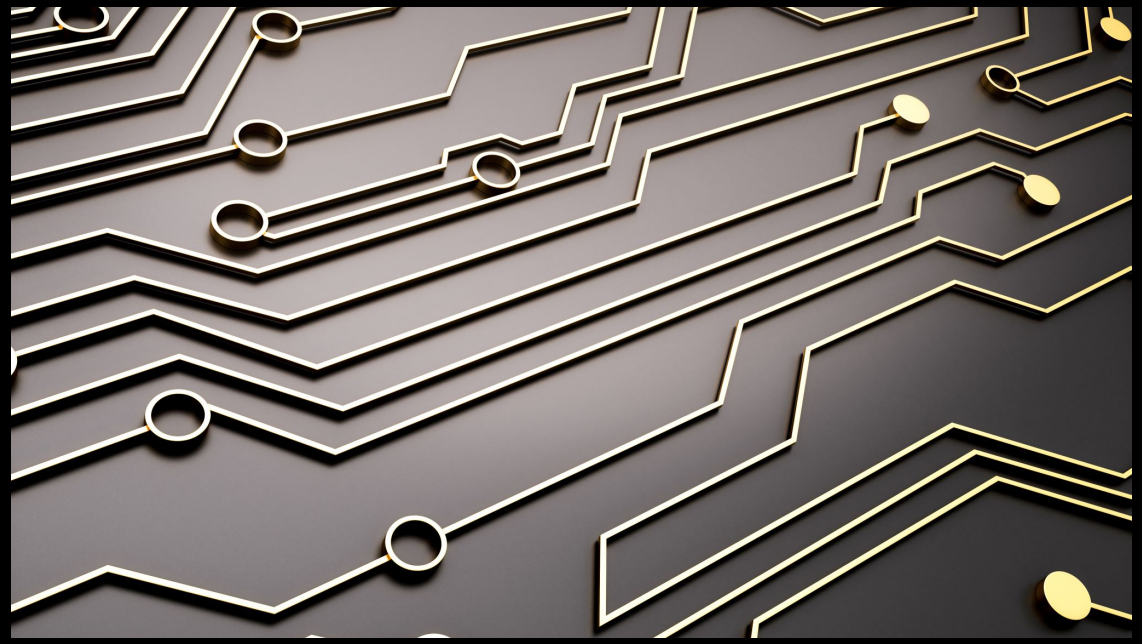


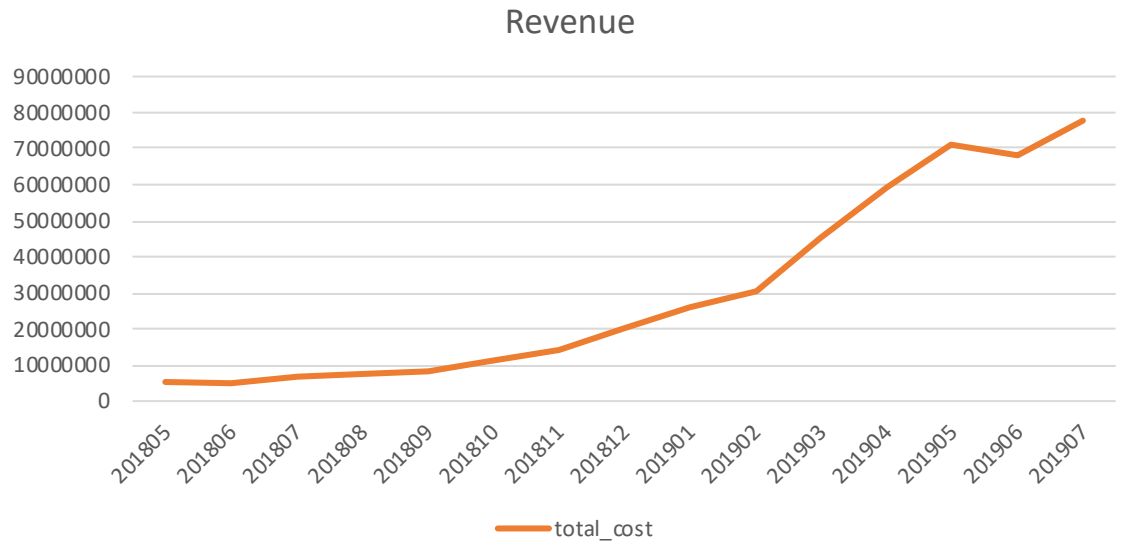
# milkbasket: Trend analysis and recommendations to improve business metrics

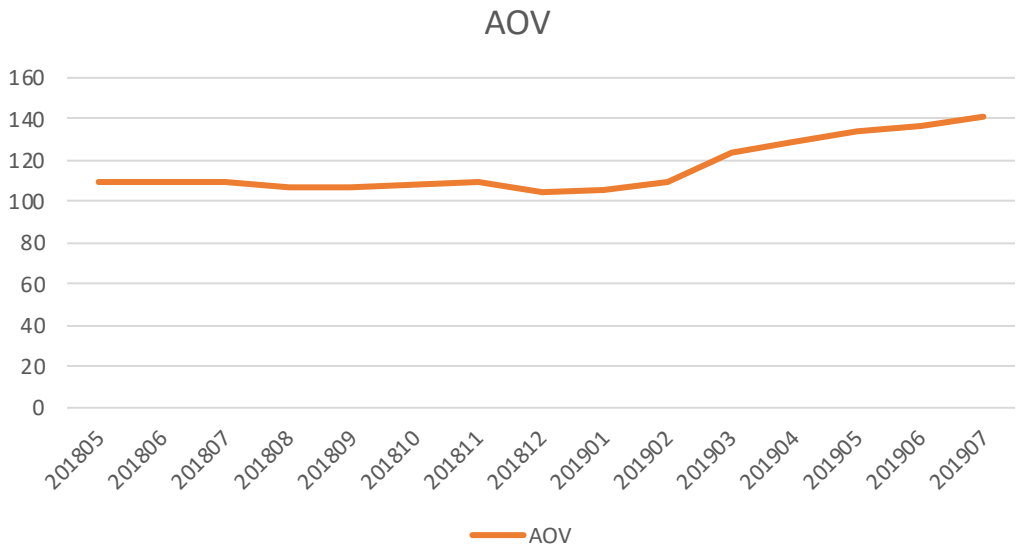
**Submitted by: Team T_WIN**

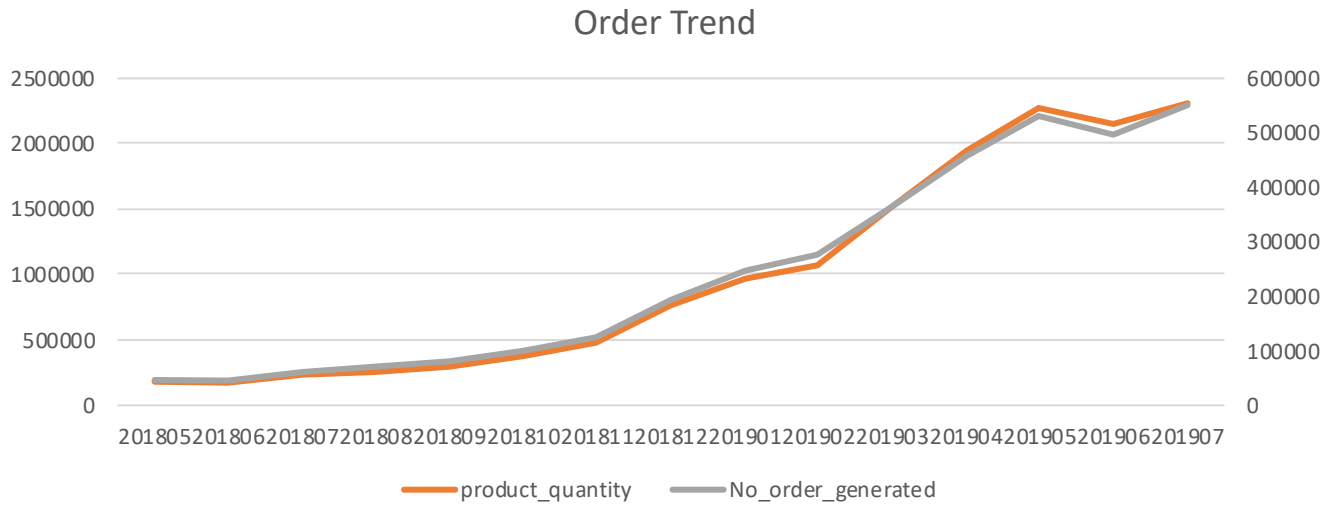
# Agenda


- Observations and Insights: Exploratory Analysis of order data to gain observations and insights
- Product Recommendation Engine: Build a model to generate recommendations based on multiple parameters
- Churn Analysis: Identify potential risk of churning out for a customer

# Observations and Insights

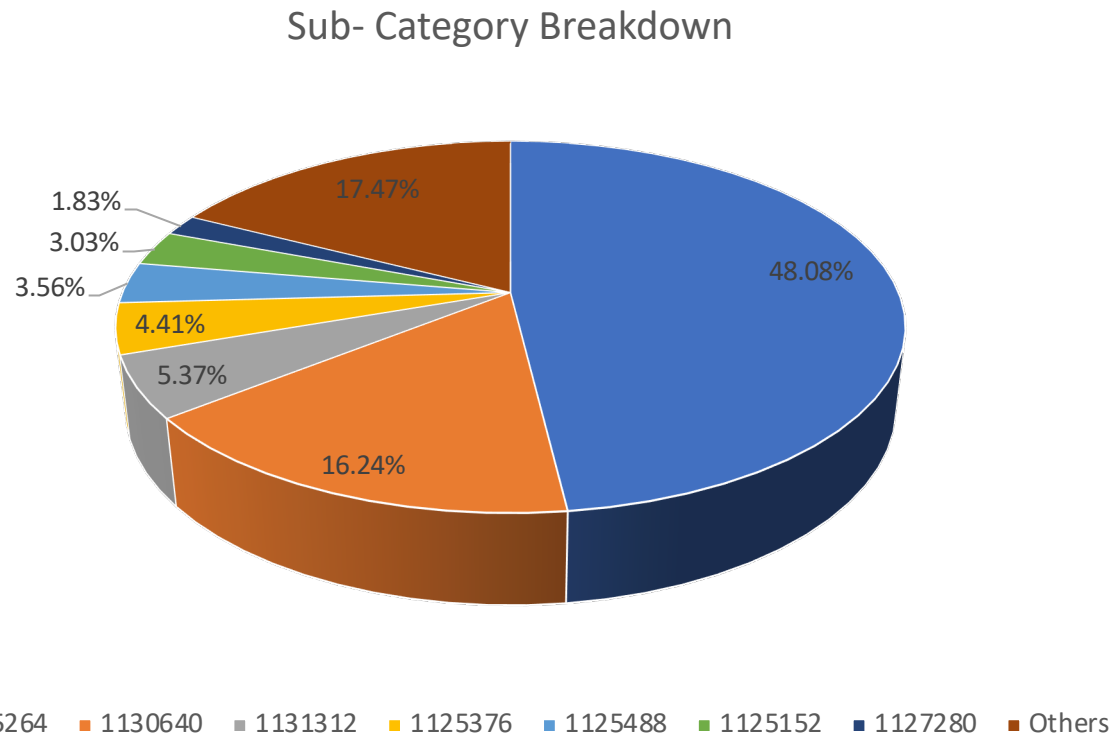


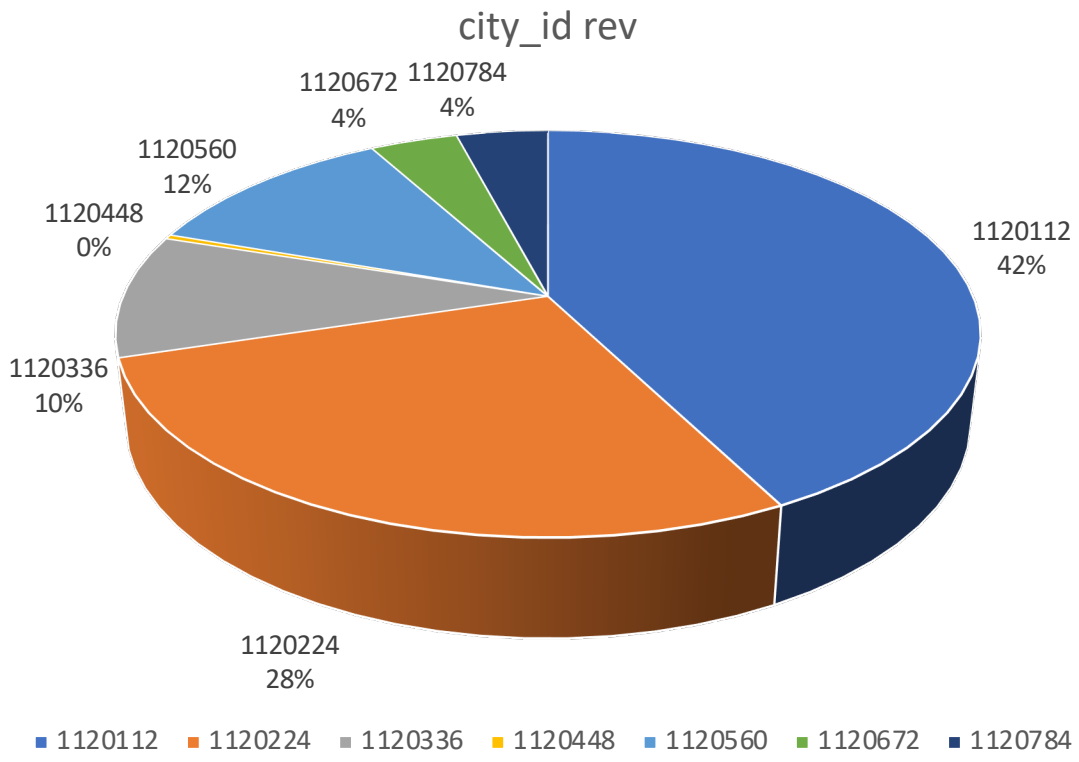



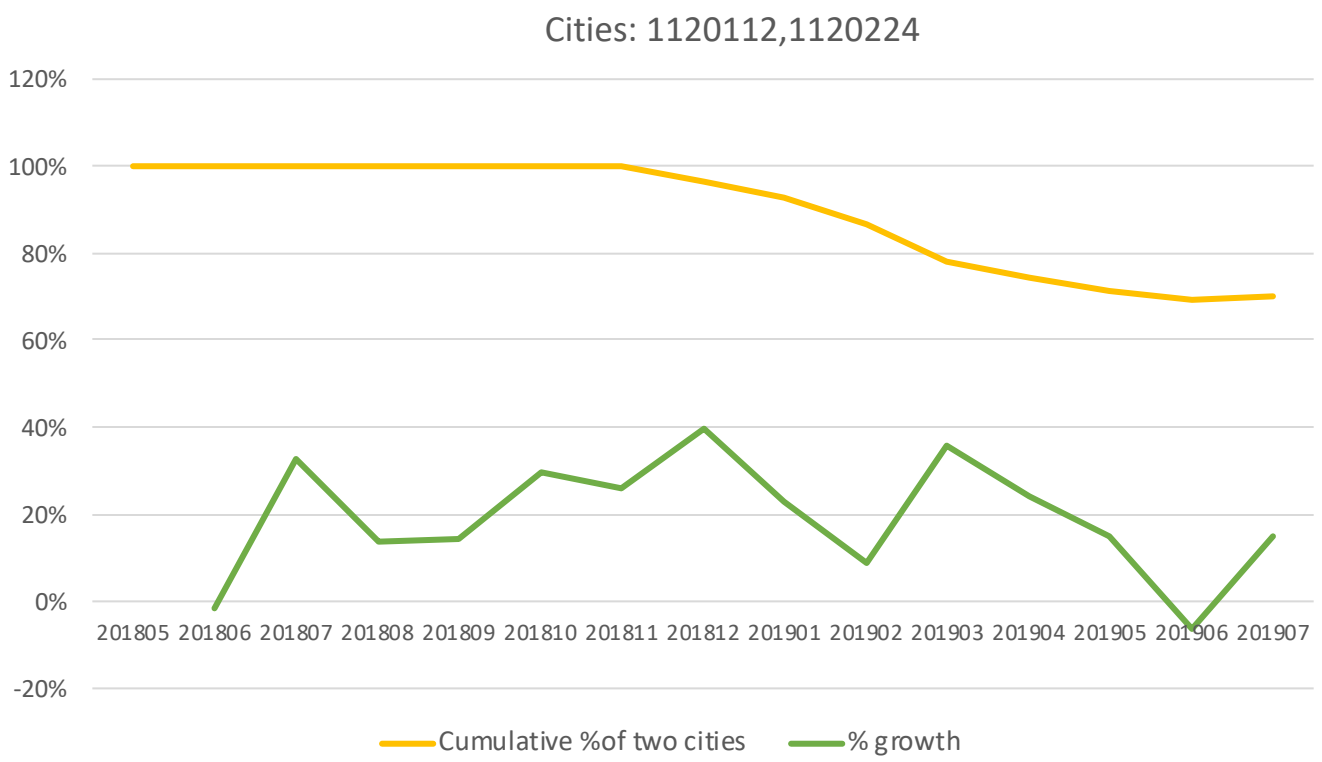

Milk basket had a continuous growth but on Mar'19 there was a growth of 50% MoM which also increased the AOV from (104-109) to 126 and then after went to 146 in 4 months

# Revenue Breakdown by sub category



# Analysis by cities




1. Out of new 5 cities, which started its operation after December, 2018, two cities i.e. 1120336 and 1120560 with average ~ INR 50,00,000 per month and has huge contribution to jump in growth rate for overall revenue, especially in March 2019
2. As time is progressing, new cities are catching up and %contribution is significant ~30%

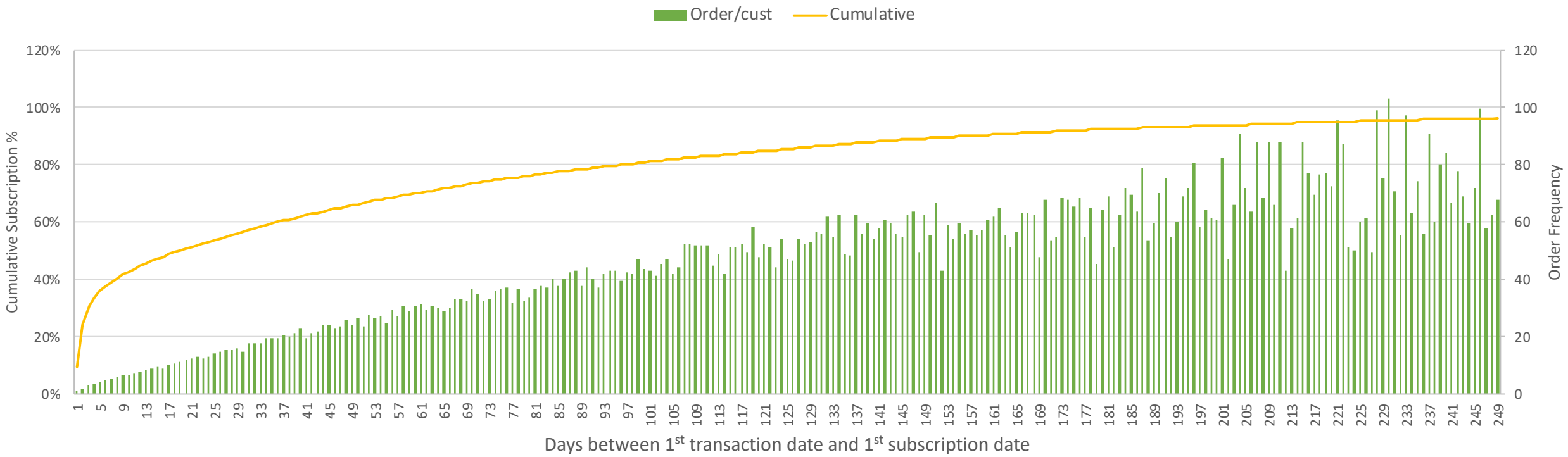
# Retention Rate

| % Retention after # of orders | New City (# Orders) | Old City (# Orders) |
|---|---|---|
| 99% | 7 | 2 |
| 98% | 13 | 3 |
| 97% | 17 | 4 |
| 96% | 20 | 5 |
| 95% | 22 | 6 |

The repeat purchase rate has been very high for Milk Basket. For the new cities (opened after Nov'18), this rate has further increased to 1% cumulative customer drop out after nearly 7 orders. While for the older cities, it has been reached just after the 1st order

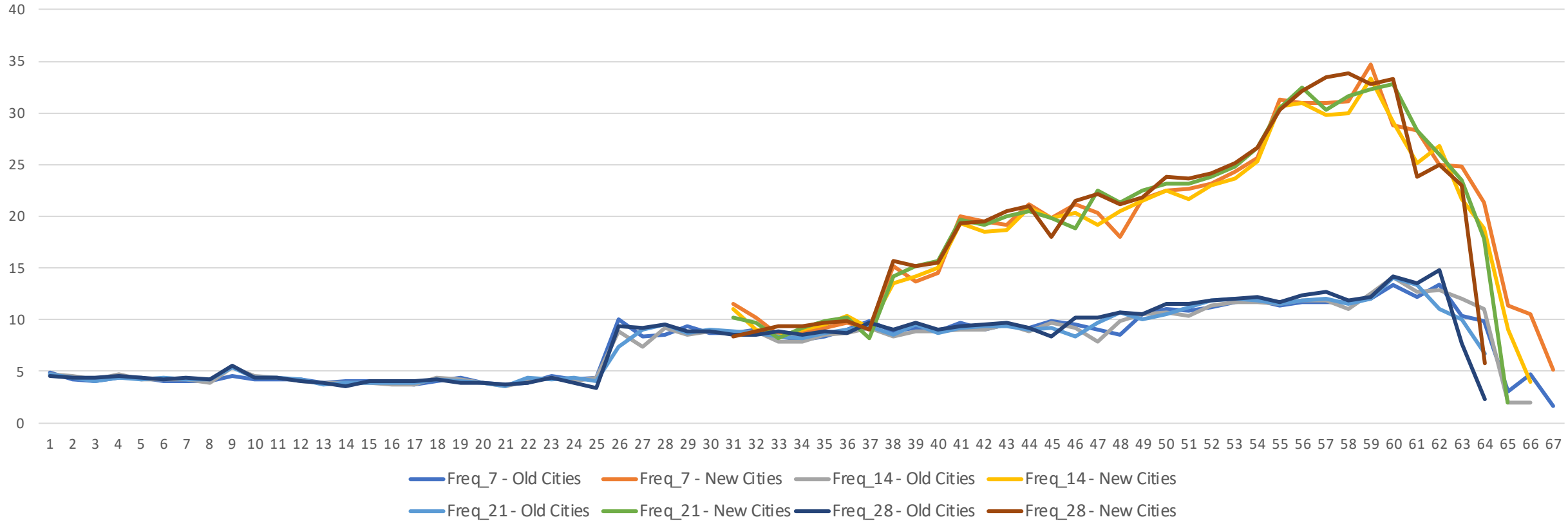
* Subscriptions are not included

# Subscriptions



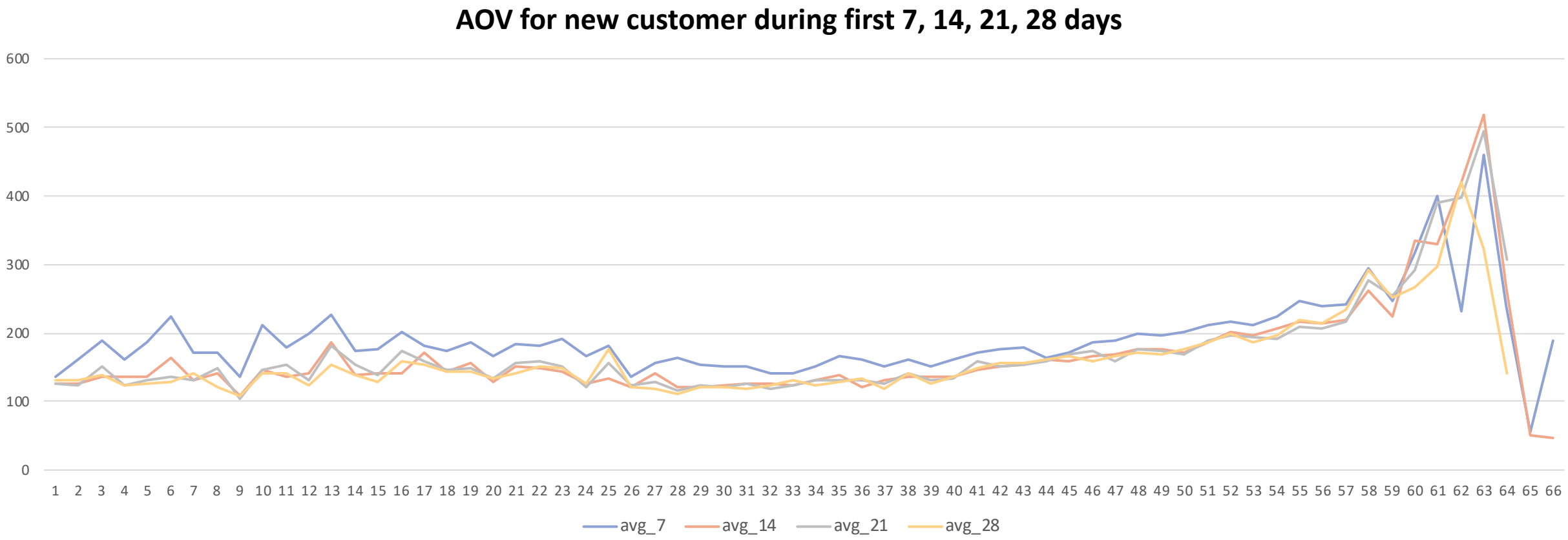

Off all the customers (19K)who subscribed at least one-time, the first 25% customers subscribe within first 3 orders while the next 25% customers take around 10 orders

# Repeat frequency rate



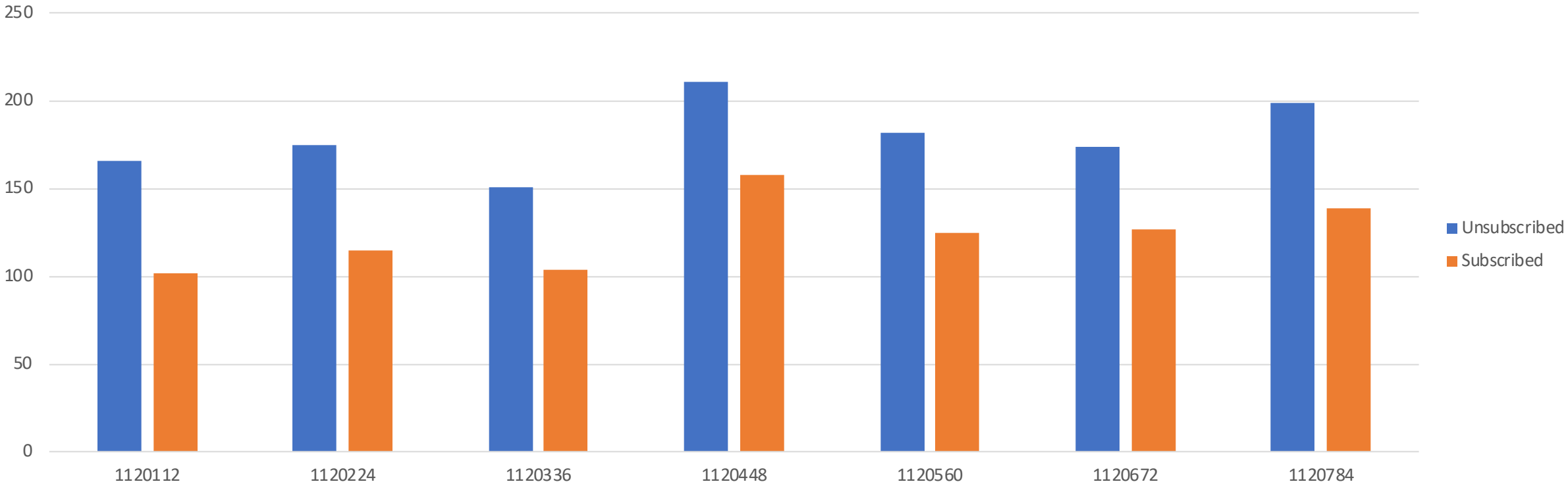

Repeat frequency for new customer has increased significantly as compared to the older cities

# AOV for new customers




The AOV for new customers has been increasing for the first 7 days, 14 days, 21 days, 28 days

# AOV by subscription




Total unsubscribed AOV is ~ 50% higher than the subscribed AOV

# Product Recommendation Landscape

# pRODUCT rECOMMENDATION

- Generate 33% higher AOV (source)
- Generate 5-8 times ROI on marketing spend (source)

Recommendation Engine

**Similar product recommendation**

(Based on parameters like current cart, past history etc., show product recommendation)

**Upsell**

(make them buy higher value item in same category or multiple quantity)

**Cross-sell**

(make them buy other items like complimentary to current product)

Location/ IP address

Search History

Previous purchase

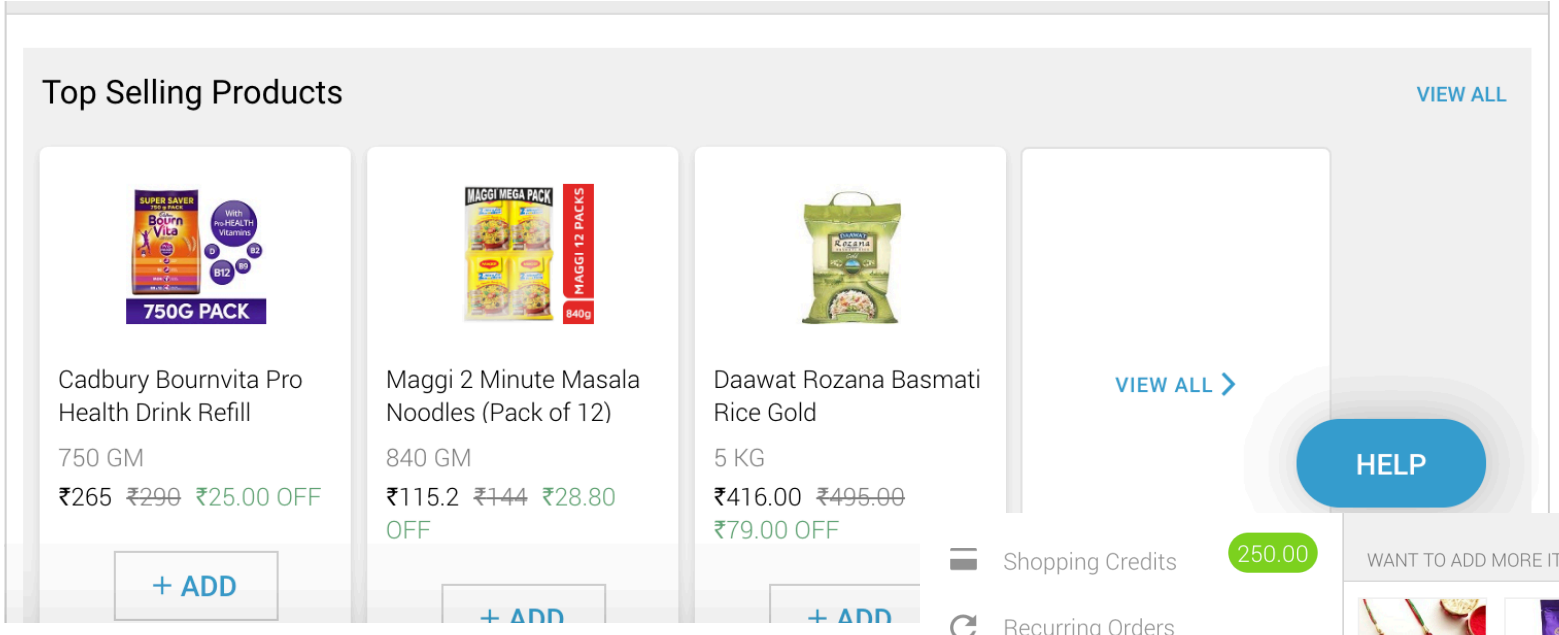
Customer segmentation

Shopping Cart

Important factors considered into product recommendation algorithm

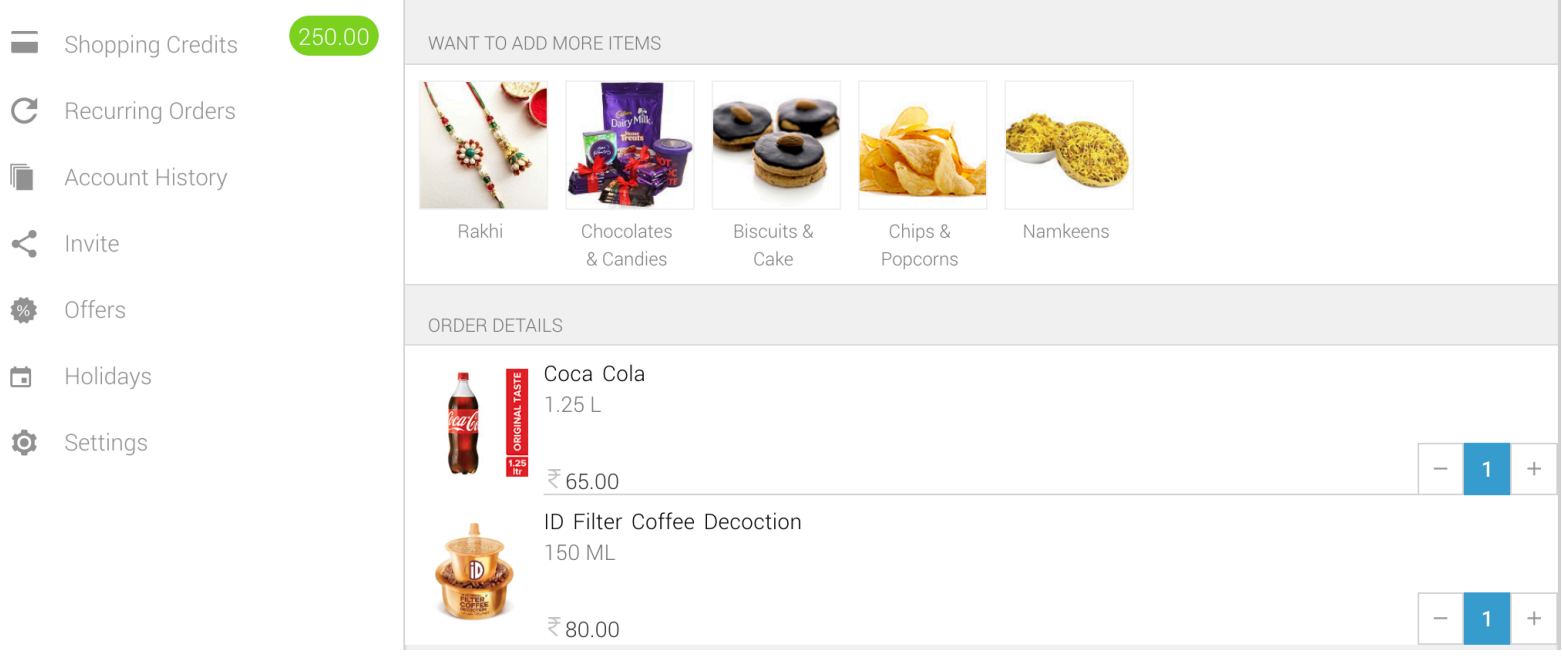
Taken into consideration for our analysis

# Current product recommendations on Milkbasket



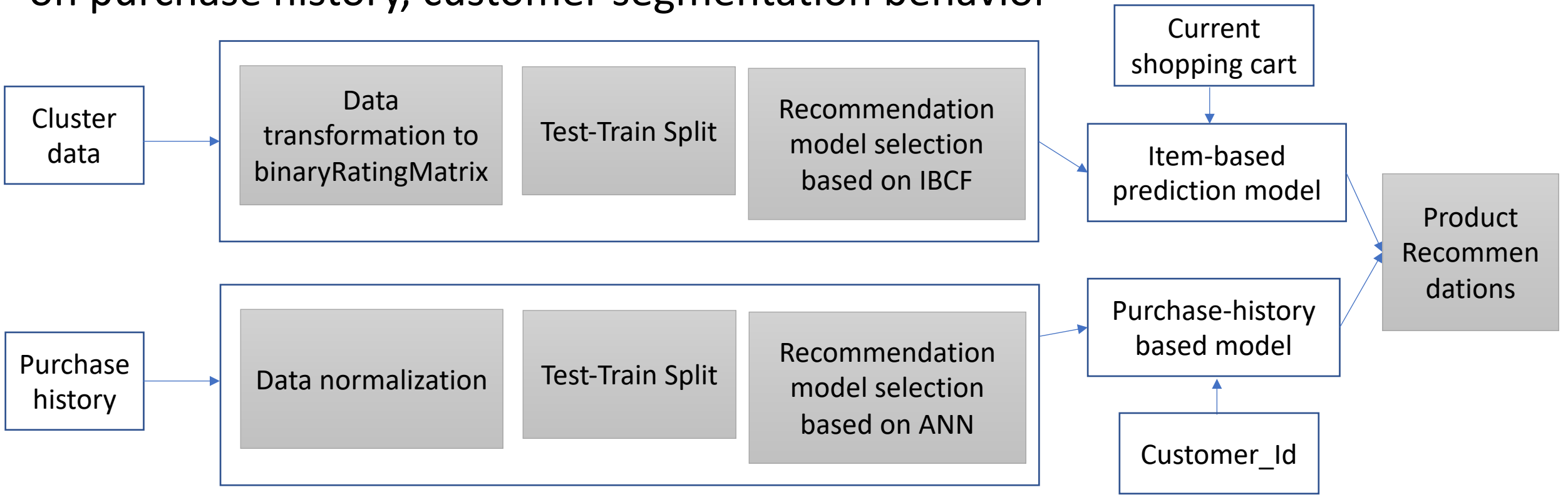

Product recommendations on home-page based on top selling products

Product category recommendations on CART page just before checkout



# Recommendation engine architecture

**Objective:** To generate relevant product recommendations for customer based on purchase history, customer segmentation behavior




Model Information

**Item-based prediction model**

- Algorithm: Item-based collaborating filter
- Stack used: Recommenderlab

**Purchase history-based model**

- Algorithm: ANN
- Stack used: numpy pandas, Keras

# Confusion Matrix for Item-based prediction model

| Number of products recommended | Precision | Recall | True Positive Rate | False Positive Rate |
|---|---|---|---|---|
| 5 | 0.11394562 | 0.5622100 | 0.5622100 | 0.025856762 |
| 10 | 0.06841389 | 0.6529378 | 0.6529378 | 0.051973459 |
| 15 | 0.05250823 | 0.6702758 | 0.6702758 | 0.072132157 |
| 20 | 0.04868339 | 0.6713285 | 0.6713285 | 0.080969971 |

# Churn Analysis

Understanding the behaviour of customers is more important to analyse who are going to be churned in the next 15 days is strength of this model.
Variables:
Customer_id,
City_code,
aov_during_1month_before_becoming_dormant,
Dormancy,
Orders_during_1month_before_becoming_dormant
Orders_during_3rd to 2nd month_before_becoming_dormant

Accuracy: 0.8
AUC: 0.72947


Thank
you!