Instacart Case Study

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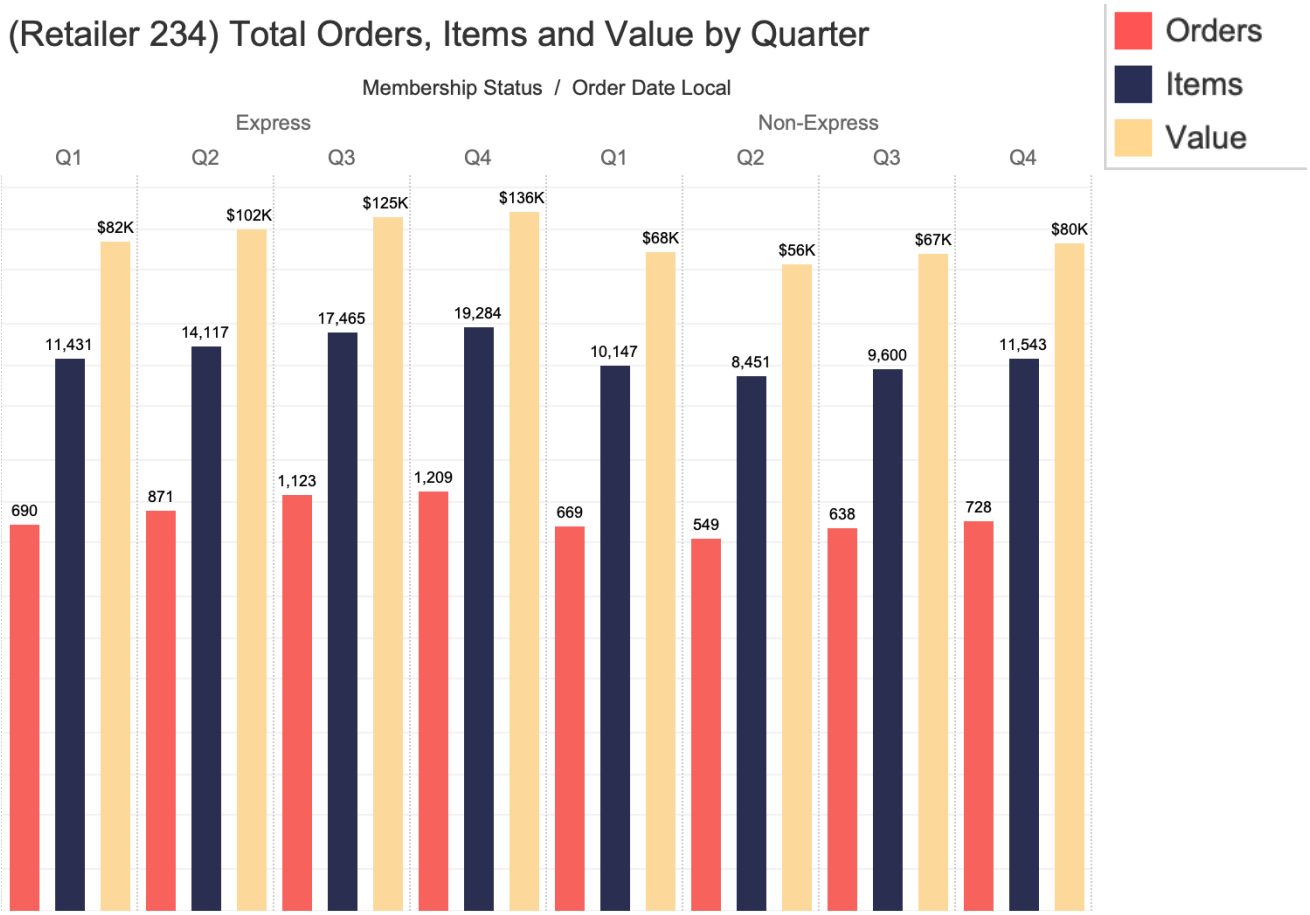
SMART Goal: Improve retailer 234's business and drive growth; the goal will be realised by improving fulfilment and speeding up deliver, as well as better user engagement

Data quality:
- Data range: 2006/01/01 - 2006/12/31
- Data Size: 22,519 rows * 12 columns after cleaning
- Data Cleaning: removed 10 rows with delivery date < order date, 6 rows that are cancelled order with minor charges

Revenue Analysis

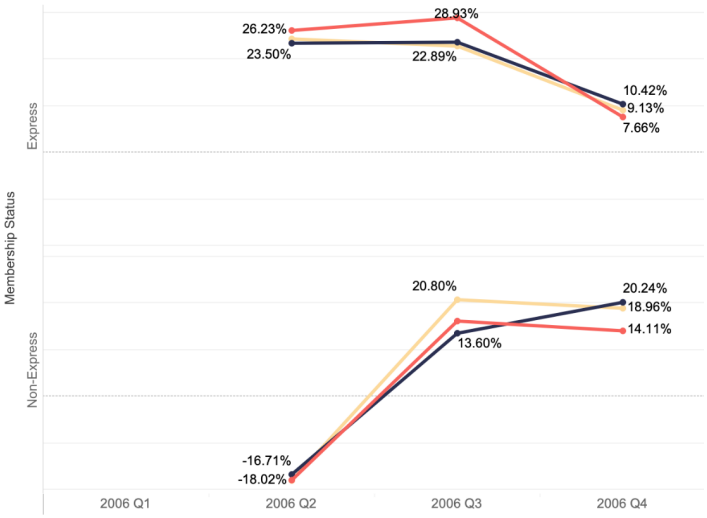
Revenue = Orders * Average Value Per Order

Metrics in this chapter:
- Total orders, items and value for 234 broken down by membership status
- Growth rate for orders, items and value, broken down by membership status, retailer 234 and all retailers
- Average items and value per order, broken down by membership status, retailer 234 and all retailers

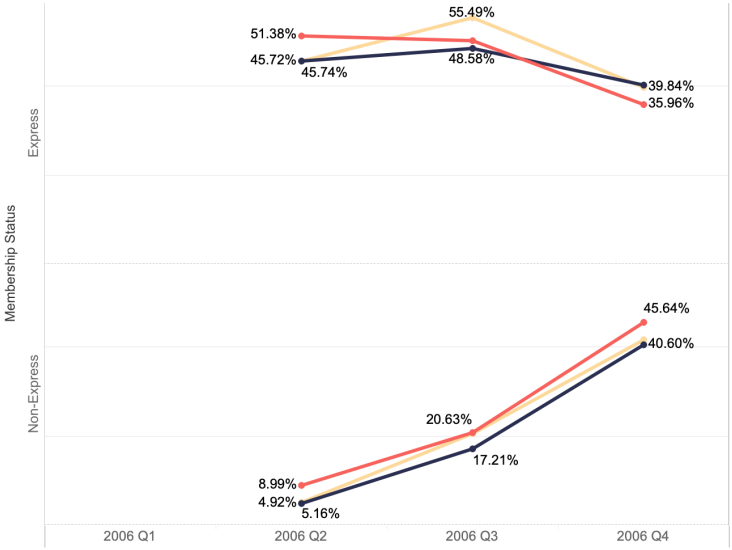


The first topic and most important topic we will cover is revenue.

(Retailer 234) Growth Rate For Orders, Items & Value



(All Retailers) Growth Rate For Total Orders, Items & Value

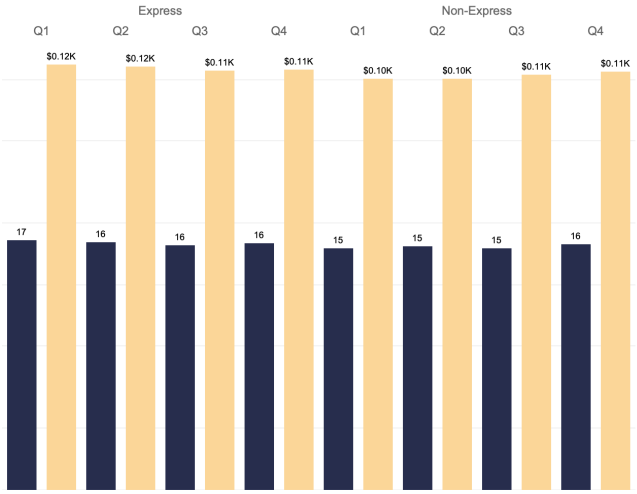


Overall we are seeing an increase of orders, items and revenue for both express and non-express users. The orders and values from express users are obviously higher. However, when we compare the growth rate with the market level, we will see a significant gap.

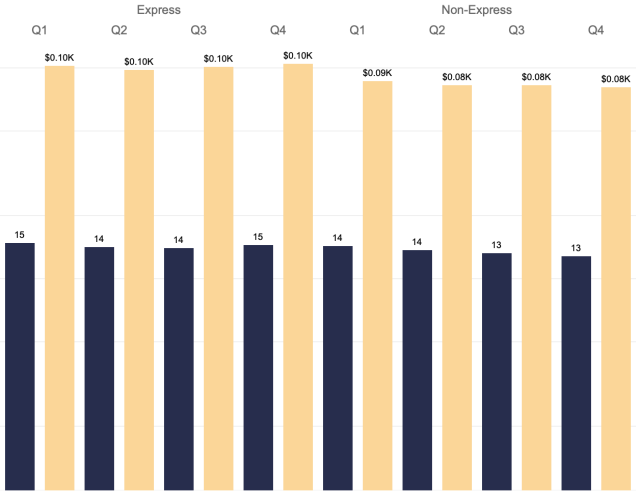
For most of the quarters, all growth rate of 234 are lower than the market level by 20%. Especially for quarter 2's non express users, we even saw a decline. We also notice Q3 is a peak growth season.

To understand why we have lower revenue growth, there are 2 factors we need to consider - orders and average order value. We already know the order growth is much lower. So we want to check, if it's the same case with average order value.

(Retailer 234) Average Items and Value Per Order



(All Retailers) Average Items and Value Per Order



Surprisingly and impressively, 234 is actually showing a slight advantage in average order value, for both express and non-express users. Therefore, the crucial problem that we will focus on, is why our order growth is much lower.

Similarly, we also have 2 factors for orders, average order per user, and user growth. We want to check on both factors, and understand which leads to the problem. For average order per user, we see the same phenomena, for both express and non-express users, 234 is having a minor advantage.

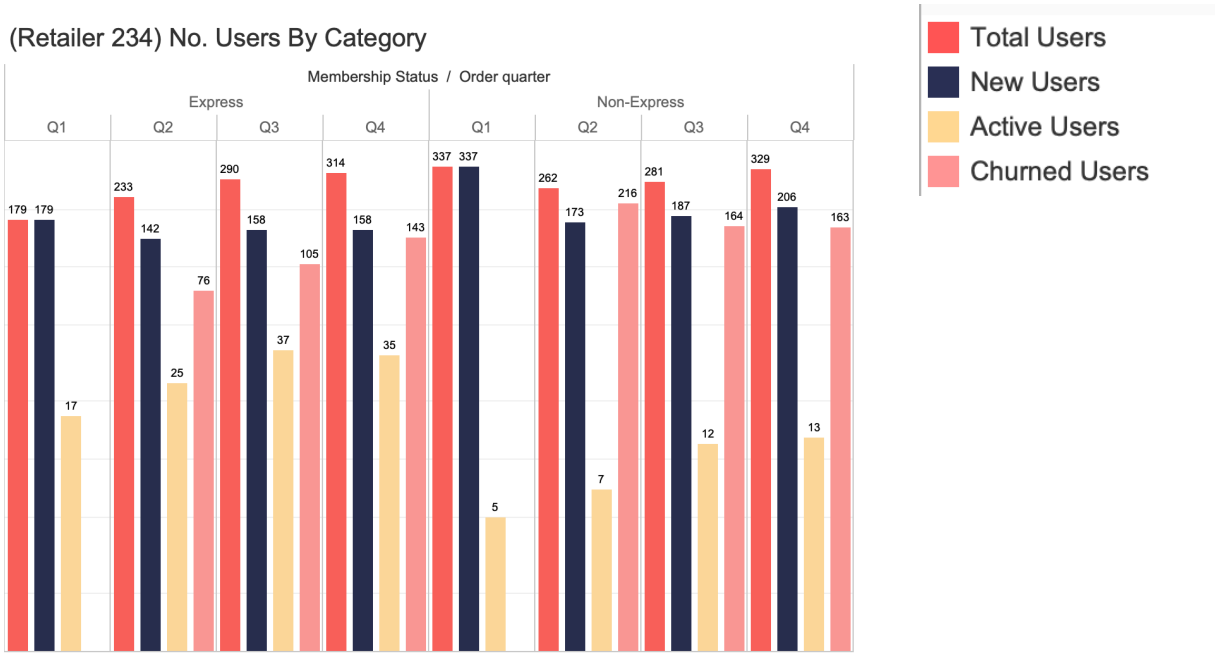
User Analysis

Orders = Users * Average Orders Per User

Metrics in this chapter:

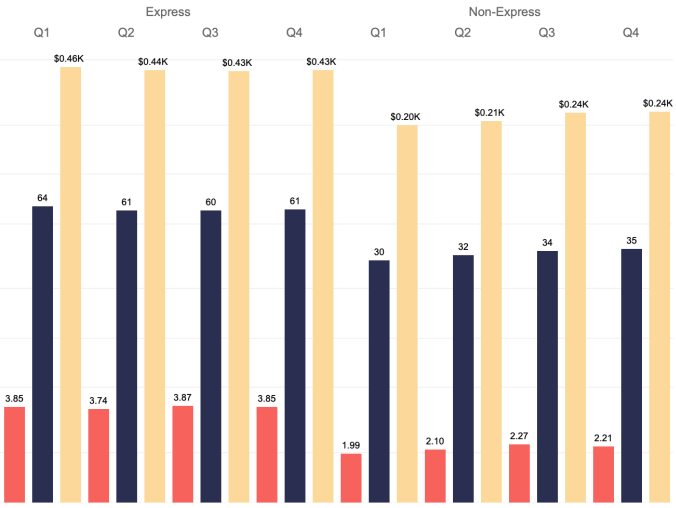
- Total users/new users/active users/churned users of retailers 234, broken down by membership status
- Average orders, items, value per user for the 4 user categories, broken down by membership status, retailer 234 and all retailers
- User growth rates for the 4 user categories, broken down by membership status, retailer 234 and all retailers

(Retailer 234) No. Users By Category

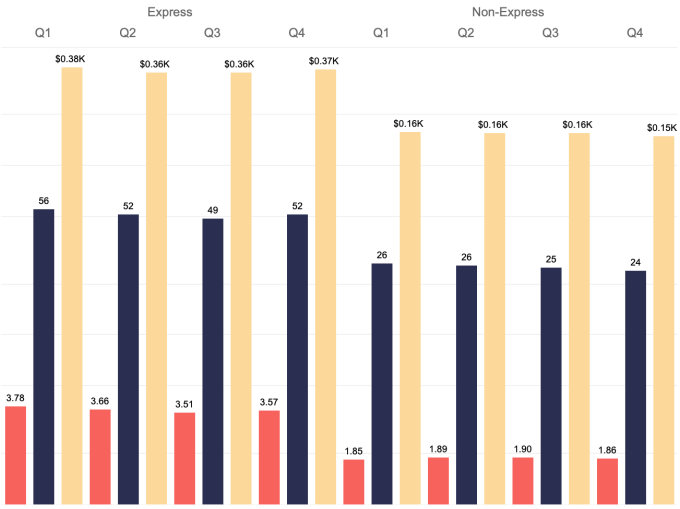


Therefore we will move on to the other factor, user growth, which has been broken down by new users, active, churned user and total users. Active user here is defined as user who make more than 1 order per month. Churned user is defined as user who didn't purchase for a quarter.

(Retailer 234) Average Orders, Items and Value Per Customer



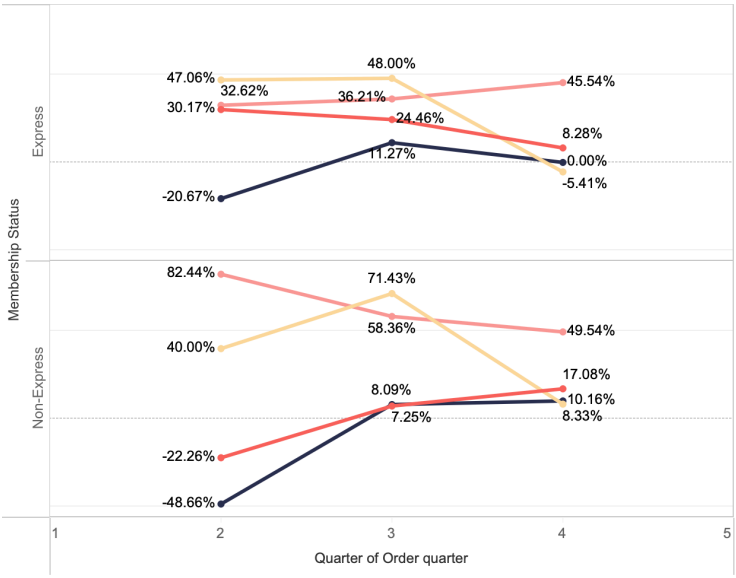
(All Retailers) Average Orders, Items and Value Per Customer



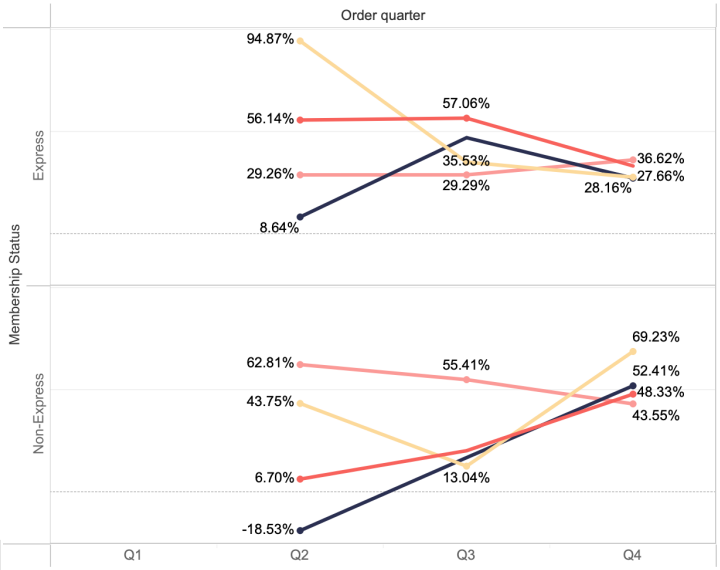
As we can see from the line charts. For both express and non-express users, 234 is having a lower active user growth and higher churn rate. The new user growth for express is also lower.
So the problems and goals we will focus on become:

- Increase new express user and active user
- Reduce churned customer

(Retailer 234) User Growth & Churn Rate



(All Retailers) User Growth & Churn Rate



To understand the reason for lower growth and higher churn, there are multiple factors we can consider, such as price, user experience, marketing communication, and the most important factors for grocery delivery - fulfilment and deliver speed. Given the importance of these 2 factors, and the availability of data, we will deep dive into how improving fulfilment and delivery can drive revenue growth. This will be our highest priority and first hypothesis.

	Express	Non-express
New	Lower ↓	—
Active	Lower ↓	Lower ↓
-Churn	Higher ↓	Higher ↓
Total	Lower ↓	Lower ↓

Performance Analysis

Factors: fulfilment, deliver speed

Metrics for this chapter:

- Order Fulfilment Rate, which means how many orders are delivered instead of cancelled; broken down by membership status, retailer 234 and all retailers,
- Items' fulfilment rate, which means how many items ordered by users are successfully delivered; broken down by membership status, retailer 234 and all retailers
- Deliver Time; broken down by membership status, retailer 234 and all retailers

234 Order Fulfillment % Items' Fulfillment %

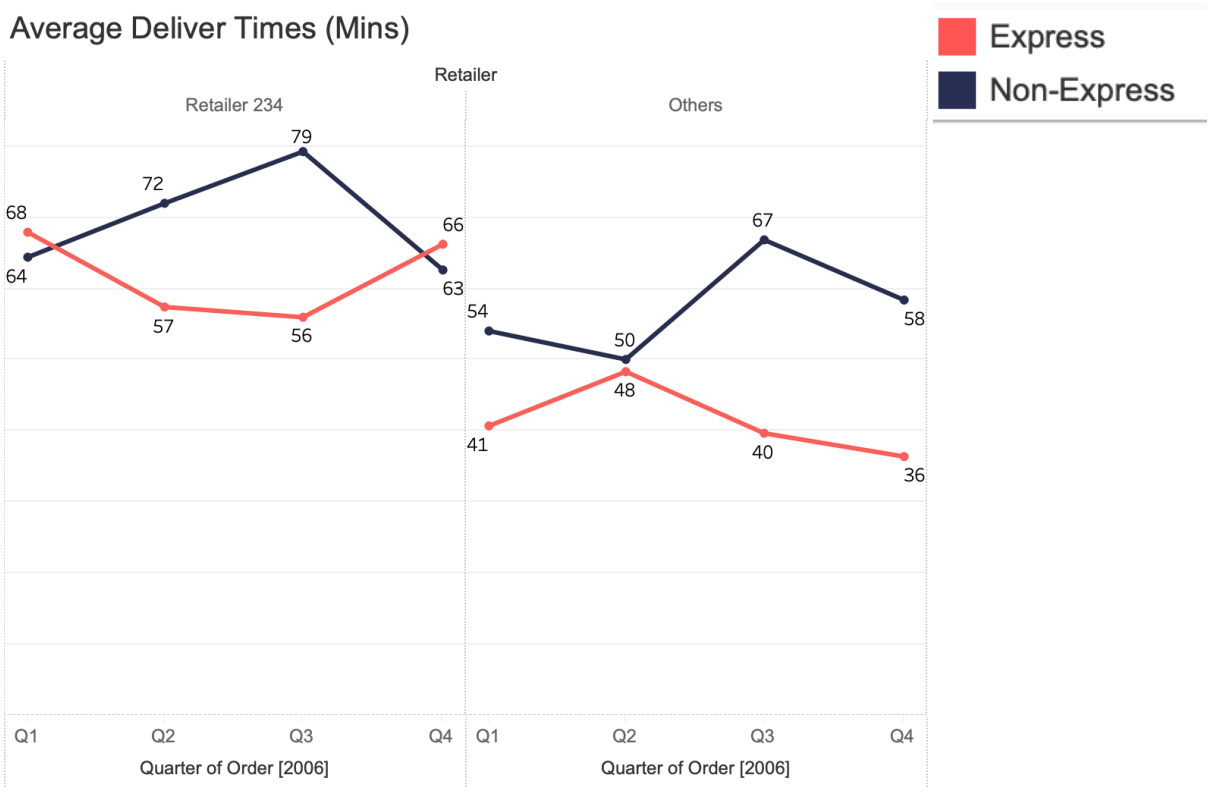
Quarter	Express	Non-express	Express	Non-express
Q1	100.00%	96.41%	98.49%	95.79%
Q2	100.00%	94.35%	98.25%	94.60%
Q3	100.00%	94.98%	97.90%	93.99%
Q4	100.00%	94.64%	97.62%	97.68%

Others Order Fulfillment % Items' Fulfillment %

Quarter	Express	Non-express	Express	Non-express
Q1	100.00%	94.68%	97.69%	93.25%
Q2	100.00%	92.73%	97.37%	92.11%
Q3	99.97%	91.80%	97.42%	90.97%
Q4	100.00%	91.57%	97.10%	96.16%

The comparisons illustrate that, 234's both fulfilment rates are higher than market average. For both 234 and the market, the fulfilment rates for non-express users are comparatively lower. We can also identify that Q3 is a challenging quarter for both 234 and the market. A possible reason for that is, as we see from previous revenue analysis, Q3 has the most growth for orders and items. However, the operational capacity, such as available shoppers, might not be increased at the same level in Q3.

As we confirm 234 are not having lower fulfilment rates, we will look at the other important factor - deliver time. From the line charts, we can conclude that for both non-express and express members', 234 is having a much longer deliver time. For non-express users, 234's delivery is slower by 8-22 minutes; for express users, 234's delivery is slower by 9-30 minutes. This gap is very significant and will be our first priority to work on.

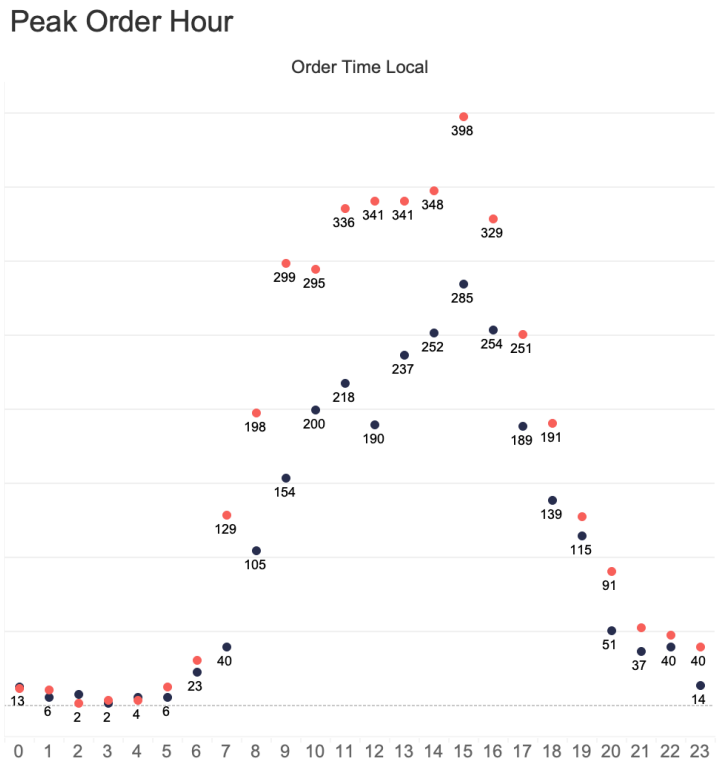


Here are our suggestion on reducing deliver time, and improving fulfilment, following the business process:

1. Order: Optimise note & Instruction Feature: e.g., add more keywords
2. Pick & Pack:
   (1) Optimise Inventory Management, including:
   - **Better placement and restock for commonly purchased items, this would help our shopper to find items much more quickly**
   - Forecast peak season and hour and arrange stock accordingly

   (2) Recommending Substitute Items to user, especially for non-express user whose fulfilment rate is lower. This would help increase the fulfilment rates.
3. **Delivery Optimisation** - with prediction on order volume, weather, traffic:

- Shopper Assignment shift schedule, distance, performance, so we can reduce situations such as users waiting long for assigning shoppers, or Instacart can't find available shopper
- Better route and space design, so shopper can deliver from retailer to user more efficiently
- Better Quality Control on perishable goods



After working on the highest priority and test on the first hypothesis - delivery, the next focus is user engagement. We will aiming at reducing churn users and increasing active users next, then move on to increase new express users.

Here are our suggestion on user engagement following priority and AARRR model:

Revenue (As mentioned)

1. Fast Delivery
2. Order & Items Fulfilment

After that, we will focus on the second hypothesis, better retention and referral methods can lower the churn rate and deliver higher revenue growth.

Retention & Referral

1. **Reward & loyalty program,** including both promotional and referral programs that can effectively keep users
2. Email/text, In-app message and push notification about:

- Follow up on high recency

- Price-drop alerts
- Post-transaction survey

These can help prevent users from churning, and understand why customers churn.

3. Improve User Experience from shopper
4. Services: Order ahead & Carrot pick up
5. Optimise Category Management

After reducing the user churn rate, our last step will be increasing new express users. While increasing new express users, we can consider 2 methods: either directly acquire new express users, or convert our existing non-express users into express users.

Activation

1. **Trial/New User Promotion for express** - this mainly targets on converting non-express users into express users
2. Email/text, In-app message and push notification about:

- Sign up follow with welcome message
- Cart Abandonment

For most apps, 80% new users churn after first 7 days, so we need to reduce the loss of users during this period, by reducing the time period between download/sign up and first purchase.

3. Optimise storefront
4. Recommending algorithm

3 & 4 attract and encourage new users especially express users to purchase more at 234

Acquisition

1. **Carrots Ads:**

- highlight brands' key differentiators
- optimisation tools such as bidding
- private label penetration

2. In-app SEO, e.g., recommending by distance and time
3. Social Media Marketing

All these methods aim at increasing the clicking and viewing for retailer 234 from new express users.

In order to test whether these hypothesises are feasible and effective, it's suggested to conduct experiments especially A/B testing. After that we can collect data and analyse the effectiveness, and ROI of the suggested methods. With such analysis, we will finally figure out and decide on which methods will drive business growth the most.