Smart inventory management and marketing of a gift shop

Introduction

- This analysis deals with a transnational data set which contains all the transactions occurring between 01/12/2010 and 09/12/2011 for a UK-based and registered non-store online retail.

- The company mainly deals with the sale of unique all-occasion gifts.

- Many customers of the company are wholesalers.

Agenda

? Issue

Increase sales and streamline warehouse supplies
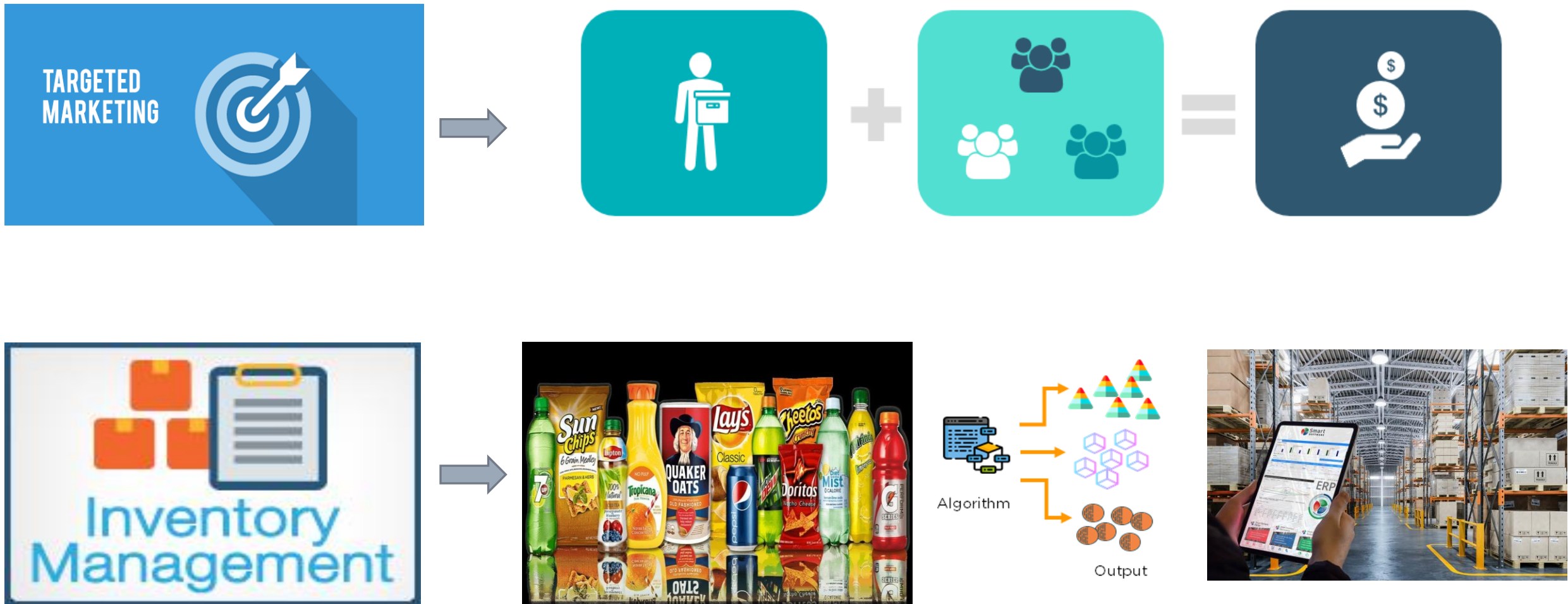
⚗ Data Science

Use data to uncover patterns

⚙ Change

Targeted marketing and efficient management

✔ Result

To be documented

Pipeline

Targeted marketing

Key Business API's

RECENCY

The freshness of
the customer activity,
be it purchases or visits

**E.g. Time since last
order or last engaged
with the product**

FREQUENCY

The frequency
of the customer
transactions or visits

**E.g. Total number of
transactions or average
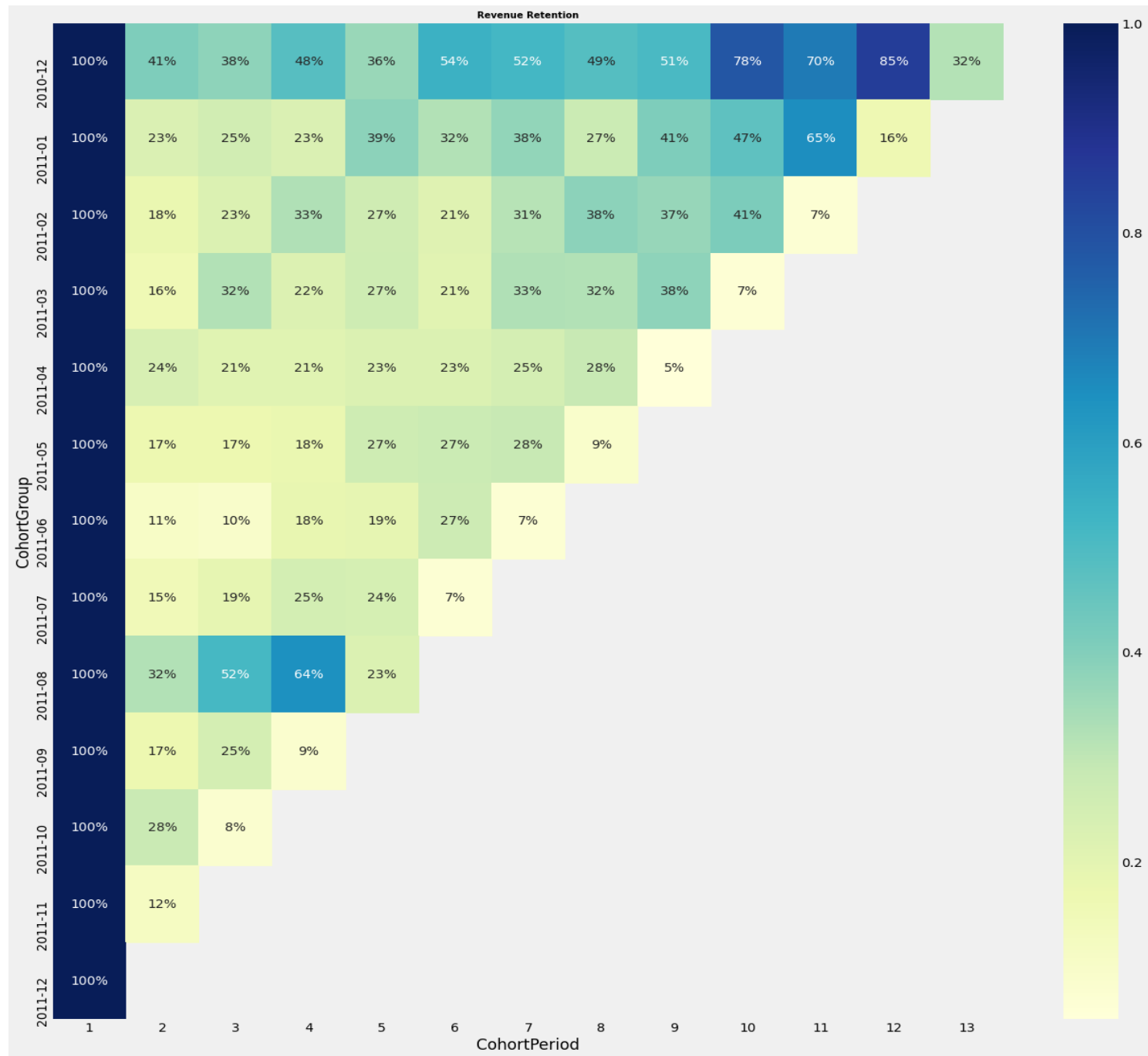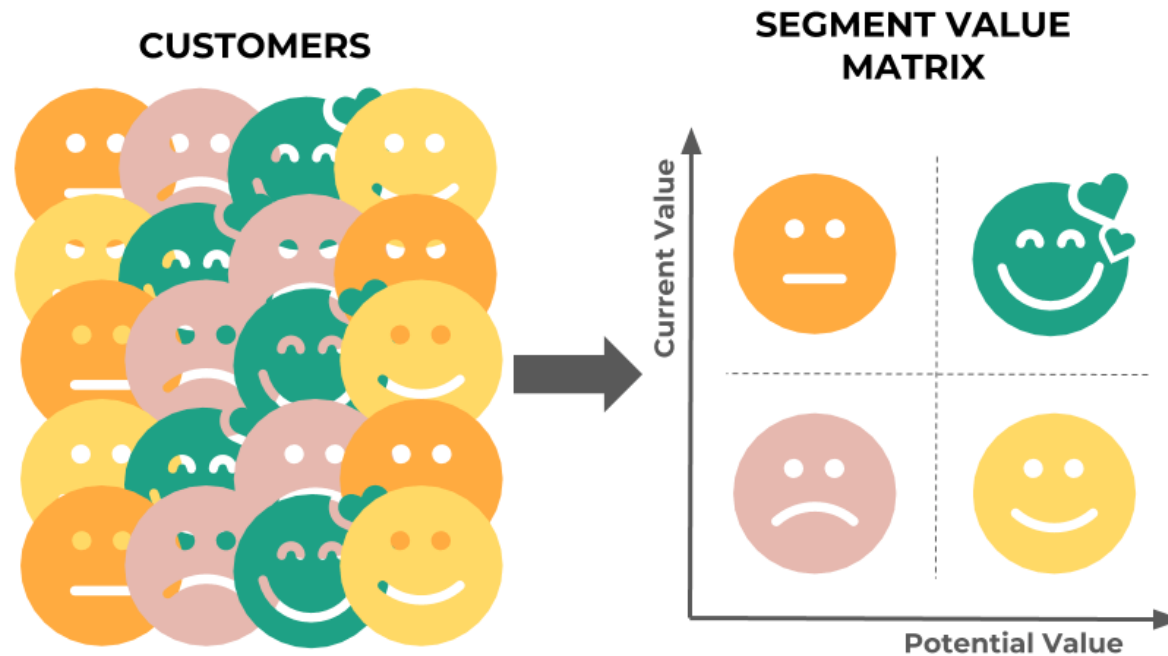time between transactions/
engaged visits**

MONETARY

The intention of customer
to spend or purchasing
power of customer

**E.g. Total or average
transactions value**

Customer retention in terms of revenue

Revenue Retention

CohortGroup	1	2	3	4	5	6	7	8	9	10	11	12	13
2010-12	100%	41%	38%	48%	36%	54%	52%	49%	51%	78%	70%	85%	32%
2011-01	100%	23%	25%	23%	39%	32%	38%	27%	41%	47%	65%	16%	
2011-02	100%	18%	23%	33%	27%	21%	31%	38%	37%	41%	7%		
2011-03	100%	16%	32%	22%	27%	21%	33%	32%	38%	7%			
2011-04	100%	24%	21%	21%	23%	23%	25%	28%	5%				
2011-05	100%	17%	17%	18%	27%	27%	28%	9%					
2011-06	100%	11%	10%	18%	19%	27%	7%						
2011-07	100%	15%	19%	25%	24%	7%							
2011-08	100%	32%	52%	64%	23%								
2011-09	100%	17%	25%	9%									
2011-10	100%	28%	8%										
2011-11	100%	12%											
2011-12	100%												

CohortPeriod

Ways to boost sales and increase retention
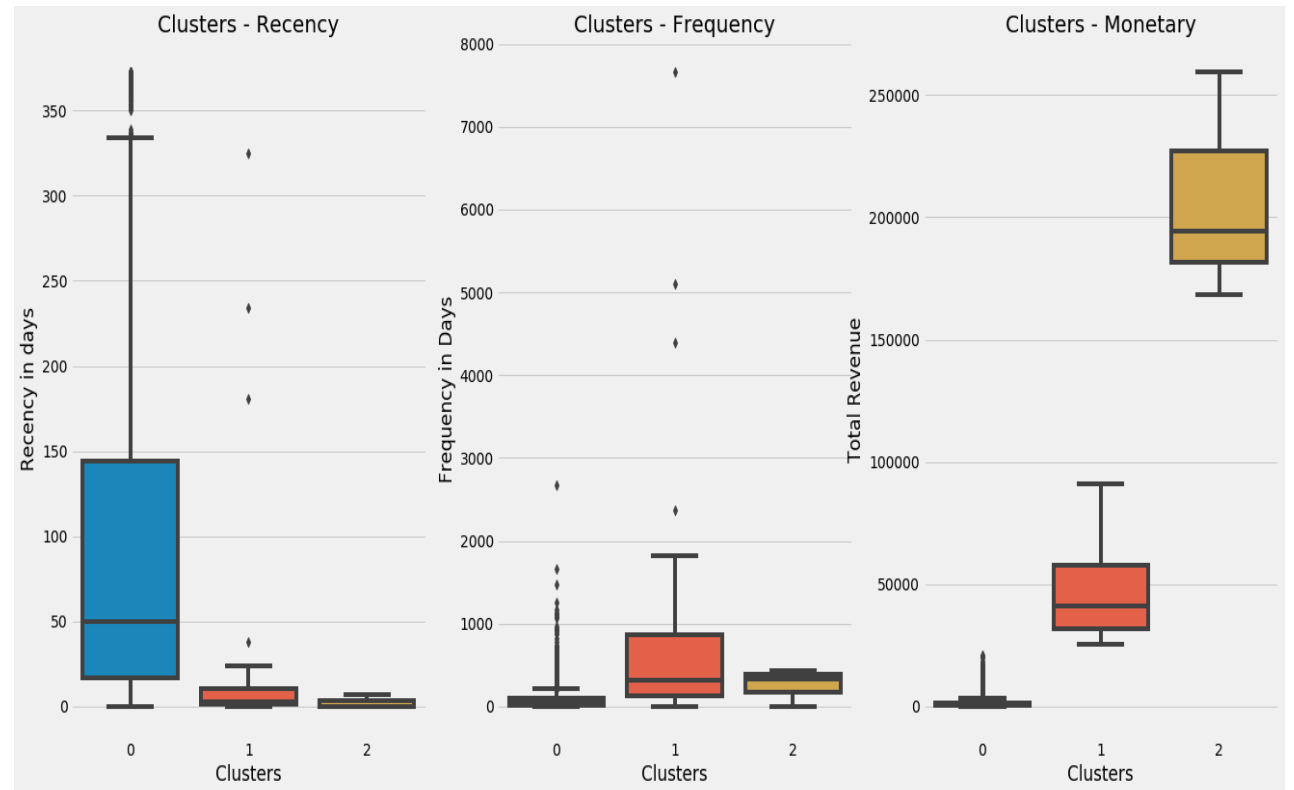
Segmentation through clustering
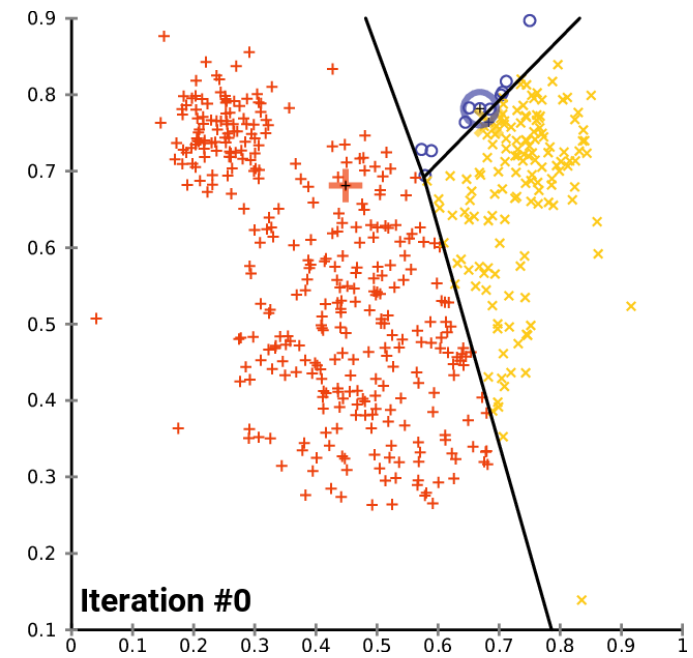
KMeans


Percentiles
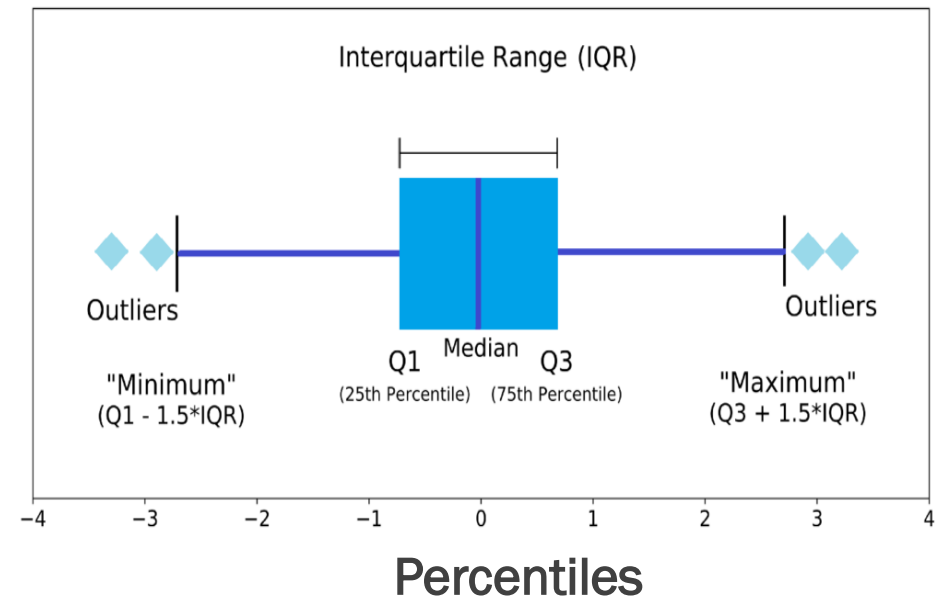
Customer buying behavior

- Customers mostly engage in single time shopping of low valued goods

- Very few customers frequently buy high valued goods frequently

- Hence, the store is unable to retain customers

Segmentation these customers by revenue

- Type 0 : Customers who may or may have not bought recently, do not buy frequently enough and contribute the least

- Type 1: Customers who have not bought recently, do not buy frequently enough but contribute the most

- Type 2 : Customers who may or may have not bought recently, may or may not buy frequently enough but contribute sufficiently
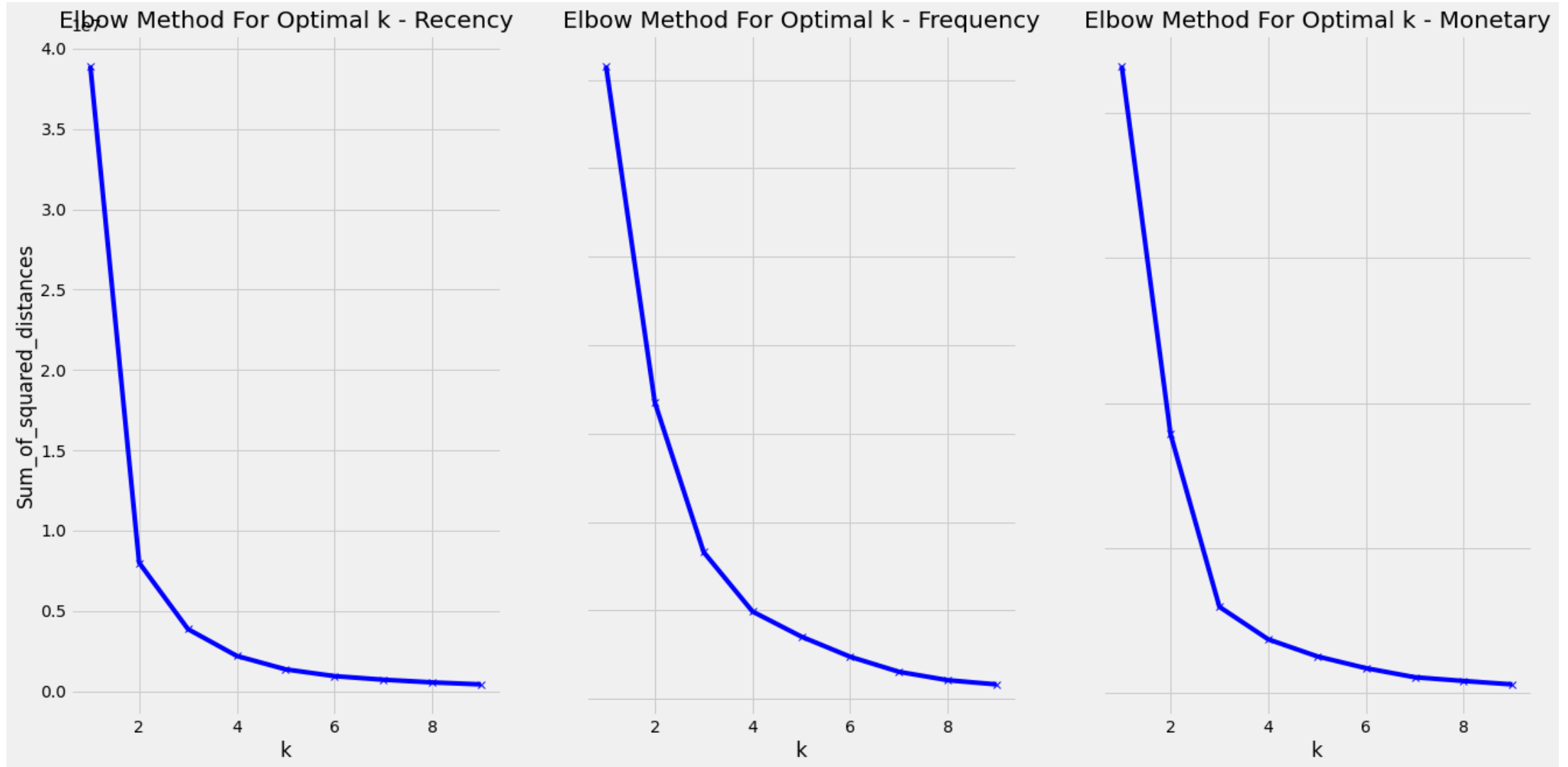
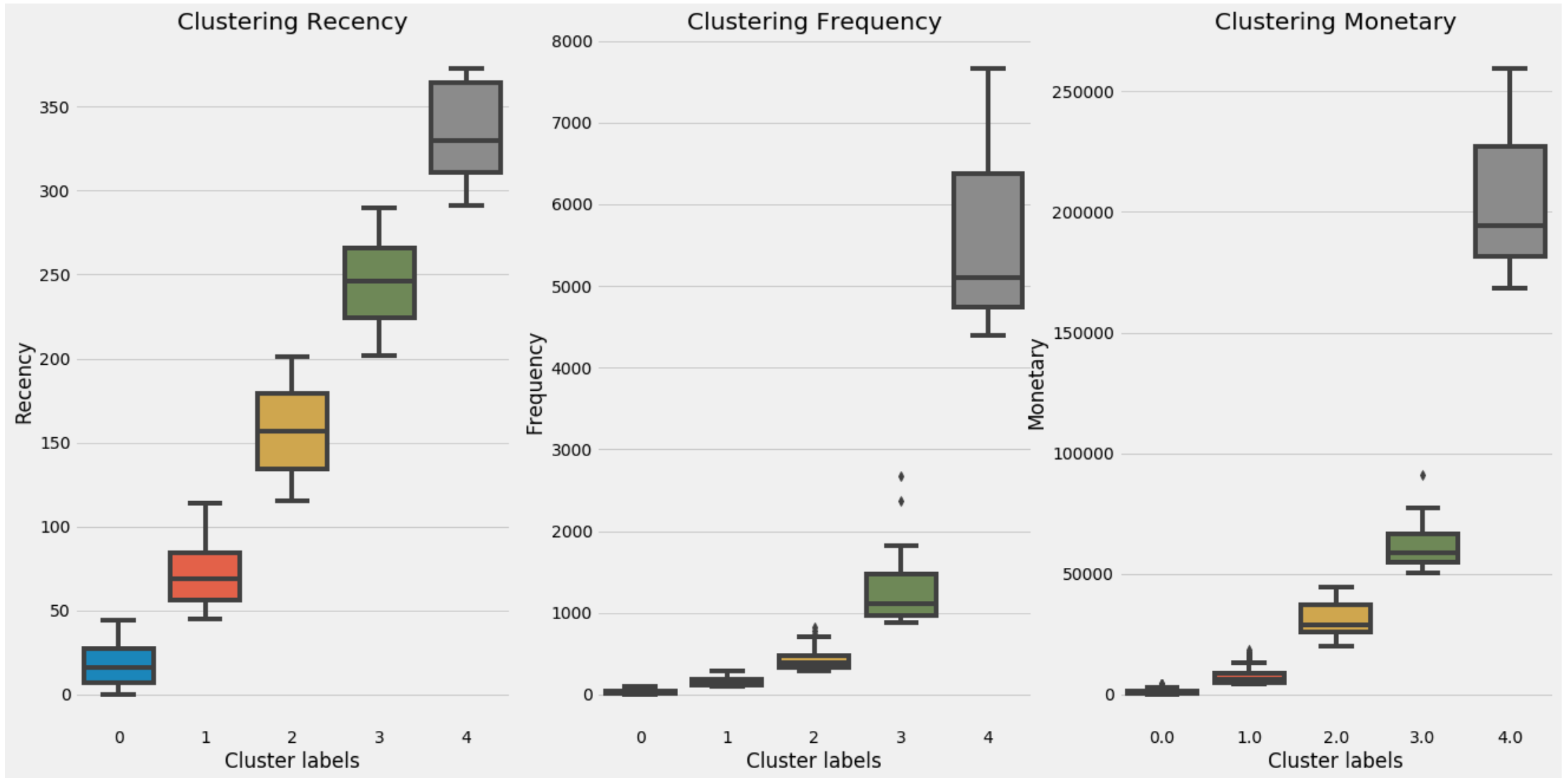Distribution of customer buying behaviour with revenue

Type1
Type2
Type3

19.1%

8.59%

72.3%
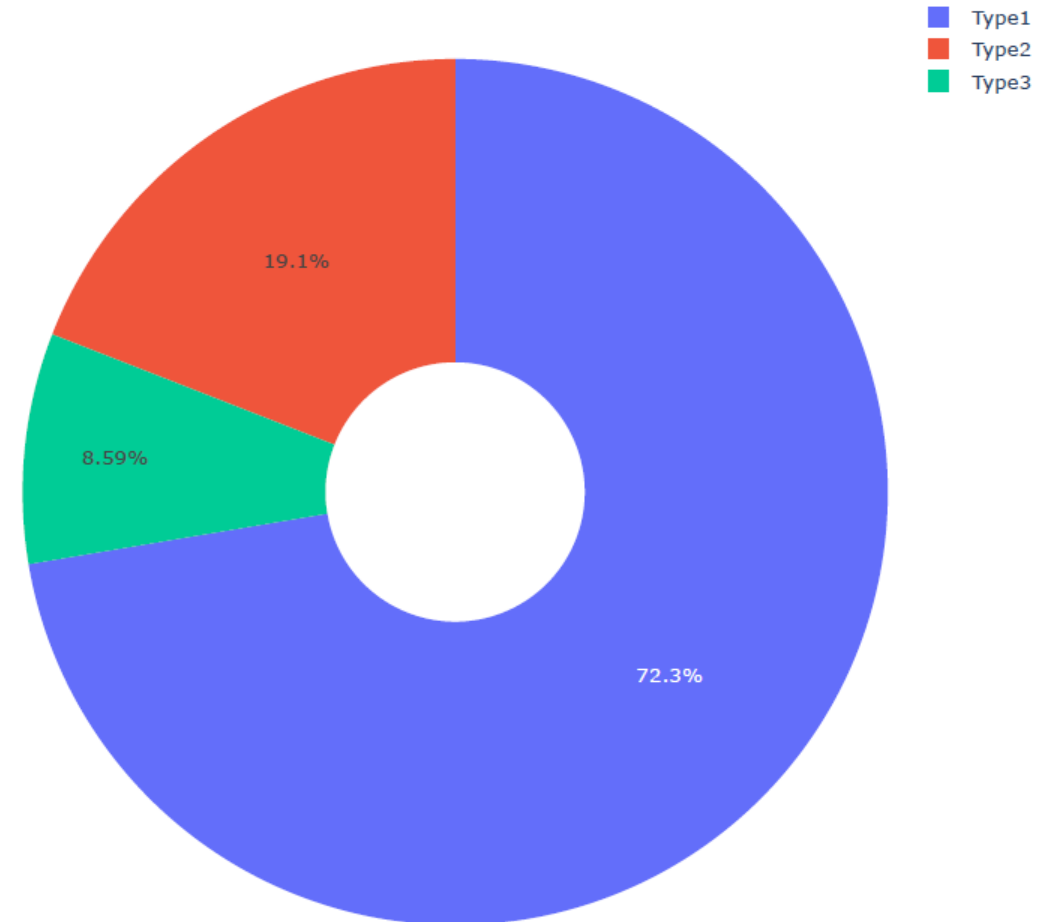
Business goals to improve productivity
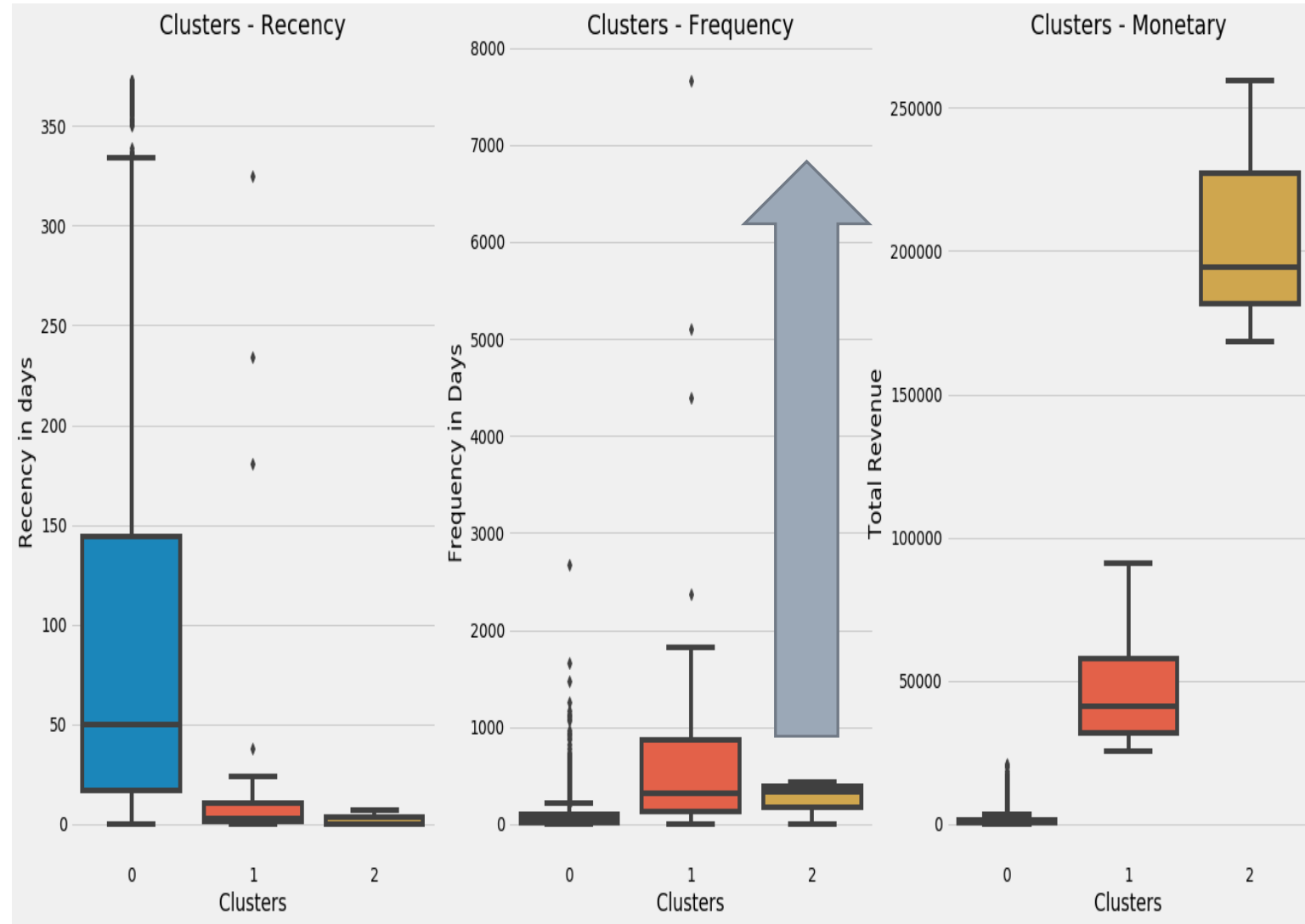
Selecting the number of clusters for each category

Segmentation within each category

Targeted marketing strategies

Segmentation map	Recomendation
[0-1][0-1]	First timers - SMS ads
[0-1][2-3]	At risk - Discounts
[0-1]4	Immediate targeting - Promotions
2[0-1]	About to lose - Feedback form
[2-3][3-4]	Regular customers - Loyalty cards
30	Promising - Instant vouchers
40	New customers - 50 % discounts on certain items
[3-4][1-2]	Potential regular customers - Loyalty cards
4[3-4]	Best customers - Loyalty cards
22	Need attention - Discounts

Customer outreach for current and previous customers

Pie chart legend:
- First timers - SMS ads
- About to lose - Feedback form
- Promising - Instant vouchers
- New customers - 50 % discounts on certain items
- At risk - Discounts
- Potential regular customers - Loyalty cards
- Immediate targeting - Promotions
- Need attention - Discounts

Pie chart values: 65.2%, 12.2%, 10%, 6.31%, 5.62%, 0.485%, 0.0766%, 0.0766%
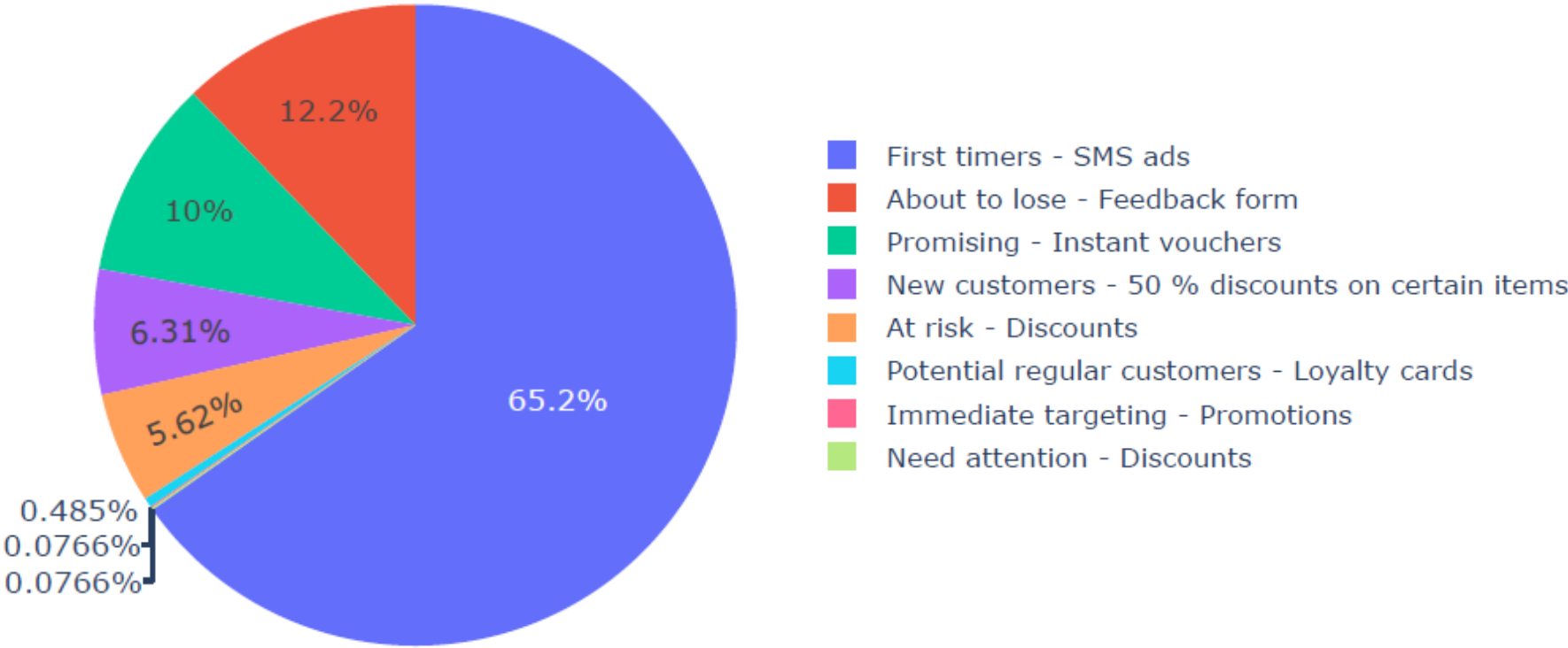
Inventory management

Key Business API's

FREQUENCY

The frequency
of the customer
transactions or visits

E.g. Total number of
transactions or average
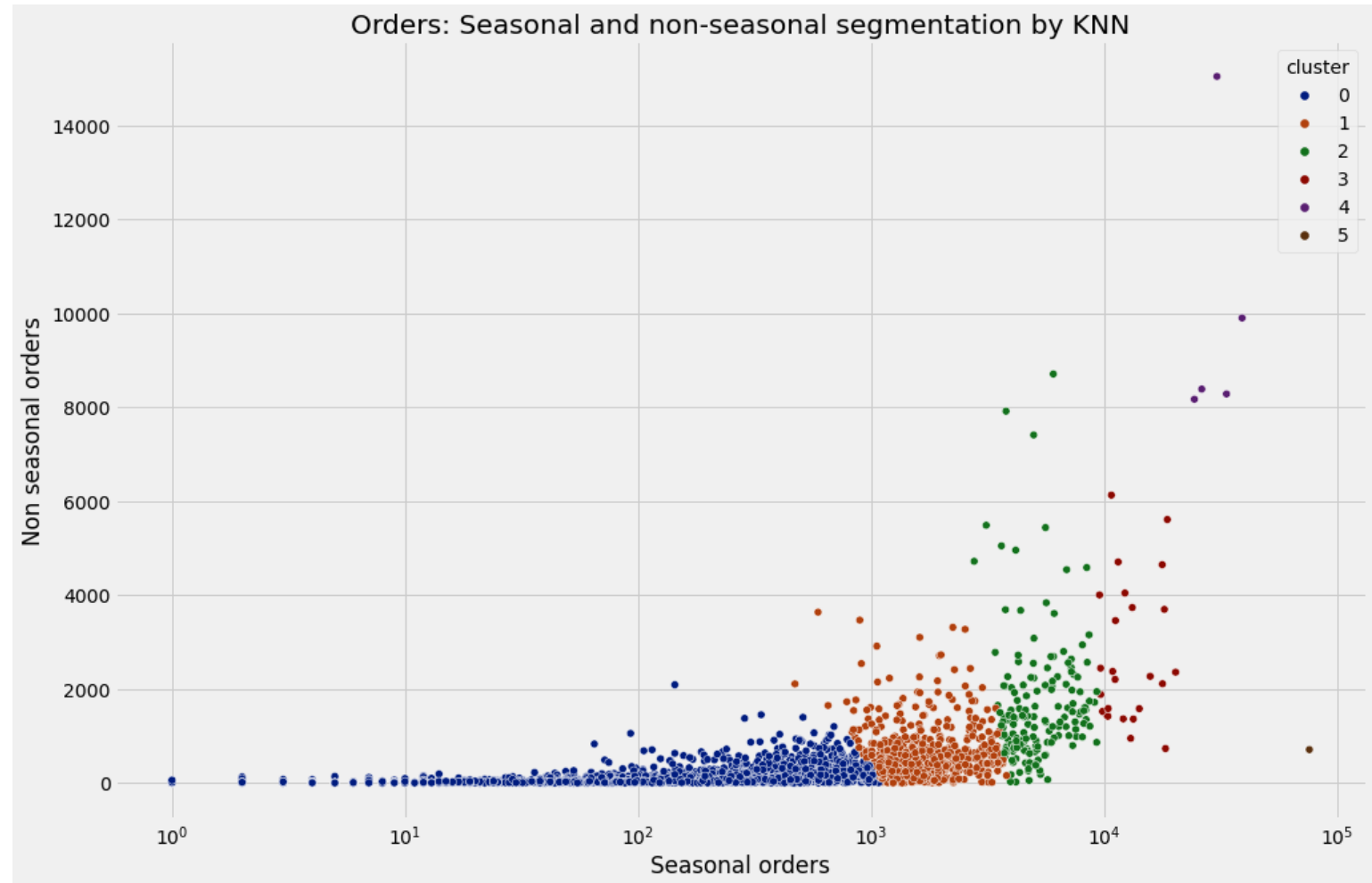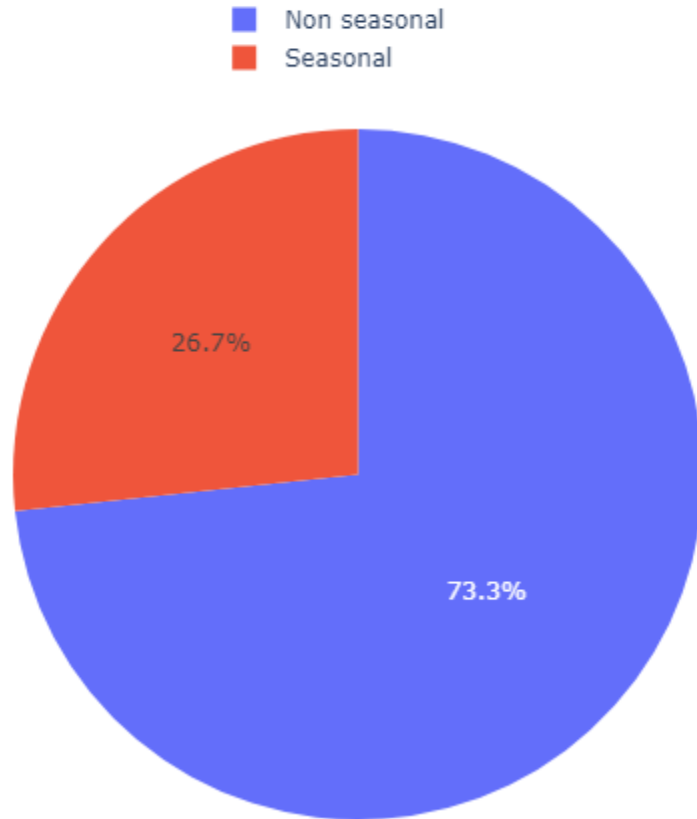time between transactions/
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MONETARY

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power of customer

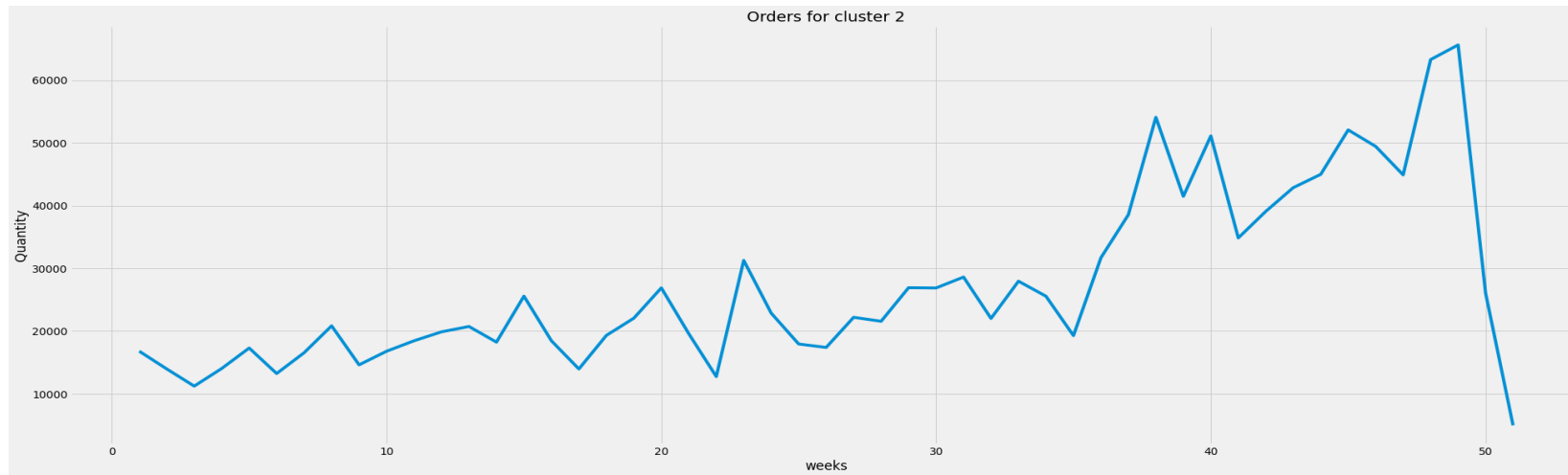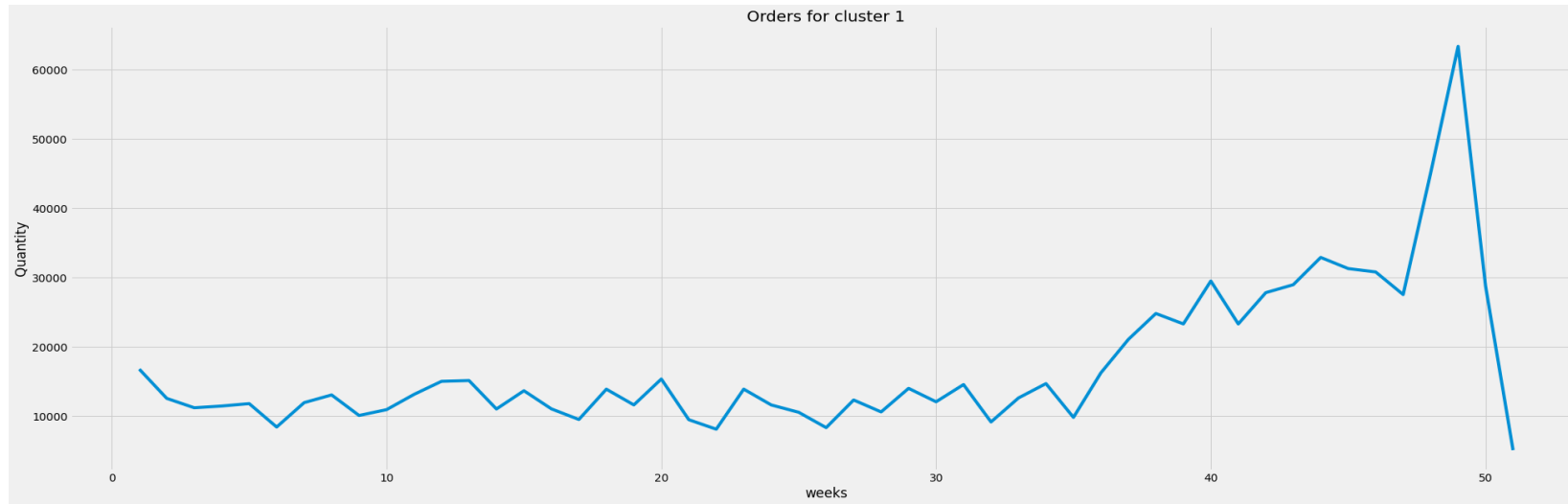E.g. Total or average
transactions value
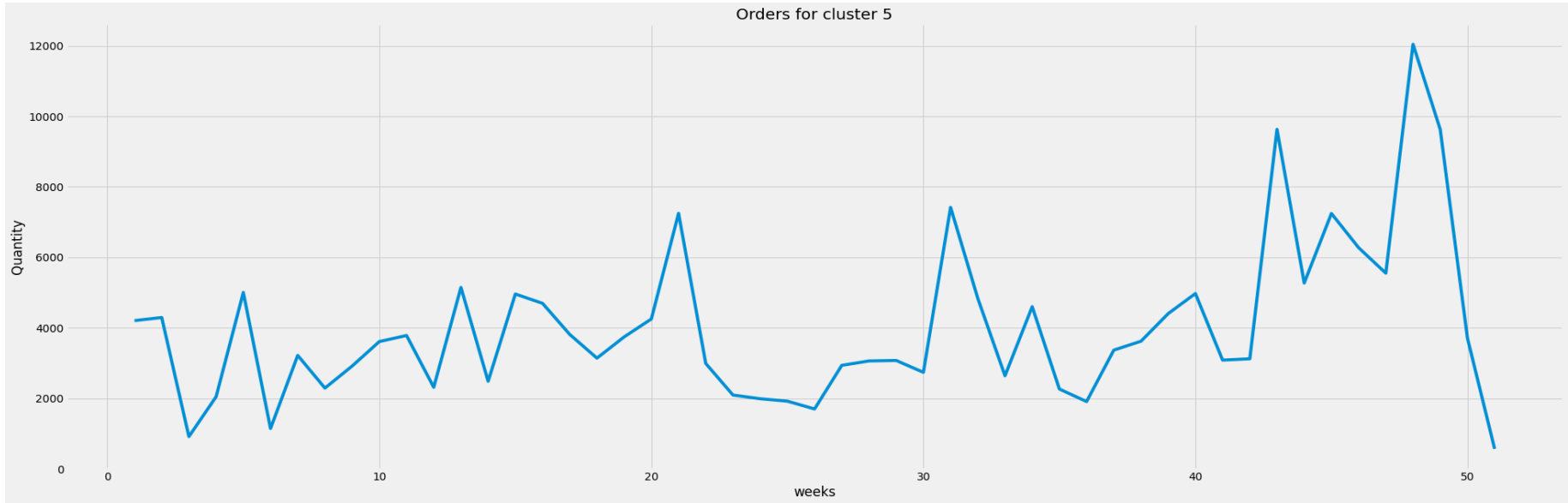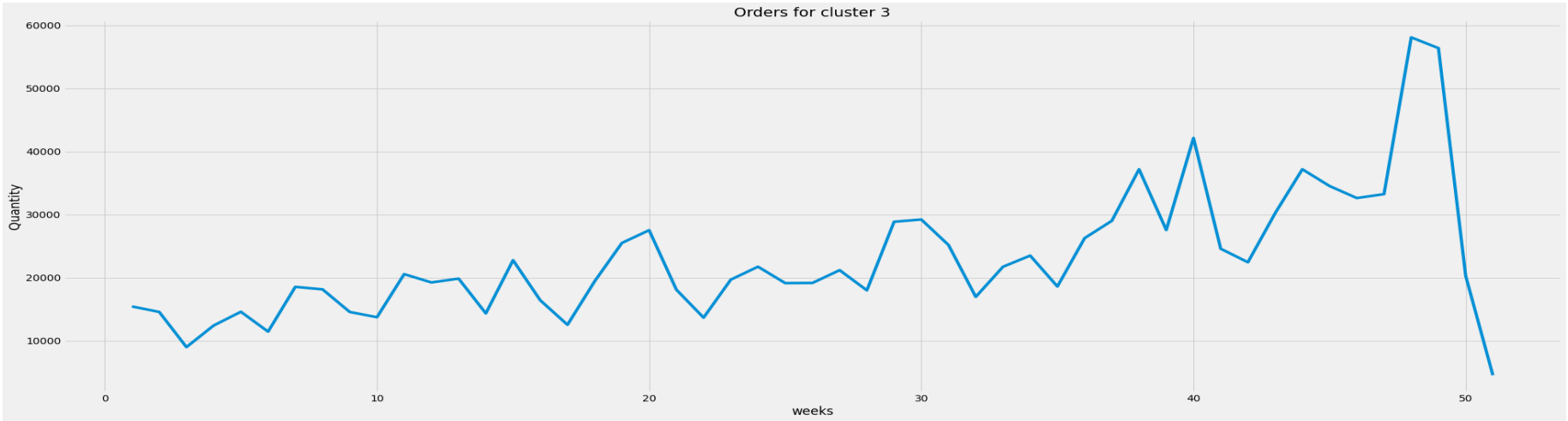
Nature of purchases by revenue
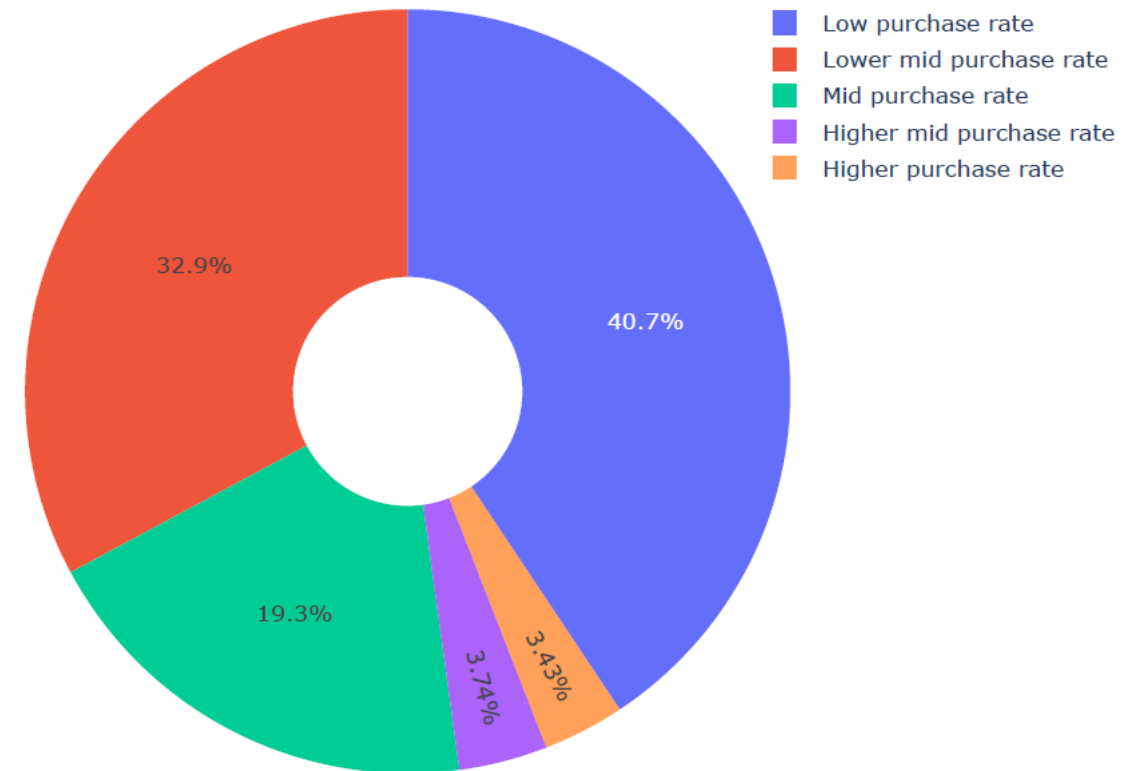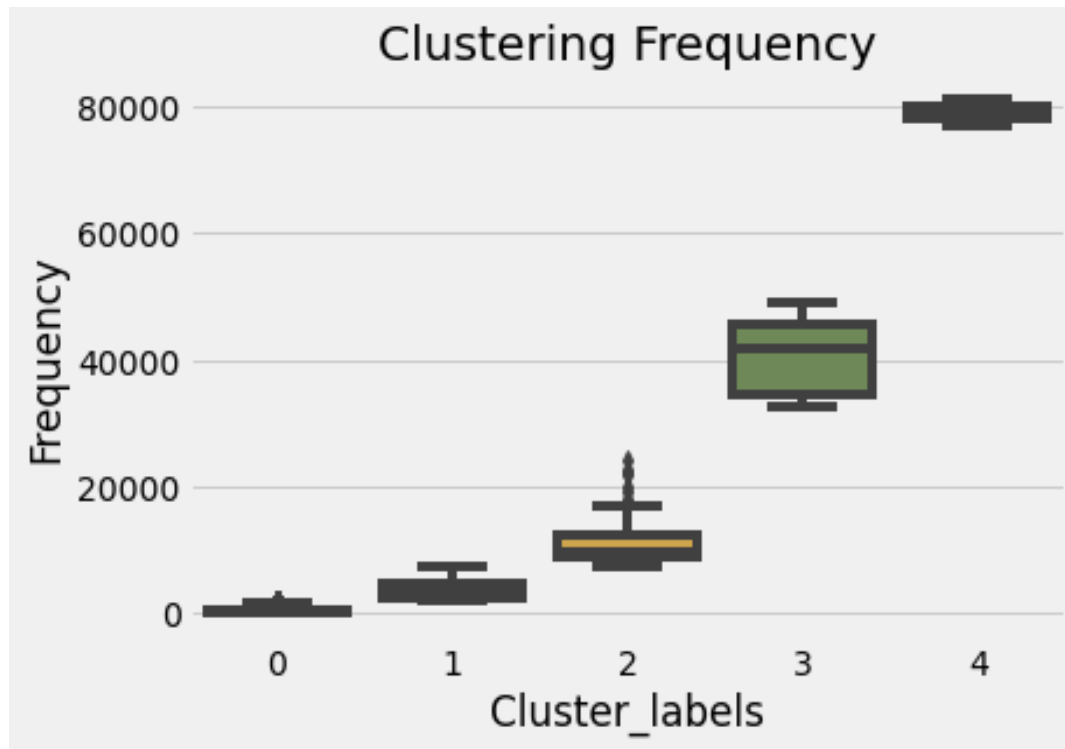
Distribution of seasonal sales with revenue and it's respective segmentation

Pattern of orders in each cluster - I
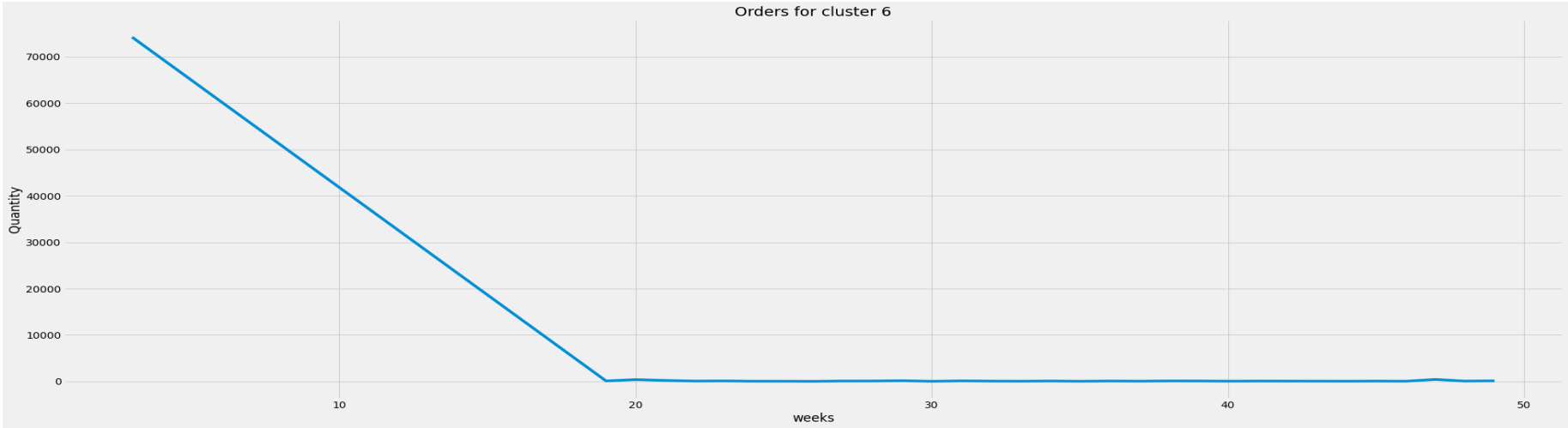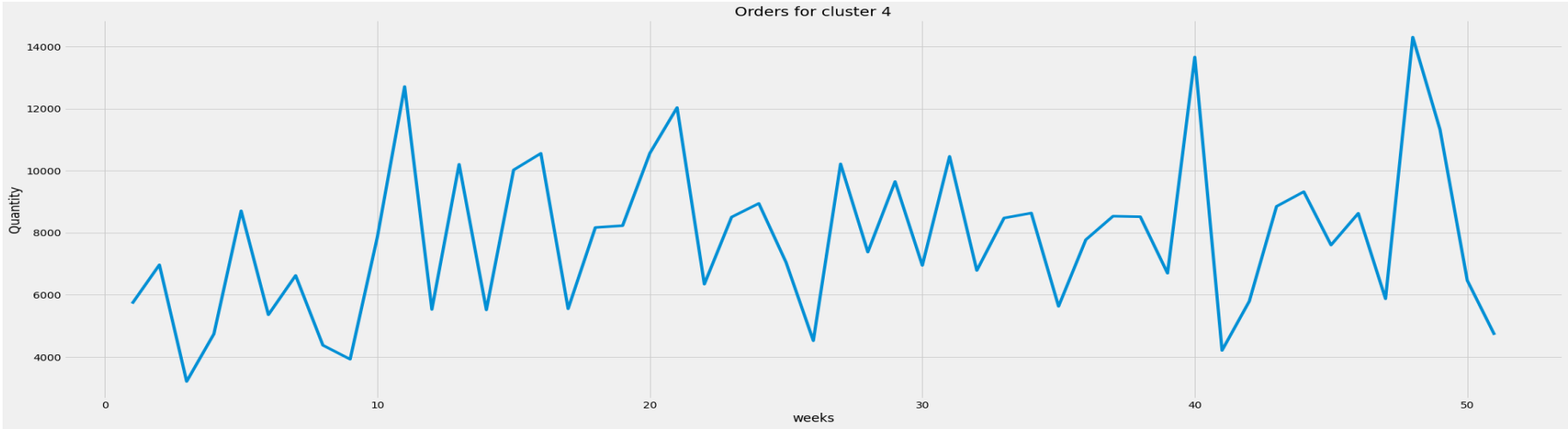

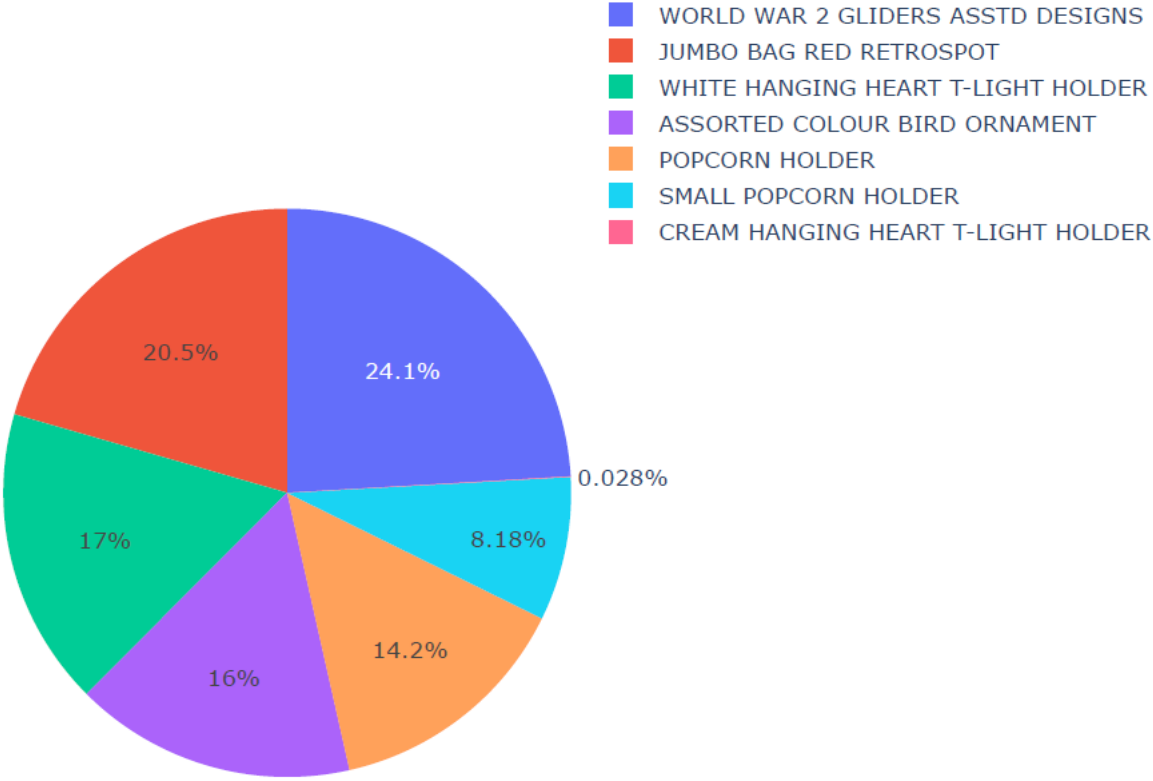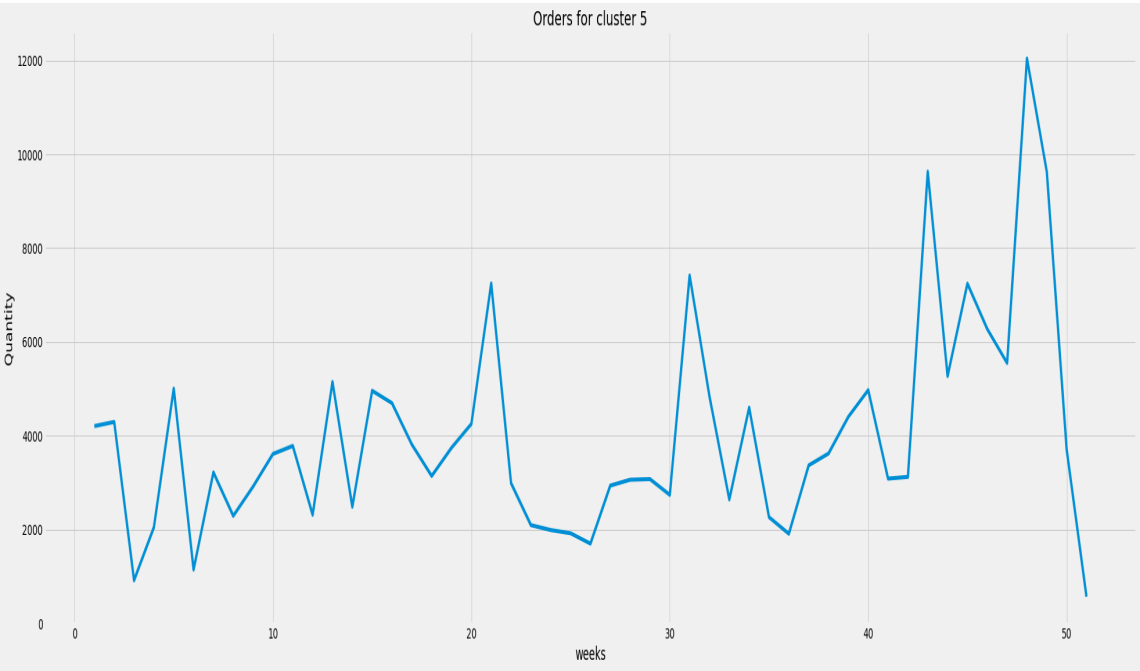Orders for cluster 1

Orders for cluster 2
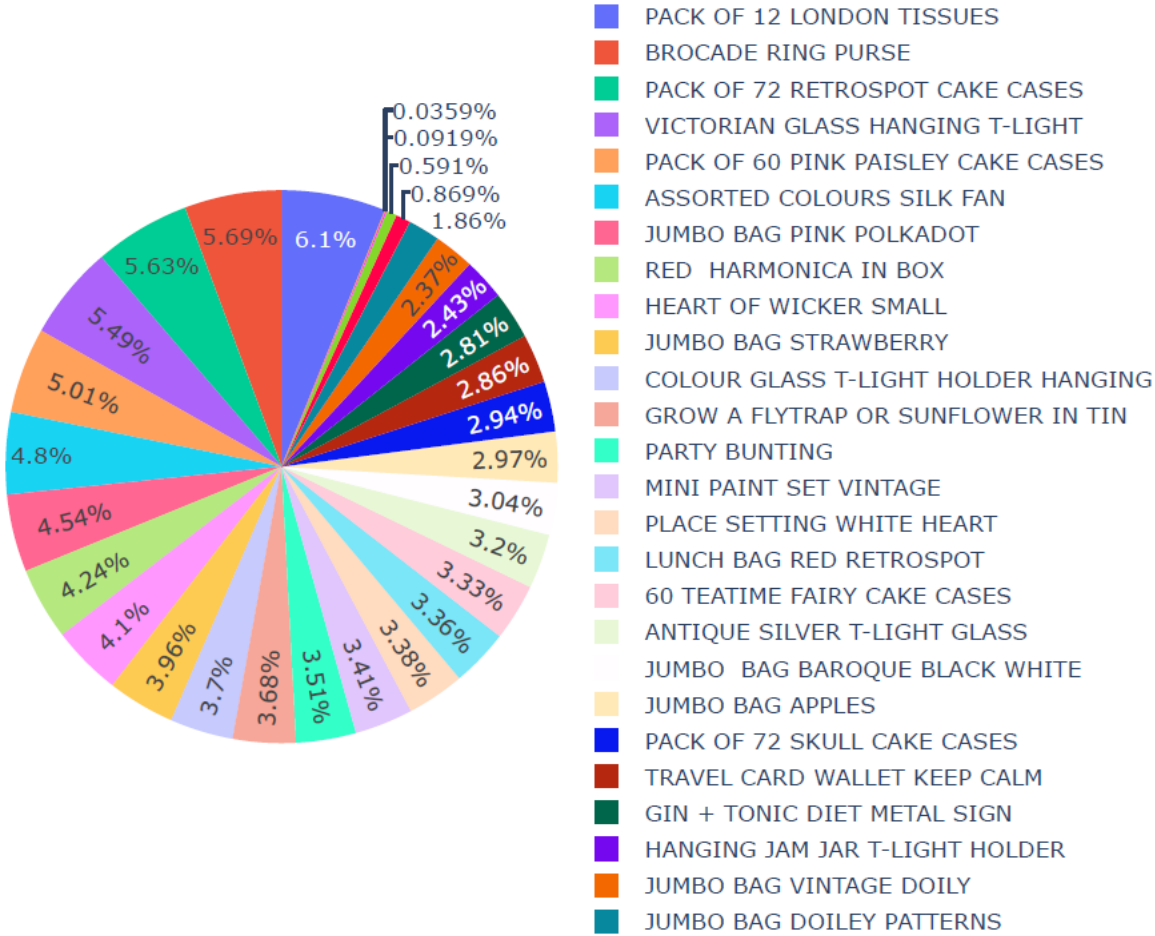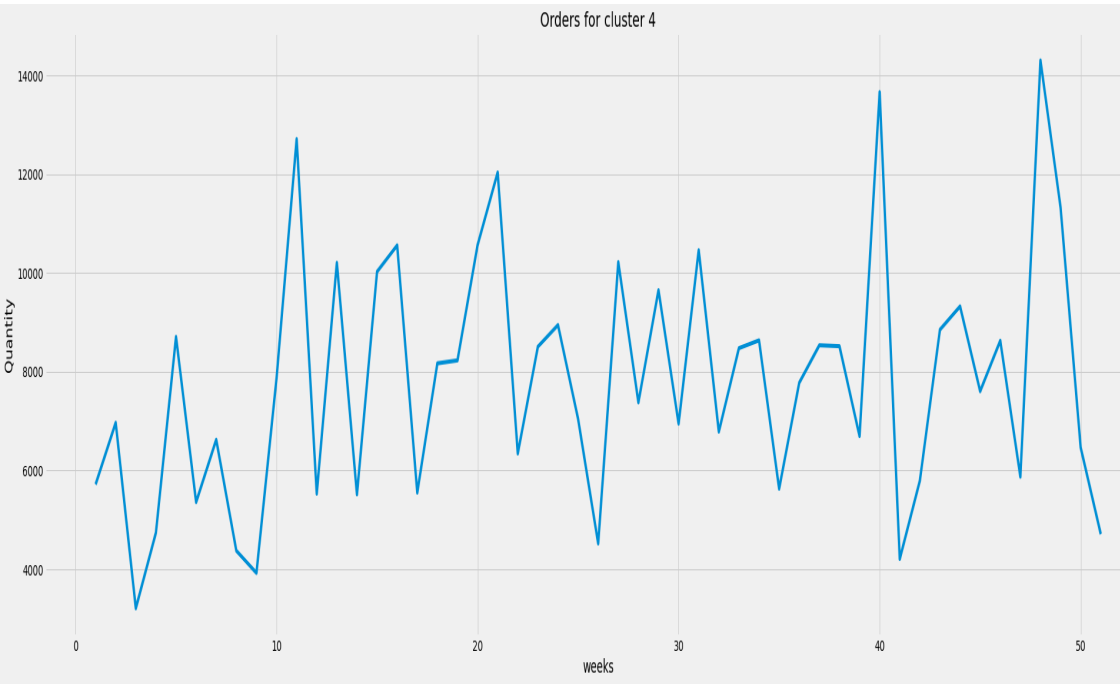
Pattern of orders in each cluster - II

Pattern of orders in each cluster - III

Distribution of products which have a strong seasonal demand

Distribution of products which have a demand throughout the year

Orders for cluster 4

PACK OF 12 LONDON TISSUES
BROCADE RING PURSE
PACK OF 72 RETROSPOT CAKE CASES
VICTORIAN GLASS HANGING T-LIGHT
PACK OF 60 PINK PAISLEY CAKE CASES
ASSORTED COLOURS SILK FAN
JUMBO BAG PINK POLKADOT
RED HARMONICA IN BOX
HEART OF WICKER SMALL
JUMBO BAG STRAWBERRY
COLOUR GLASS T-LIGHT HOLDER HANGING
GROW A FLYTRAP OR SUNFLOWER IN TIN
PARTY BUNTING
MINI PAINT SET VINTAGE
PLACE SETTING WHITE HEART
LUNCH BAG RED RETROSPOT
60 TEATIME FAIRY CAKE CASES
ANTIQUE SILVER T-LIGHT GLASS
JUMBO BAG BAROQUE BLACK WHITE
JUMBO BAG APPLES
PACK OF 72 SKULL CAKE CASES
TRAVEL CARD WALLET KEEP CALM
GIN + TONIC DIET METAL SIGN
HANGING JAM JAR T-LIGHT HOLDER
JUMBO BAG VINTAGE DOILY
JUMBO BAG DOILEY PATTERNS

Conclusion and Outlook

1. Development of marketing strategies to increase customer retention

2. Smart warehouse planning with the distribution of goods with respect to seasonal demands

3. In addition, it would be preferable to forecast sales of certain goods for better inventory management