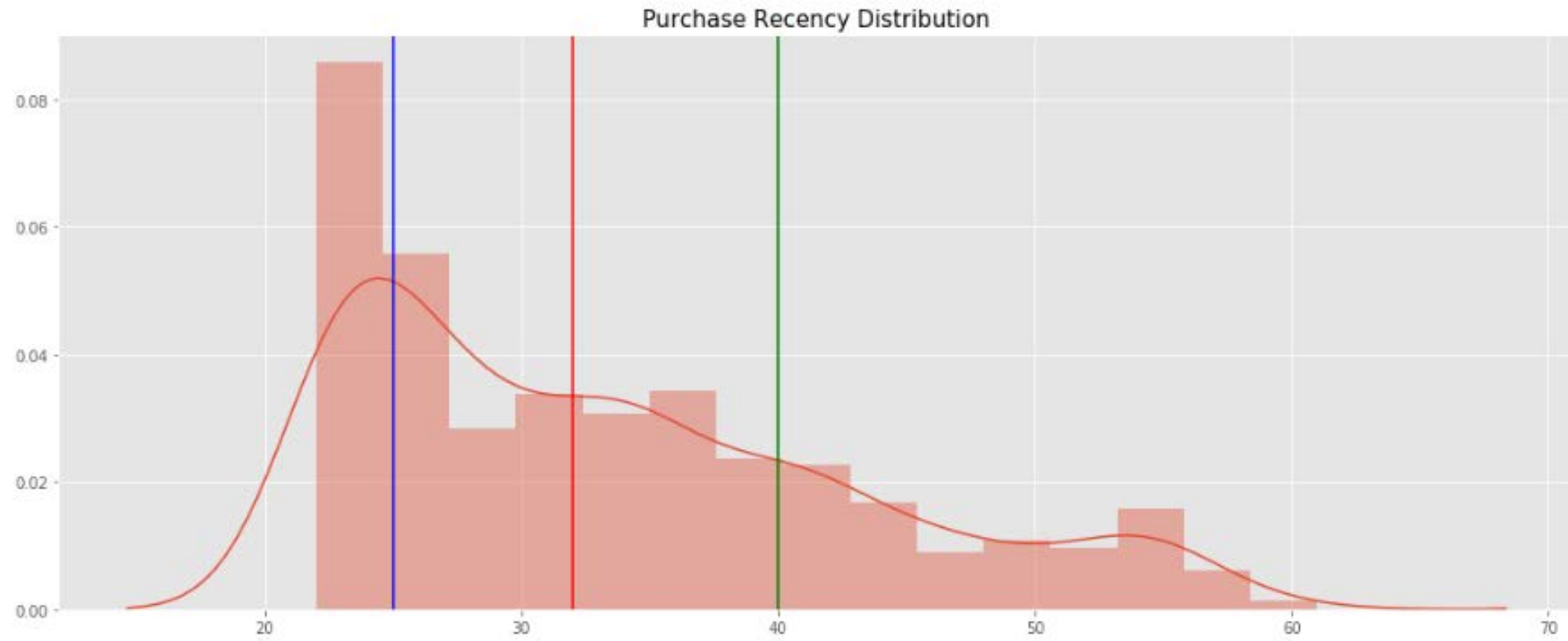
Percentile	Monetary(\$)	Recency(Days)	Frequency(Counts)
min	0.990000	22.000000	1.000000
25%	4.980000	25.000000	1.000000
50%	16.990000	32.000000	2.000000
75%	37.865000	40.000000	4.000000
max	1206.770000	61.000000	50.000000

- Divide each into 4 groups by percentile.
  - [below 25% percentile]
  - [from 25% to 50% percentile]
  - [from 50% to 75% percentile]
  - [above 75% percentile]
- On a scale from 1 to 4, 4 means best. E.g. if a user is in 444 segment, then the user purchased most recently(below 25% percentile), spent most(above 75% percentile), and purchased frequently(above 75% percentile)

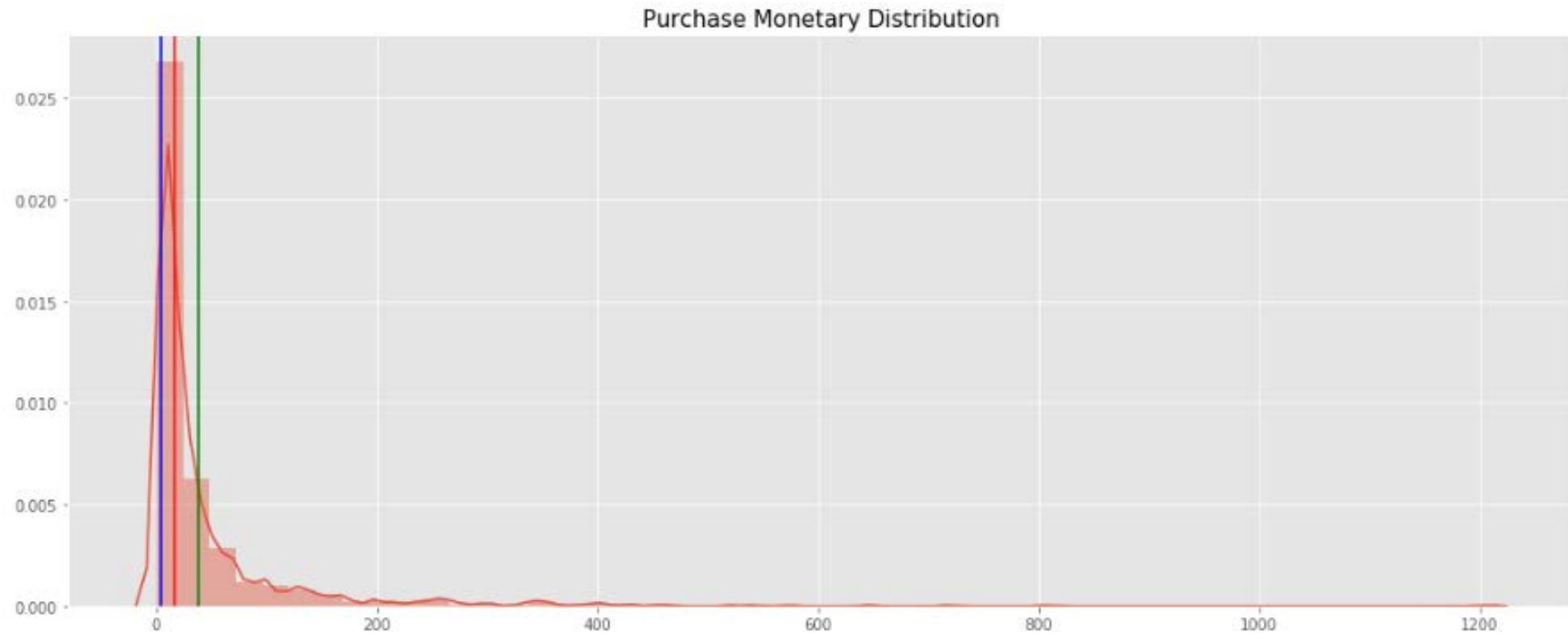
# FRM Analysis



# FRM Analysis



# FRM Analysis



# Key Segments

Segment	RFM	Description	Marketing Ideas for Discussion
Champions	444	Bought recently, buy often and spend the most	<ul style="list-style-type: none"><li>• Focus on user retention, such as better service, responsive customer support.</li><li>• No price incentives and promotions</li></ul>
Loyal Customers	X4X	Customers who bought most frequently	<ul style="list-style-type: none"><li>• Use R and M to further segment</li><li>• Further explore user behavior, such as if user is promotion-responsive</li></ul>
Big Spenders	XX4	Customers who spent the most	<ul style="list-style-type: none"><li>• Market more frequently and more expensive products</li><li>• Improve user engagement</li></ul>
Recent Customer	4XX	Customer who bought most recently	<ul style="list-style-type: none"><li>• Use F and M to further segment</li></ul>
Almost Lost	244	Haven't purchased for some time, but purchased frequently and spend the most	<ul style="list-style-type: none"><li>• Agressive incentives</li></ul>
Lost Customers	144	Haven't purchased for long time, but purchased frequently and spend the most	<ul style="list-style-type: none"><li>• Agressive incentives to re-activate</li></ul>
Lost Cheap Customers	111	Last purchase long ago, purchased few and spend little	<ul style="list-style-type: none"><li>• Don't spend too much trying to re-acquire</li></ul>

# Segments Overview

% User Recency vs Frequency

	1	2	3	4-High
1	12%	5%	4%	3%
2	7%	6%	5%	5%
3	9%	4%	5%	6%
4-High	7%	3%	7%	11%

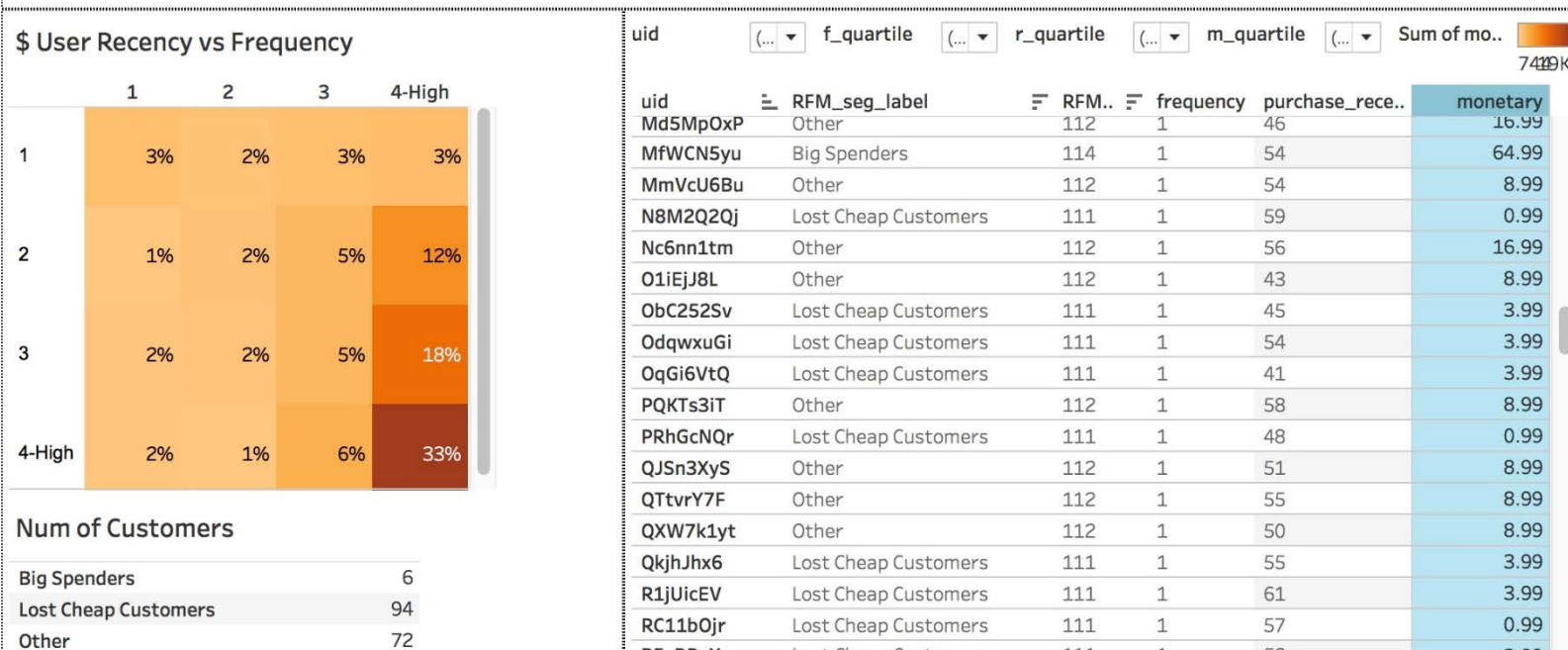
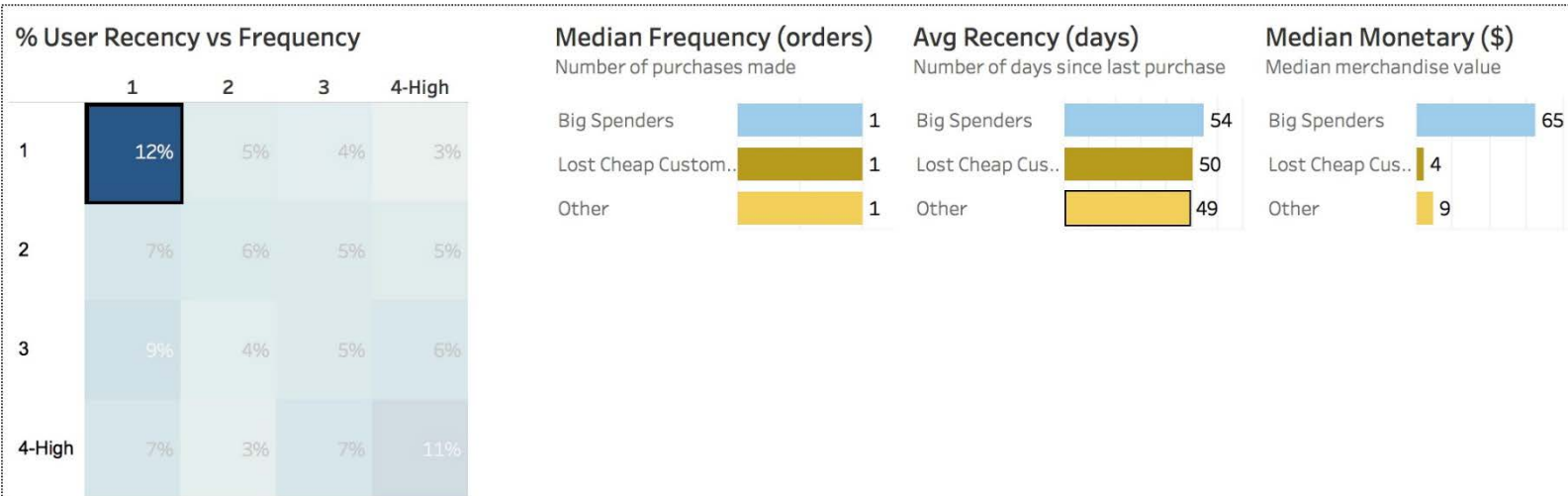
\$ User Recency vs Frequency

	1	2	3	4-High
1	3%	2%	3%	3%
2	1%	2%	5%	12%
3	2%	2%	5%	18%
4-High	2%	1%	6%	33%

- Majority users are in 44x and 11x segment. However, 11x does not contribute much revenue.
- 44X, 43X, and 42X collectively contributes 63% revenue.

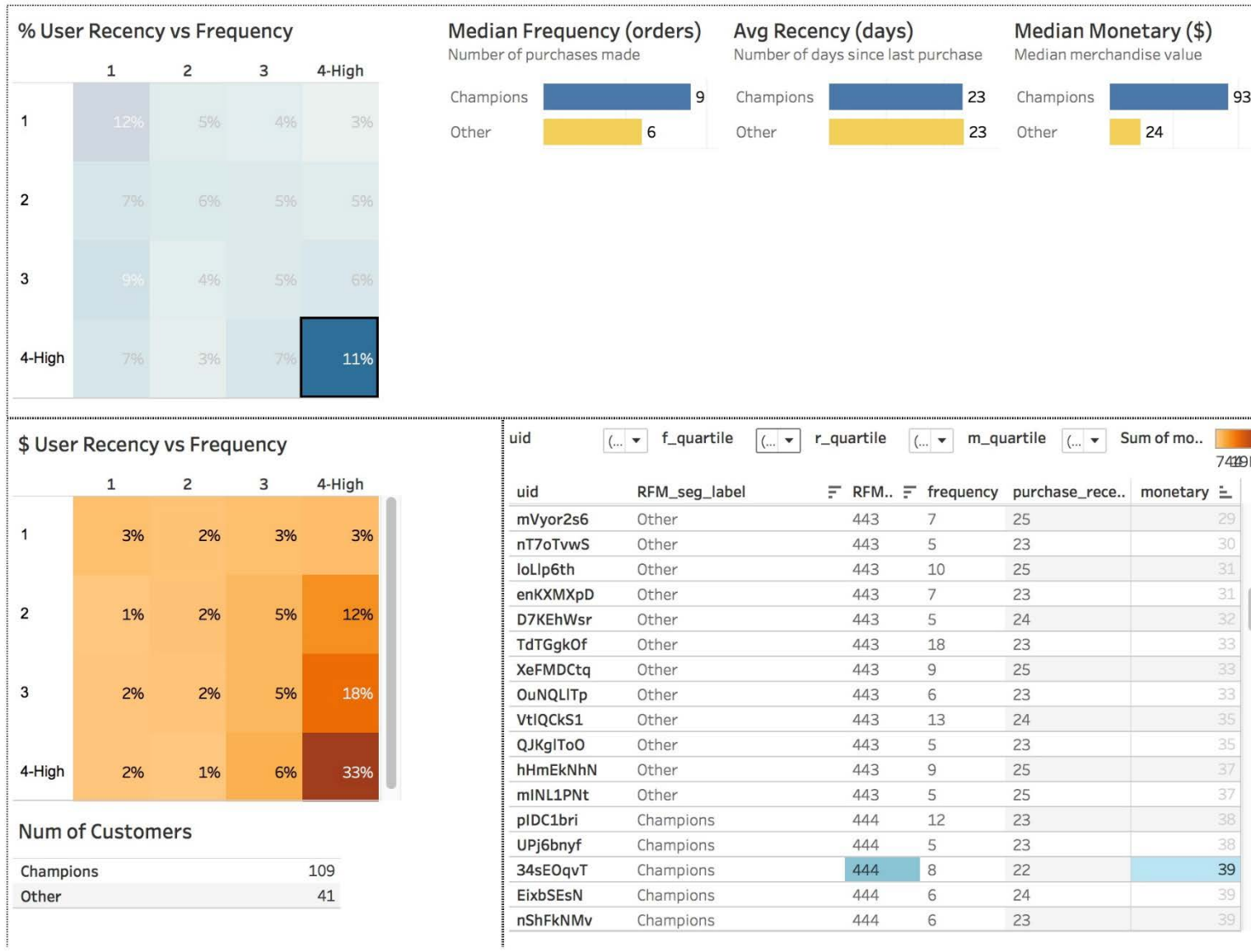


# Closer look into 11X



- 11X segment includes 172 customers: 6 big spenders, and 72 others, whose GMV is about 9 dollars.
- For **big spenders** in 11X, marketing strategy should focus on **engagement and retention**. They are likely to become champions once engagement is increased.
- For **others** in 11X, marketing strategy could focus on engagement and upsell by providing promotion incentive.
- For **lost cheap customers** in 11X, company could **stop re-acquisition** efforts.

# Retain and Convert 44X



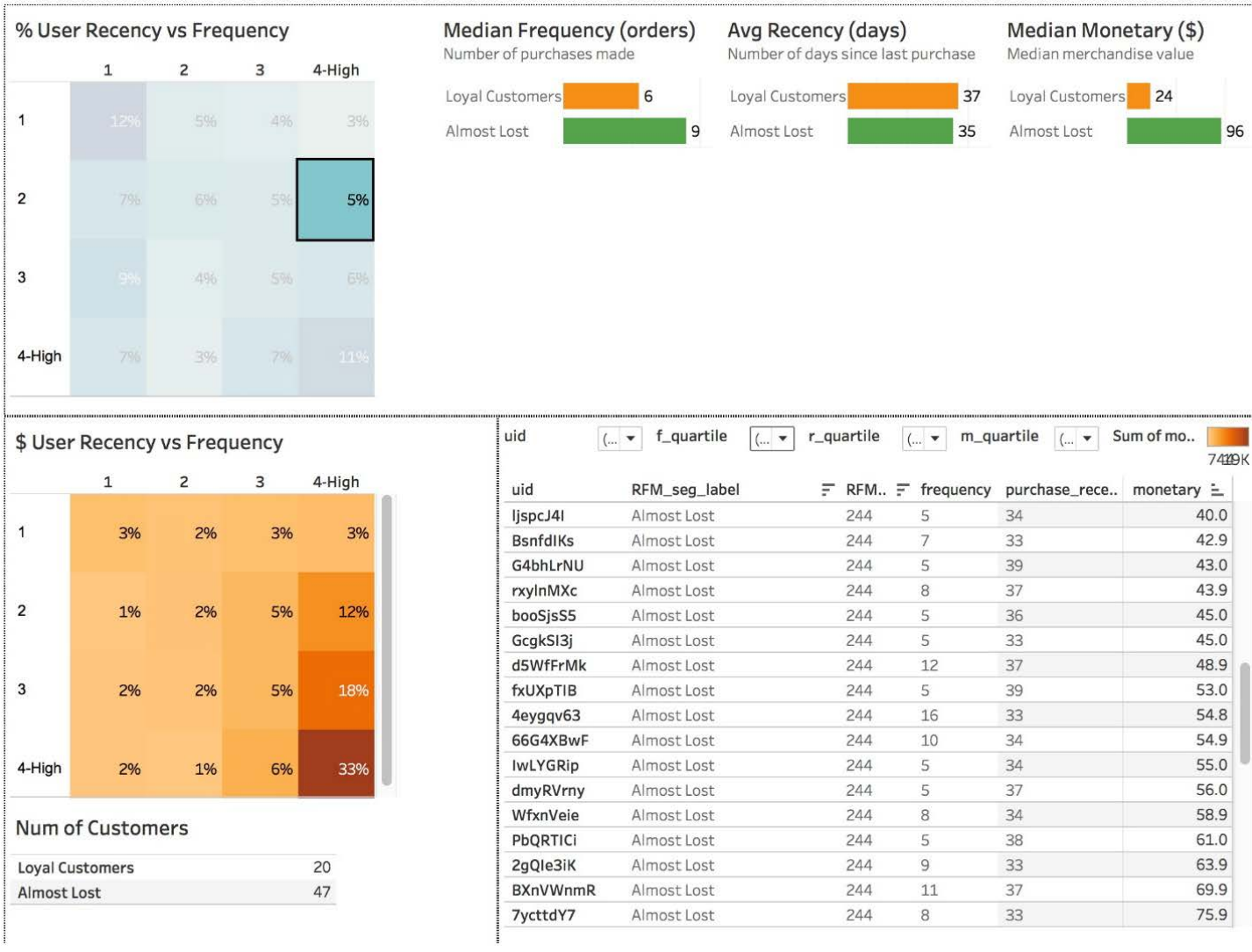
- 44X segment includes 150 customers: 109 champions, and 41 others, whose GMV is about 24 dollars.
- For **champions** in 44X, marketing strategy should focus on **retention and service excellence**.
- For **others** in 44X, marketing strategy could focus on **upsell** to convert them into champions by incentivizing them to **spend more**.

# 34X



- 34X segment includes 89 customers: 24 loyal customers, and 63 others, whose GMV is about 113 dollars even higher than champions.
- For **loyal customers** in 34X, marketing strategy should focus on **upsell** by incentivizing them to purchase more higher value products.
- For **others** in 34X, their GMV is even higher than champions, suggesting golden goose are not necessarily the one who purchased most recently.

# 24X



- 24X segment includes 5% of total customers but contributes 12% of total revenue. The segment includes 47 almost lost customers, whose GMV is even higher than champions
- For **loyal customers** in 24X, marketing strategy should focus on **upsell** by incentivizing them to purchase more higher value products.
- For **Almost Lost** in 24X, their GMV is even higher than champions, though recency is not a good gauge of valuable customer, but low recency could suggest low engagement. Marketing strategy could focus more on retention for this group.

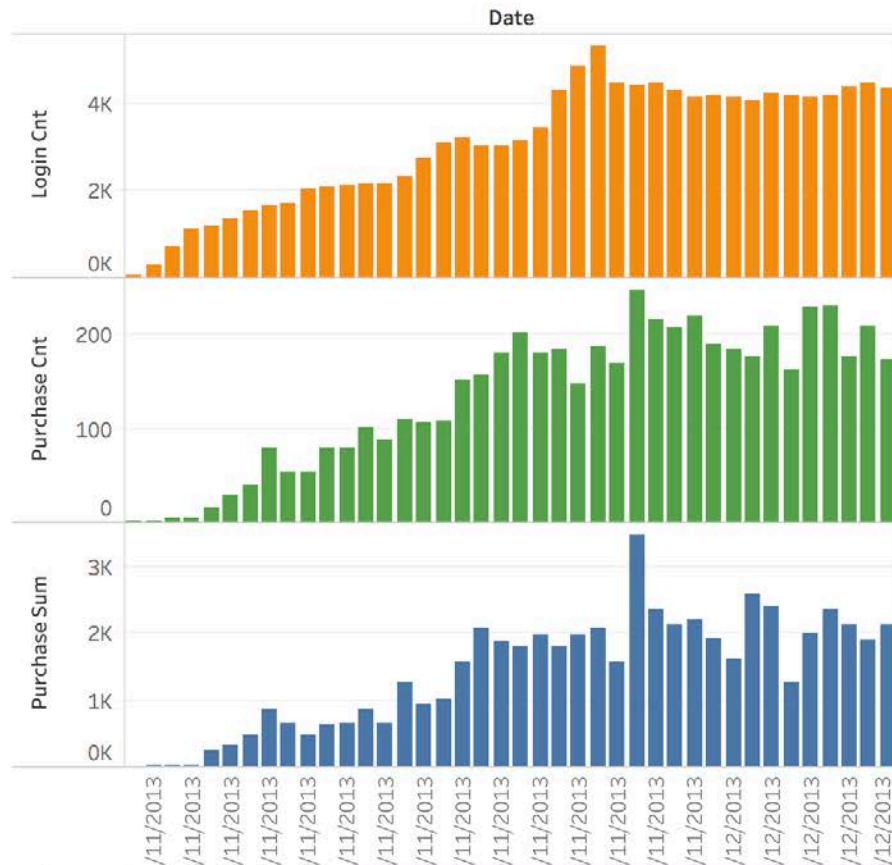


# Appendix 1: Tableau BA Board

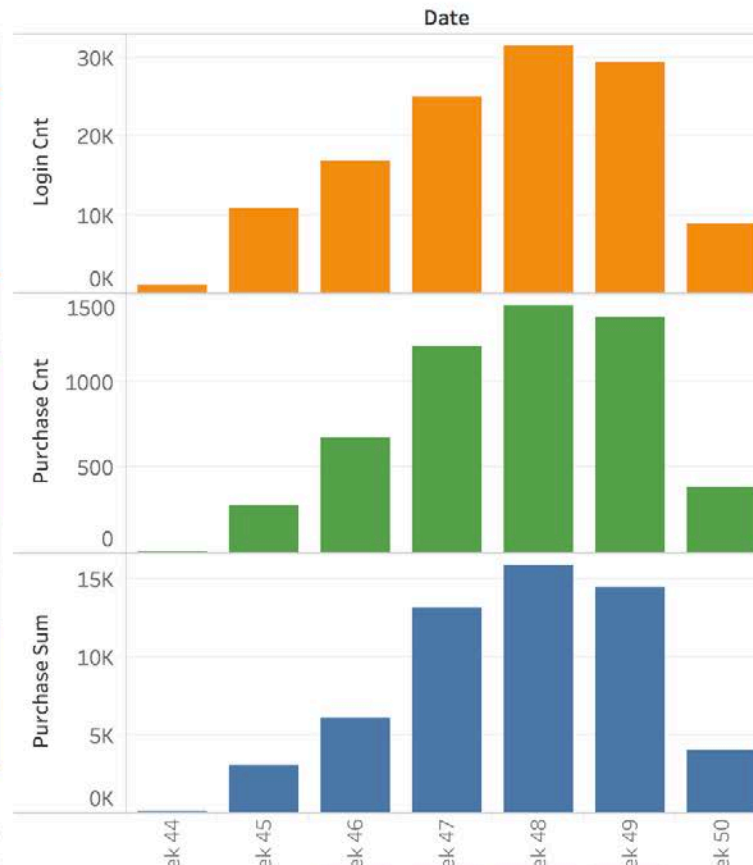
Tableau Dashboard



Daily Trend

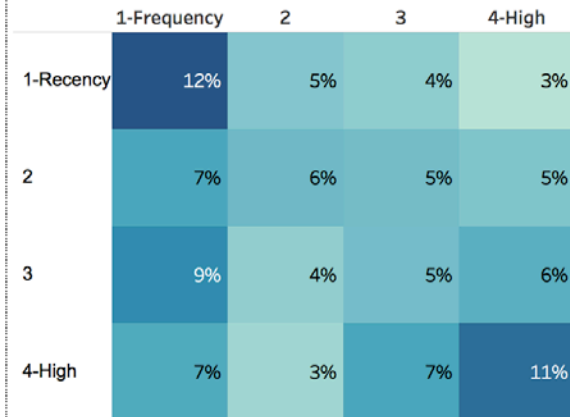


Weekly Trend



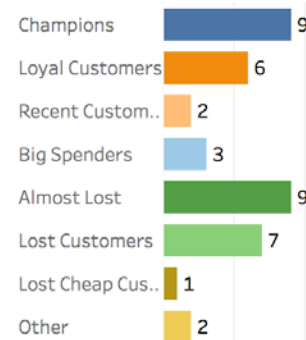
# Appendix 2: Tableau BA Board

% User Recency vs Frequency



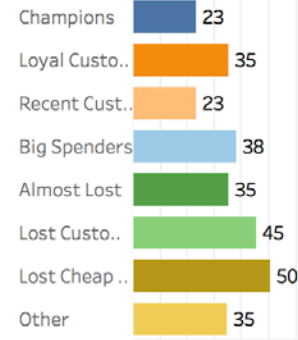
Median Frequency (orders)

Number of purchases made



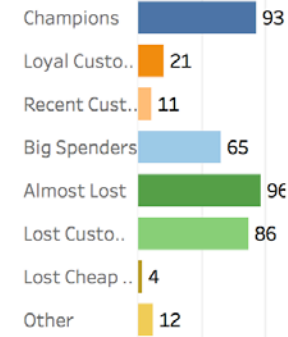
Avg Recency (days)

Number of days since last purchase

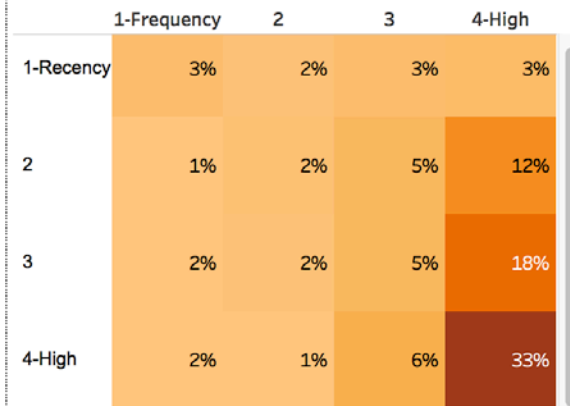


Median Monetary (\$)

Median merchandise value



\$ User Recency vs Frequency



Num of Customers

Champions	109
Loyal Customers	66
Recent Customer	209

uid	f_quartile	r_quartile	m_quartile	Sum of mo..	Action (f_q..
uid	RFM_seg_label	RFM..	frequency	purchase_rece..	monetary
PpGgLJE1	Champions	444	23	25	1,207
3TjeDsPB	Champions	444	22	23	808
yPcyLTSx	Other	344	12	32	720
XPgqovsB	Champions	444	13	22	647
SKG8MWjo	Almost Lost	244	13	33	575
QCvoEsNb	Other	344	12	29	543
TmRBYmfP	Champions	444	25	23	523
YSoWfG7t	Champions	444	9	24	465
eCbDGEQD	Almost Lost	244	15	35	455
E23WEELi	Champions	444	8	25	430
v8meEwWT	Champions	444	11	22	430
PFLijYot	Champions	444	36	25	409
GTQNIIRs	Champions	444	10	24	404
m1WTNLSb	Other	344	9	28	399
82vgMSV6	Champions	444	14	22	398
FKuGYTwE	Champions	444	9	22	387
KnV2FYtf	Almost Lost	244	9	35	369