

**Elec Kart e-Commerce | Project Report**  
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# Elec Kart

## Agenda:

**Key business insights and Proposed Market Mix  
Model for improved Revenue.**

Date: 15-Jun-2025



# Elec Kart - Introduction

- ElecKart, an Ontario-based e-commerce platform, specializes in electronics and operates a regulated marketplace connecting buyers and sellers. It offers nationwide delivery, top brands, quality checks, and big-ticket promotions to enhance customer experience.
- ElecKart saw early growth but faced revenue decline due to high customer churn, poor user experience, lack of a mobile app, and ineffective marketing. The CFO now seeks a root cause analysis to improve cost efficiency and retain customers.



# Target Audience



## CFO

Why Profit Levels are low.  
What's the ROI  
How to optimize the Budget



## Marketing Head










Customer Segmentation  
Geographic Spread of customers.  
Preferred Vehicle of AD Stock.



## Operations Head

-Current Status of SLA  
Impact on Sales

# Business Model Canvas

<div>Key Partners</div> <div></div> <div><ul style="list-style-type: none"><li>- Merchants</li><li>- Logistic Partners</li><li>- IT Infrastructure</li><li>- Software Development team.</li><li>- Warehouse Management</li></ul></div>	<div>Key Activities</div> <div></div> <div><ul style="list-style-type: none"><li>- Product Assortment on Website by Category Managers.</li><li>- Merchants, Sellers and Logistic Partners Onboarding by respective Teams.</li><li>- Availability and UX of eCommerce Website</li></ul></div>	<div>Value Propositions</div> <div></div> <div><ul style="list-style-type: none"><li>- ElecKart is a leading e-commerce chain based in Ontario, Canada, specializing in electronic products.</li><li>- It sells all major electronic items such as TVs, cameras, OLED screens, and microwaves.</li><li>- The company follows the marketplace model and acts as a platform where buyers and sellers can interact with each other.</li></ul></div>	<div>Customer Relationships</div> <div></div> <div><ul style="list-style-type: none"><li>- Customer care team helps customers and merchants with their product or delivery issues.</li><li>- Detailed feedback is also requested on the products and services in order to further improve customer experience.</li></ul></div>	<div>Customer Segments</div> <div></div> <div><ul style="list-style-type: none"><li>- Current Market Focus is on Ontario Canada.</li><li>- Segments of customers vary basis the Product , Price and Promotions.</li><li>- It occasionally offers big-ticket promotions (similar to the Big Billion Day) in order to ensure that the top-end customers are delighted.</li></ul></div>
	<div>Key Resources</div> <div></div> <div><ul style="list-style-type: none"><li>- Category Managers.</li><li>- Onboard Team.</li><li>- Warehouse.</li><li>- Online e-Commerce Platform.</li><li>- Customer Care Team.</li></ul></div>		<div>Channels</div> <div></div> <div><p>Sells these products only via the website</p><p>Customer prefer a Mobile App.</p></div>	
<div>Cost Structure</div> <div></div> <div><ul style="list-style-type: none"><li>- Advertisement and Marketing.</li><li>- Online eCommerce Platform Infrastructure CAPEX, OPEX.</li><li>- Payment to Logistic partners.</li><li>- Employees Salary – Marketing, Category Managers, Onboard Team, Customer Care Centre and IT Staff.</li><li>- Warehouse Maintenance</li></ul></div>			<div>Revenue Streams</div> <div></div> <div><ul style="list-style-type: none"><li>- Commission from Merchants for each of the product Sold.</li><li>- In page advertisement in the Online eCommerce Platform.</li></ul></div>	

# Key Insights

## CUSTOMERS

- **Segments:** Customers are segmented basis the RFM Score & ~9% of customers are of Top-Valued Customers.
- New customers addition is getting dropped as the month progress.es.
- **%Dormant Customers** (with 1 order History) shows an alarming presence in the Camera Accessory which is the Top performing Product segment.
- **%Churn Likely** is low with Top Customer Segment.
- **NPS** received in 2016 has better correlation with Total Sales compared to 2015. Reflects seasonality as it tops in May'2016 start of spring.

## PRODUCTS

- Camera Accessory Tops the Total Sales Volume followed by Gaming Accessory, Home Audio.
- Camera Accessory and Gaming Accessory are aligned Customer Segment by Value has more concentration with Top Customers Segment
- Home Audio has more concentration in High-Value Segment (Rank 2)

## SALES

- Customer Segment Vs Sub Category: Top Customers, has high concentration in Camera Accessory.
- Churn Likely vs Customer segment: Top Customers are highly **un**likely to Churn.
- Pin code Cluster 1 does well in terms of Sales and Top Customers segment.
- Lesser the Value of the Customer Segment more is the preference to COD – Payment Type.
- High Churn Likely is present in all 3 sub categories
- Preferred SLA range lies withing <=12 Days. More the SLA lesser is the sales.

## INVESTMENT

- All 3 sub categories have low sales compared to the investment in the respective Year Month
- Though Sales Vs Investment Ratio is higher in Camera Accessory followed by Gaming Accessory and Home Audio.
- 2016 performs relatively better compared to 2015 in terms of previous weeks investment's impact on Sales in the Subsequent week.
- TV and Digital performs better compared to other Ad Stocks in terms of previous week investment's influence on subsequent weeks Sales.

## GEO DISTRIBUTION

- Customers are segregated into 7 clusters basis the Pincode.
- Clusters 0,1 & 3 has most of the Top end and High Value Customers.
- Product Procurement SLA<=5 and SAL<=12 in cluster 0,1 and 3 has more concentration.

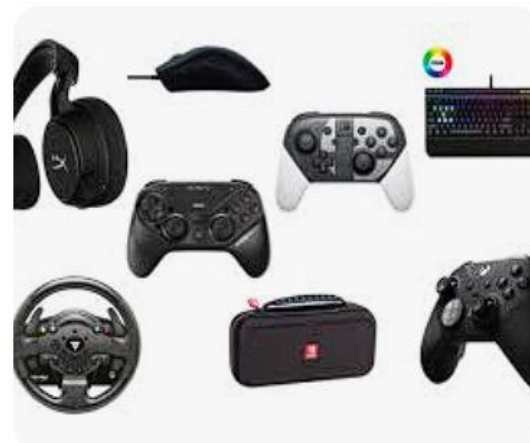
## WEATHER

- Camera Accessory +ve correlations with Min and Max Temp, where customers tend to experience or experiment with Nature Photography during Warm and Pleasant weather conditions.
- Snow has certainly has +ve with Gaming Accessory where customers tend to stay in house during heavy snow.
- **2015 Aug has only 1 week of Sale as Ontario faced with 3 Tornadoes** ([source](#)):

## Website

- **Low Conversion Rate:** if product delivery #days (SLA) are high and displayed only when customer is about to check out , will cause a drop out, Low NPS and may even make customer to churn.
- **Payment Mode** COD seems to be high with Low value customers , so better to enable it only for Loyal customers who have low order returns and goo transaction history.

# Overview of Proposed Market Mix Models



- Camera Accessory
- Gaming Accessory
- Home Audio



**Product Verticals:** Concentration on product verticals like **Game Pads, Joystick Gaming Wheel, TVOutCable Accessory**, will pay off better as customer concentration on these products are more.

**Pricing :** Discounts for this does not prove to be effective , as these are routine products, preventing a Markdown Pricing strategy will preserve Revenue. Customers mostly may not remember the pricing for usually bought products. These products can be bundled with Products from other sub categories as Promotional Sale instead of reducing the price, which customers does not really look for.

**Promotion:** None of the current vehicles are proving to be worth the investment, though overall customer preference is in TV and Digital mediums. During weather Factors like Snow customers tend to stay home, watching TV or Digital Entertainment. So Targeting these TV, Digital vehicles during such situation will pay off better.

## Gaming Accessory Model Equation

```
lg_GA.getModelEquation()
```

```
'-0.0005*Pay_Date+-0.0021*sla+0.0004*GamePad+-0.0009*Online marketing+0.0016*JoystickGamingWheel+0.0019*TVOutCableAccessory+0.0361*const+-1.8673*discount+1.8652*product_mrp'
```

**Product Verticals:** Concentration on product verticals like **Voice Recorder**, will pay off better as customer concentration on these products are more.

**Pricing :** Discounts for this does not prove to be effective , as these are routine products, preventing a Markdown Pricing strategy will preserve Revenue. Customers mostly may not remember the pricing for usually bought products. These products can be bundled with Products from other sub categories as Promotional Sale instead of reducing the price, which customers does not really look for.

**Promotion:** Sponsorship seems to be the preferred Vehicle for this category. As the sales is low relative to other categories, combining with Gaming Accessory Sub Category will pay off better, where customers may prefer to have better sound effects while gaming.

## Home Audio Model Equation

```
[95] lg_HA.getModelEquation()
```

```
➞ '-0.0022*Sponsorship+0.0046*VoiceRecorder+0.0218*const+-0.923*discount+1.0202*product_mrp'
```

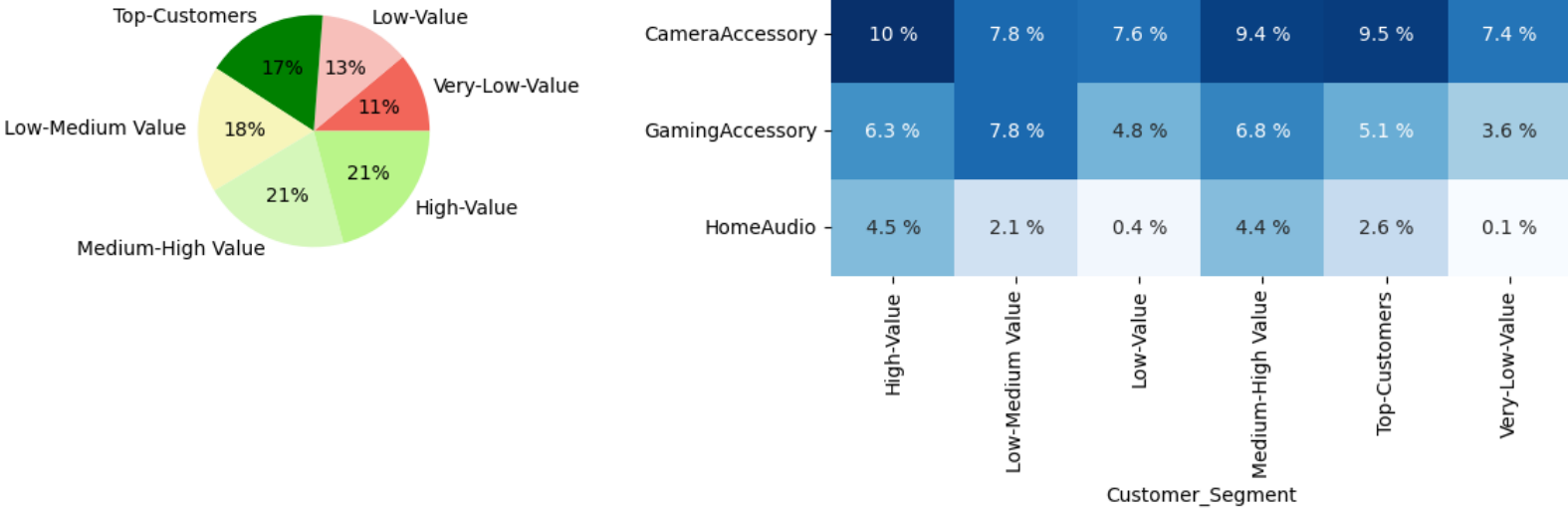


# Dashboards

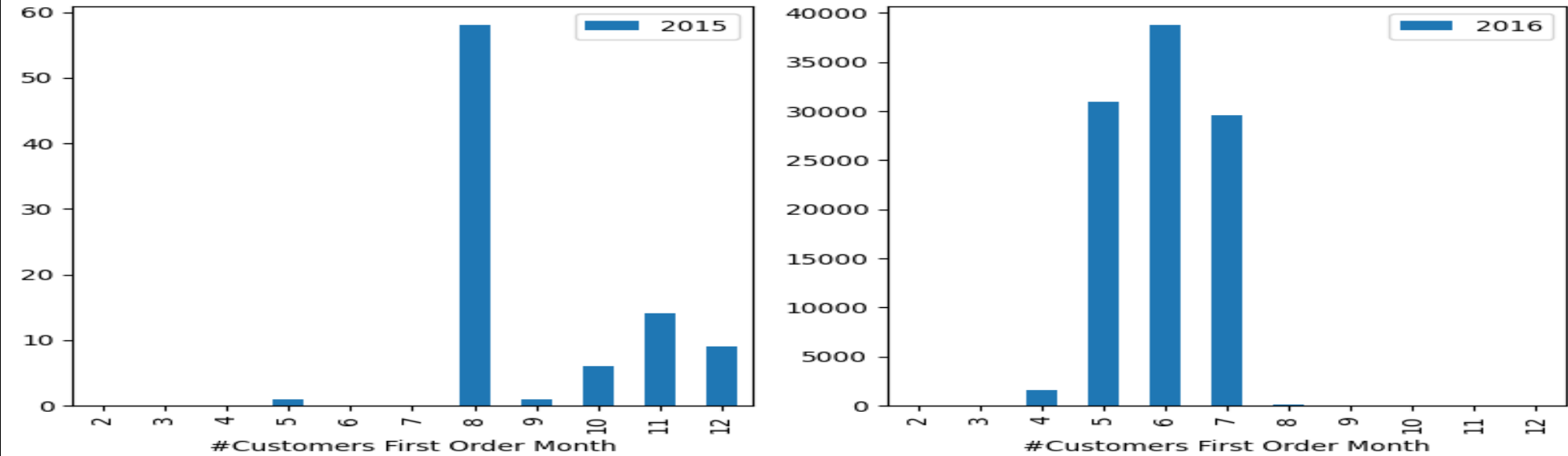
- Customer
- Products
- Sales
- Investments
- Geo Distribution (vs SLA)
- NPS
- Weather

# Customer Dashboard

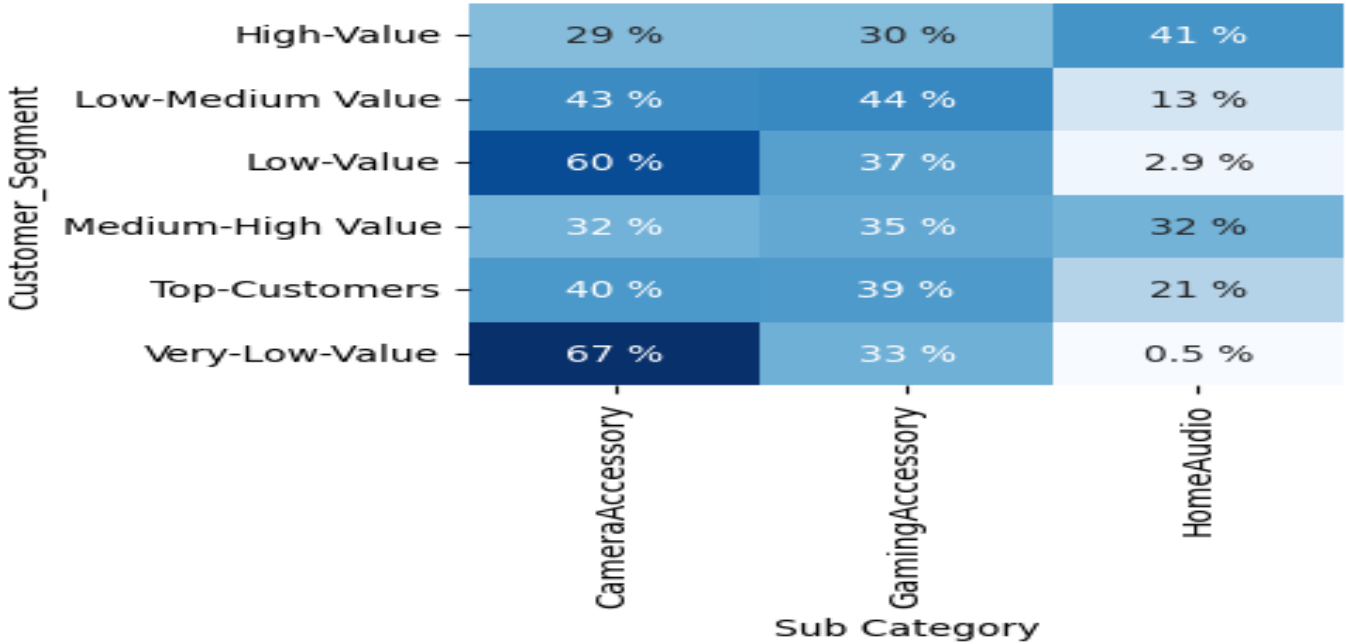
Customer Segment% (by R-F-M Score) and Sub Category



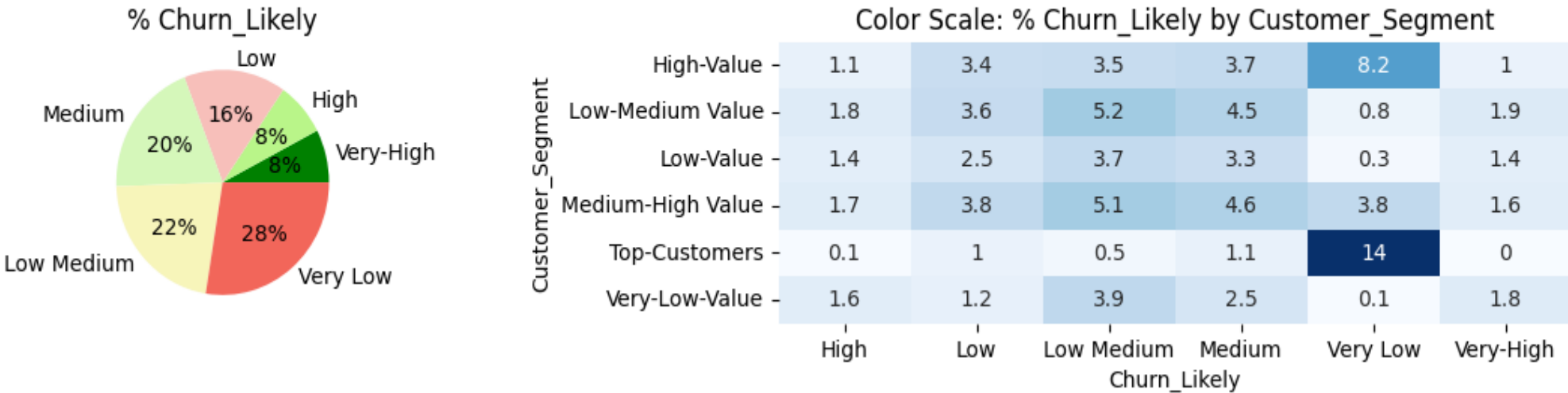
New Customer Onboard Trend 2015 vs 2016



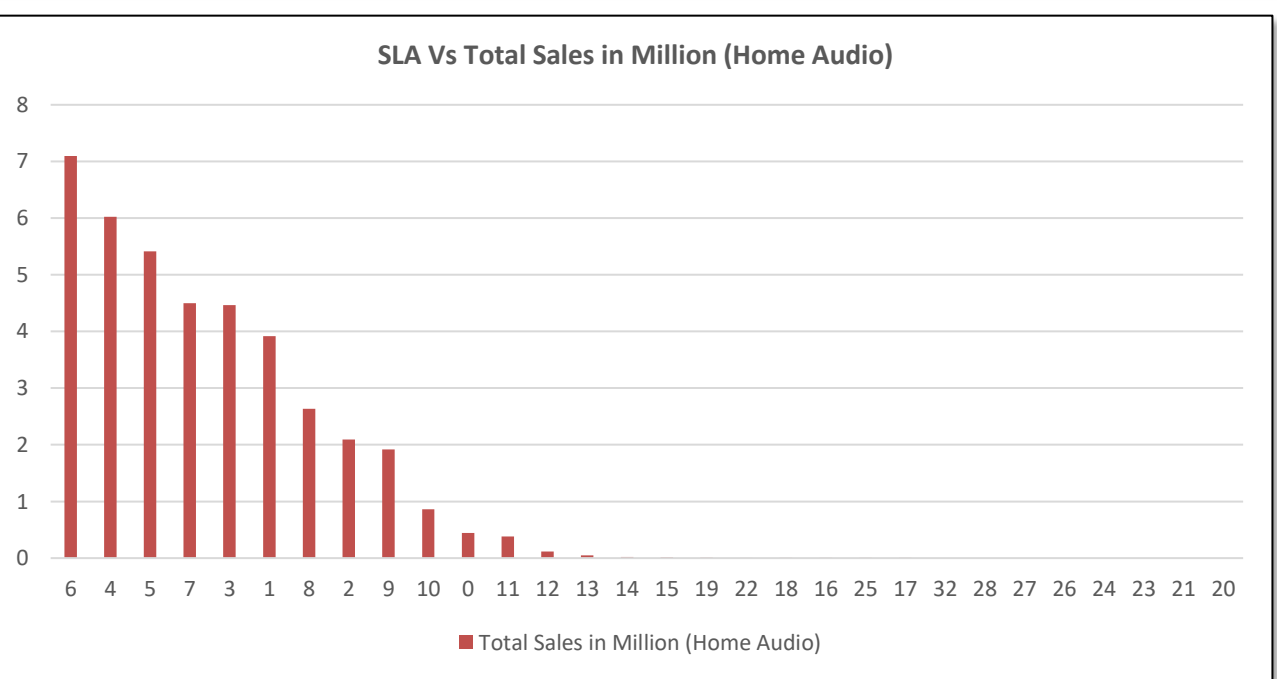
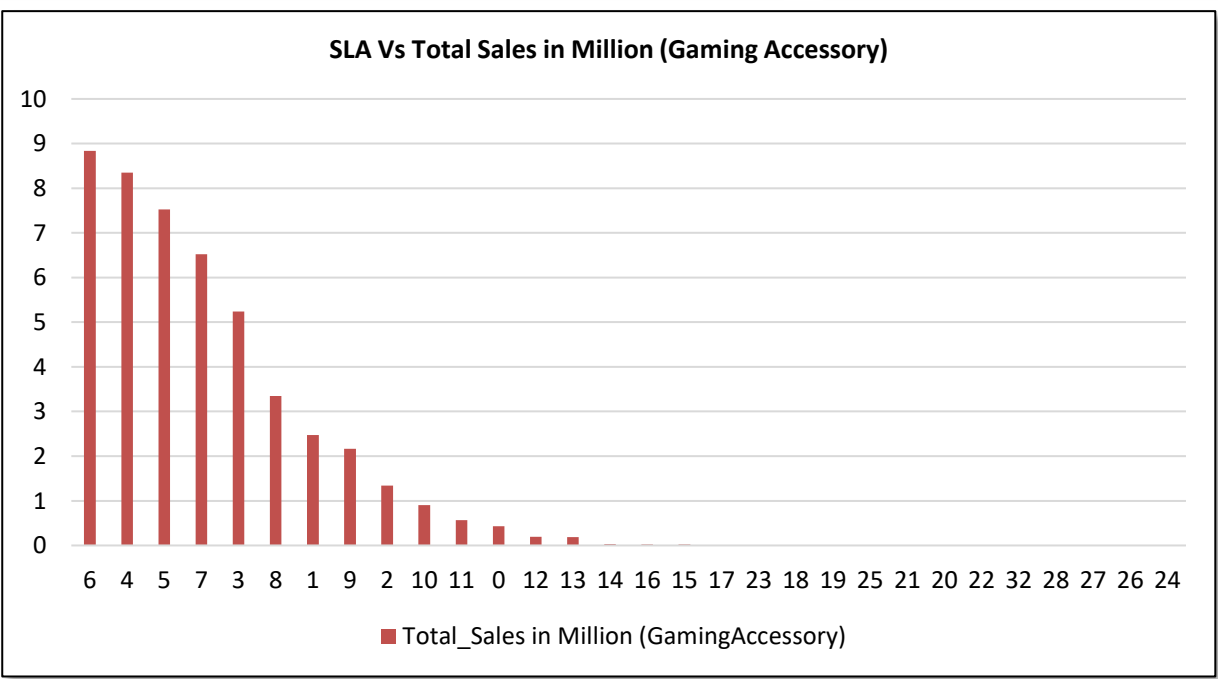
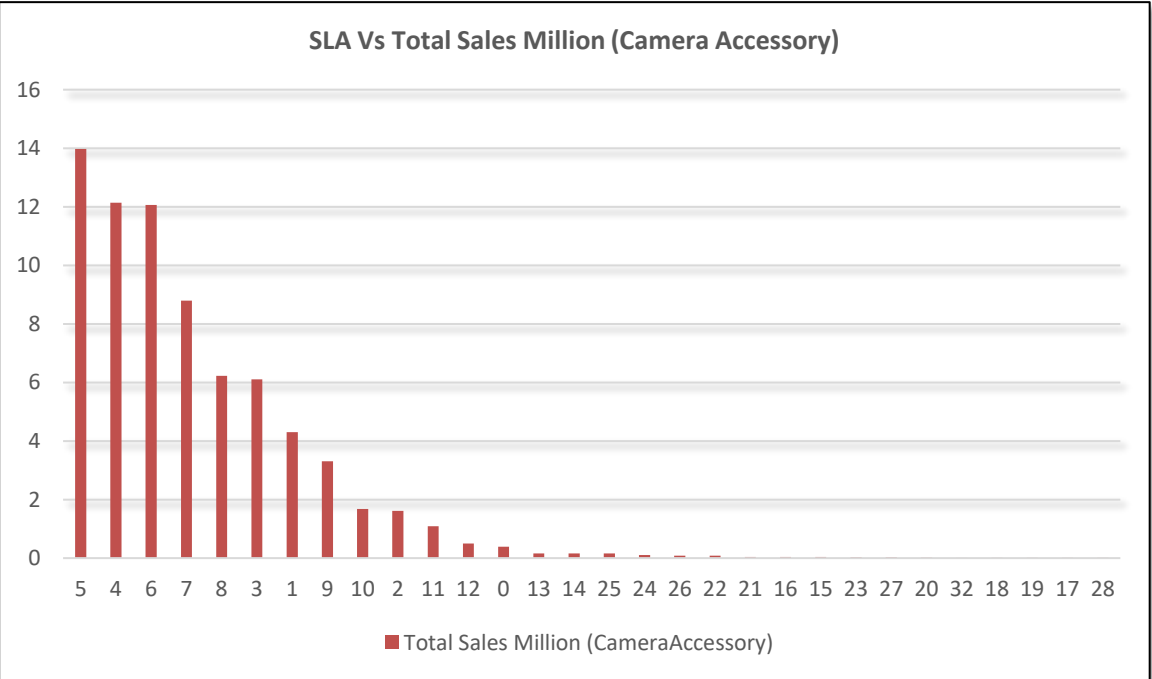
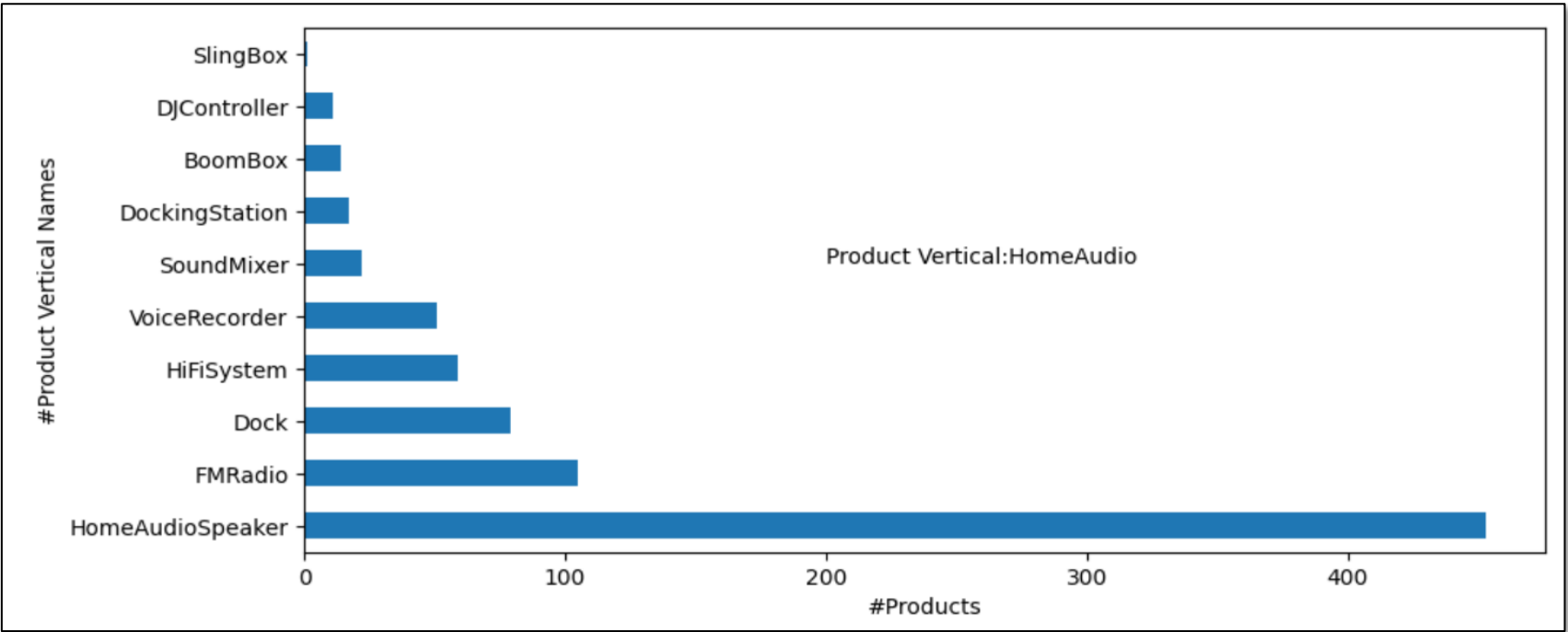
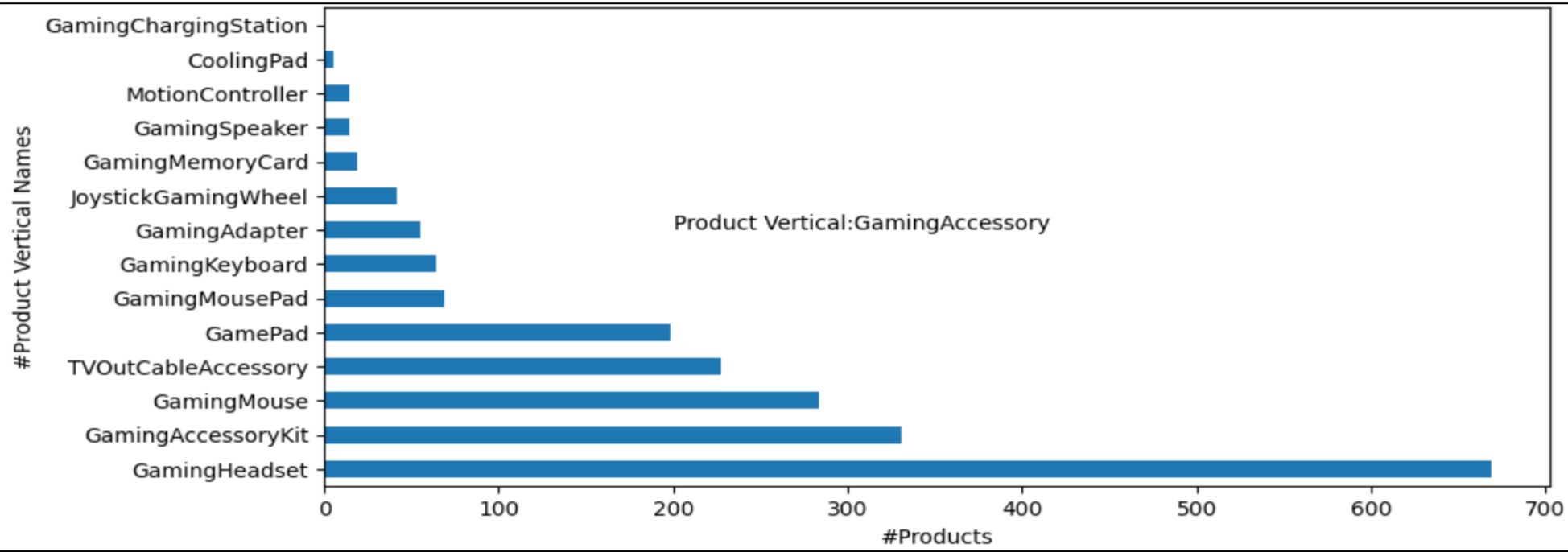
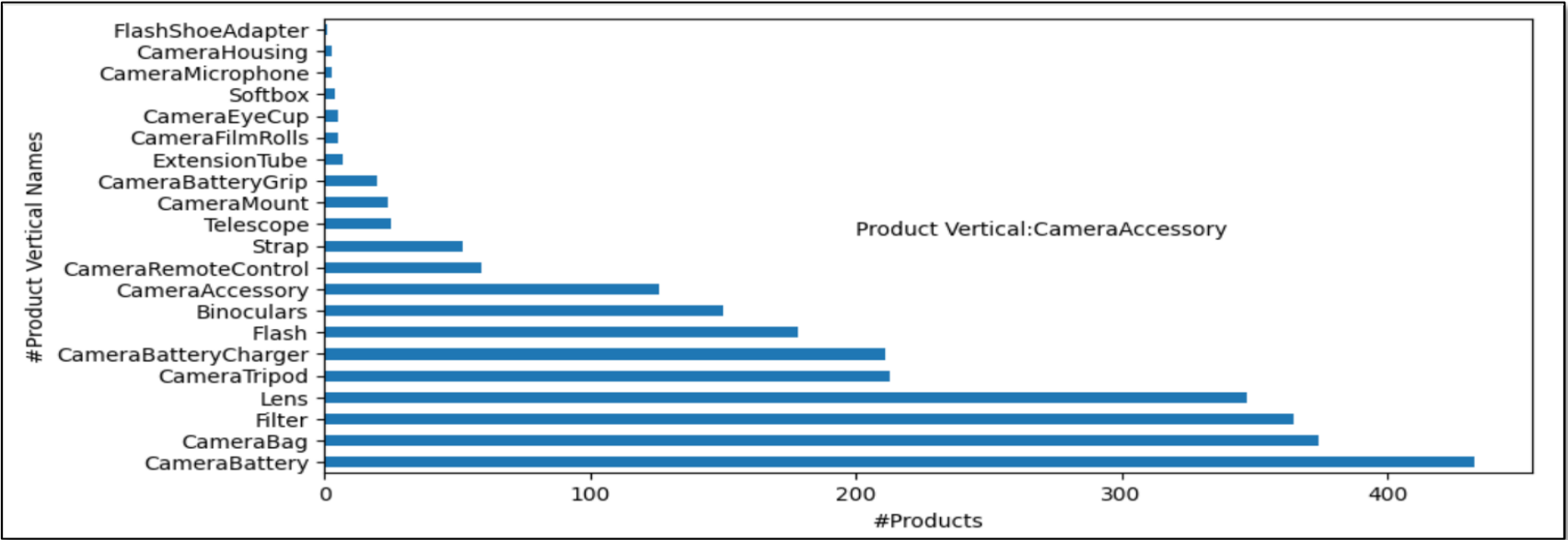
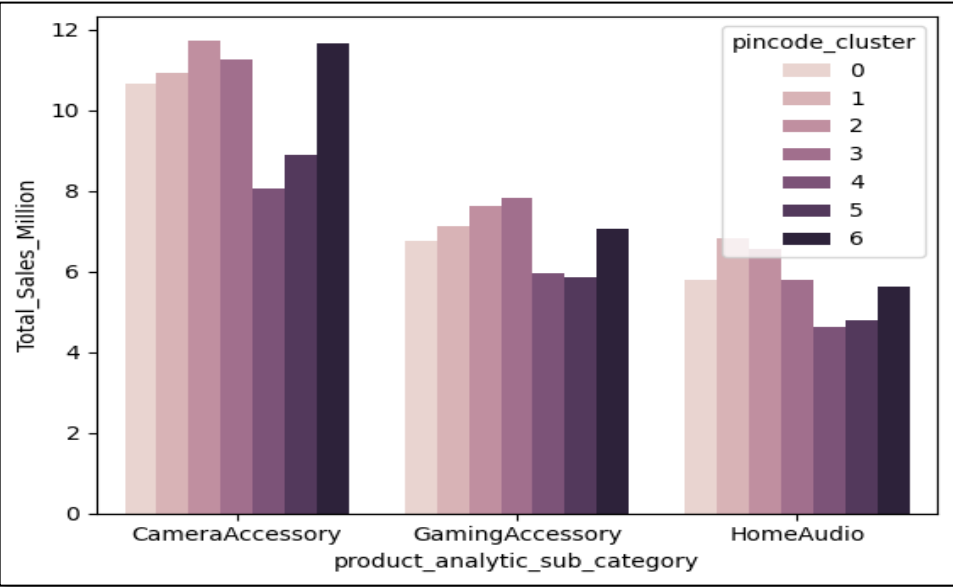
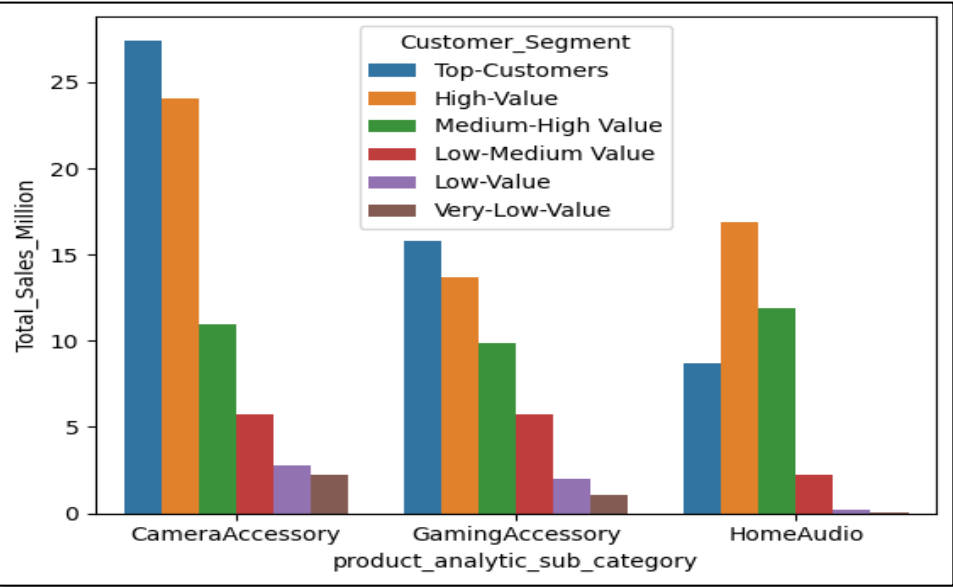
%Dormant Customers by Segment vs Sub Category



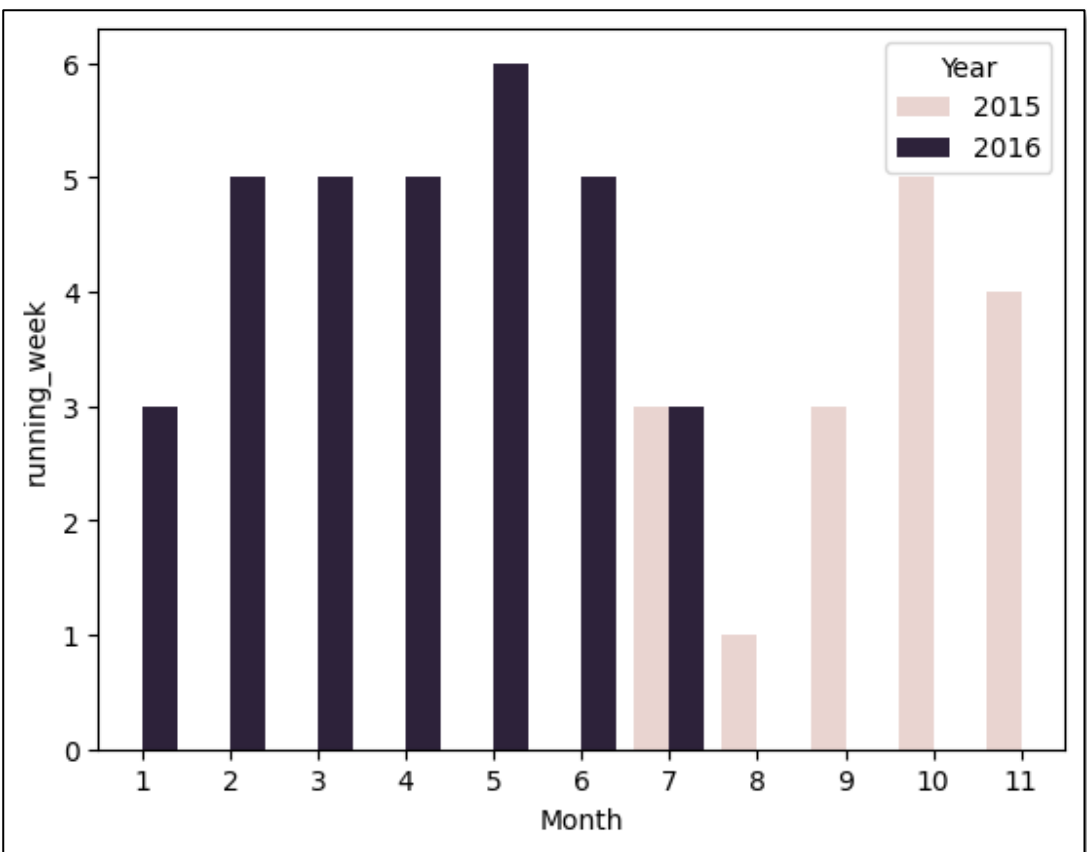
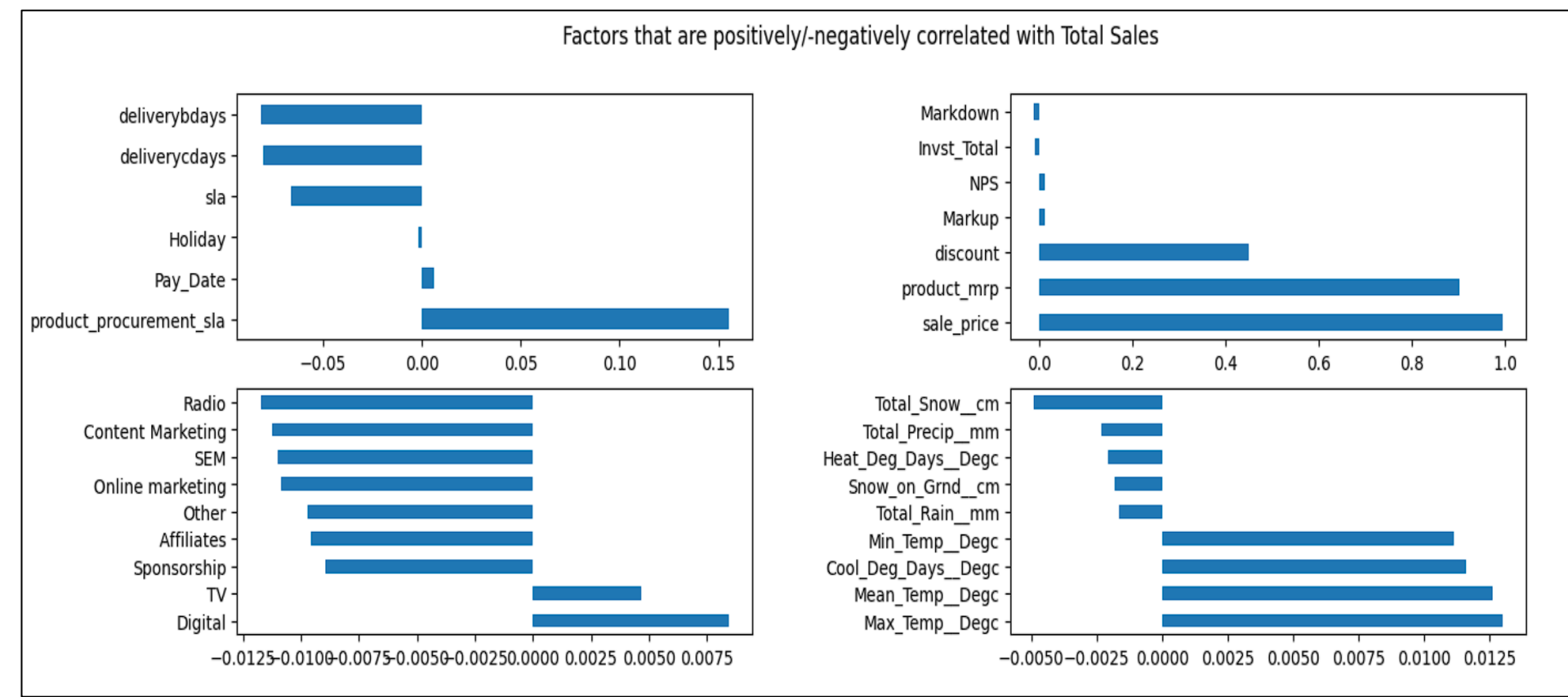
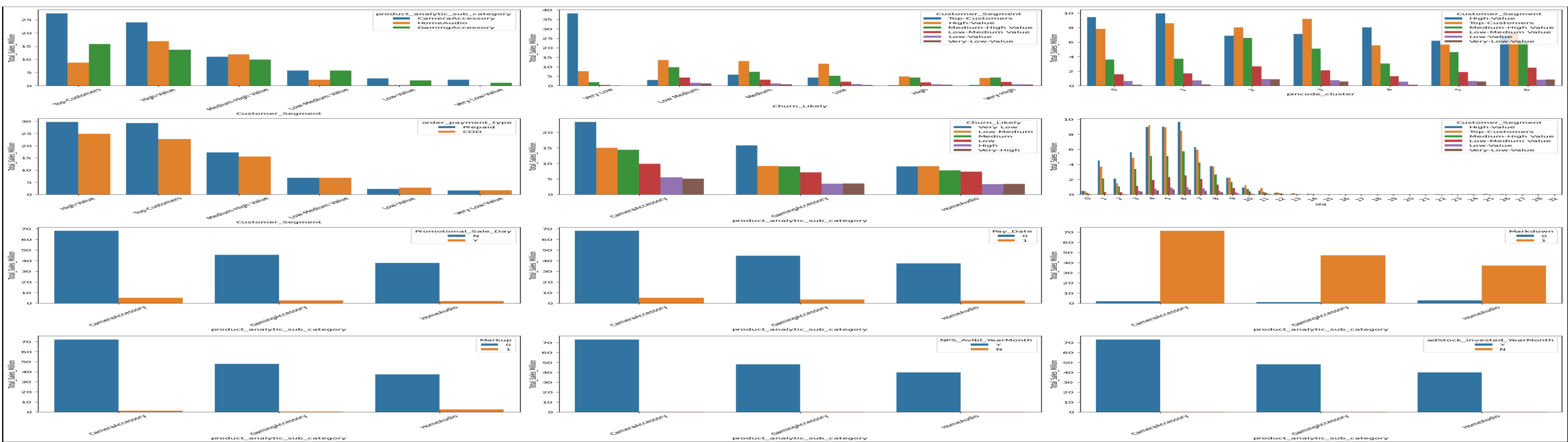
CUSTOMER LIKELY TO CHURN (Rank of % Presence weeks)



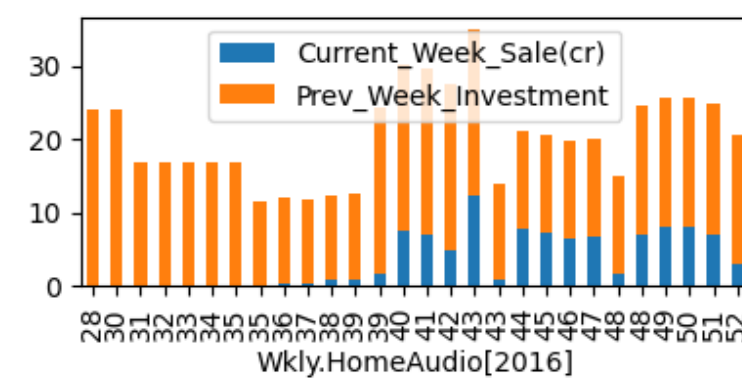
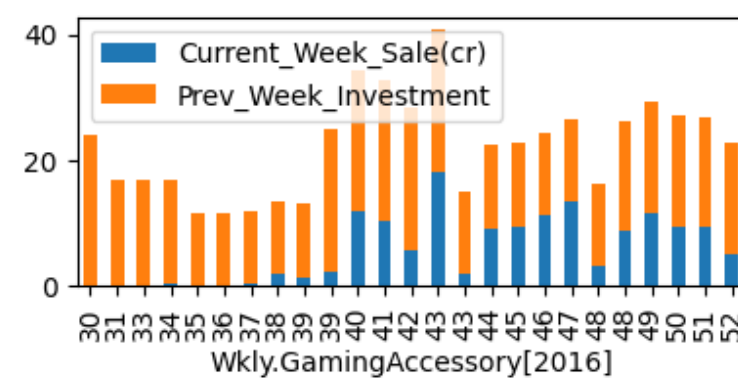
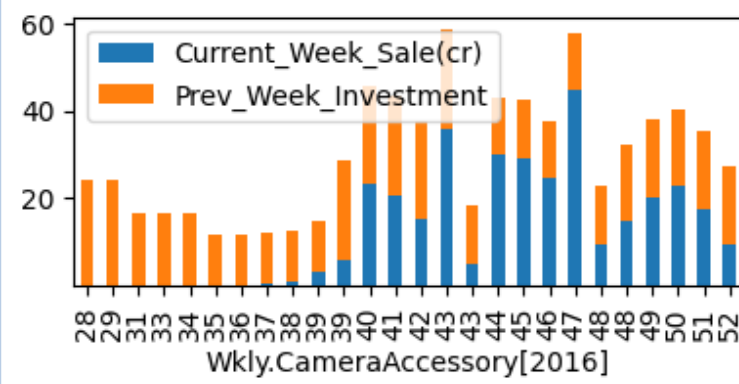
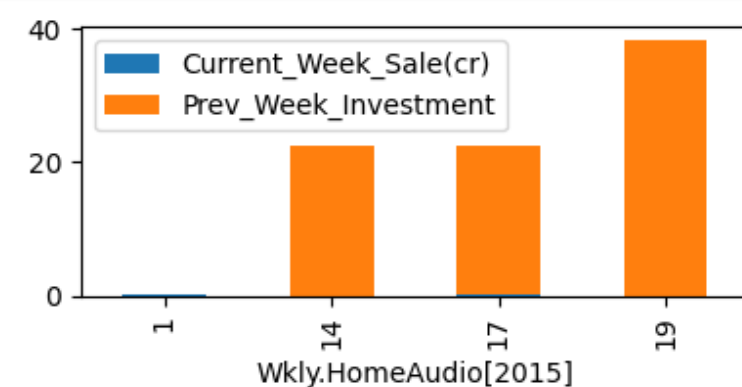
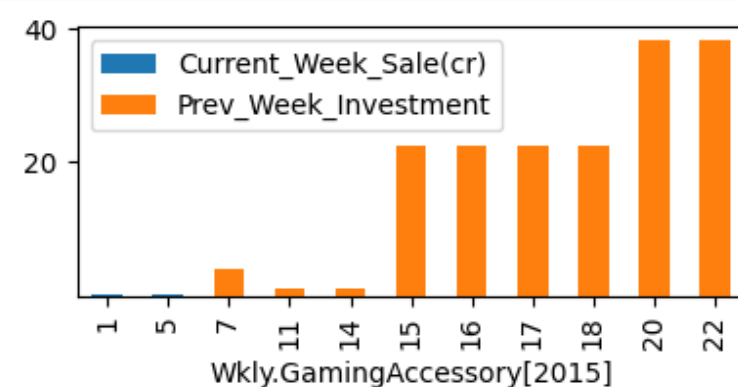
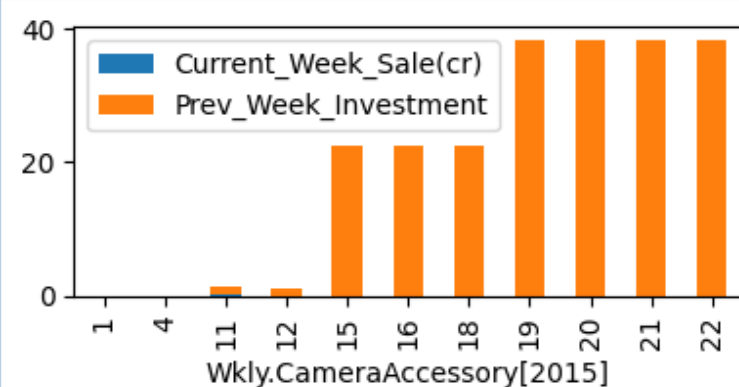
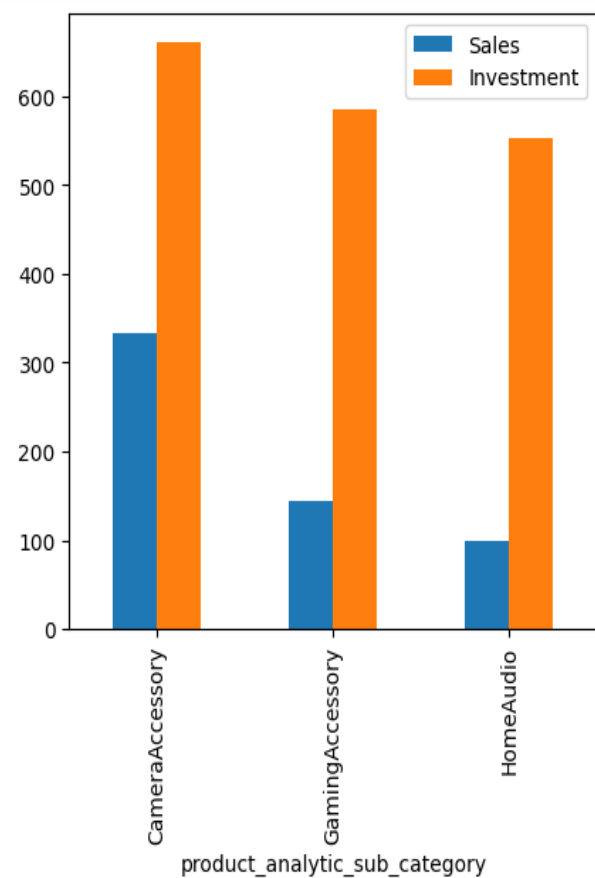
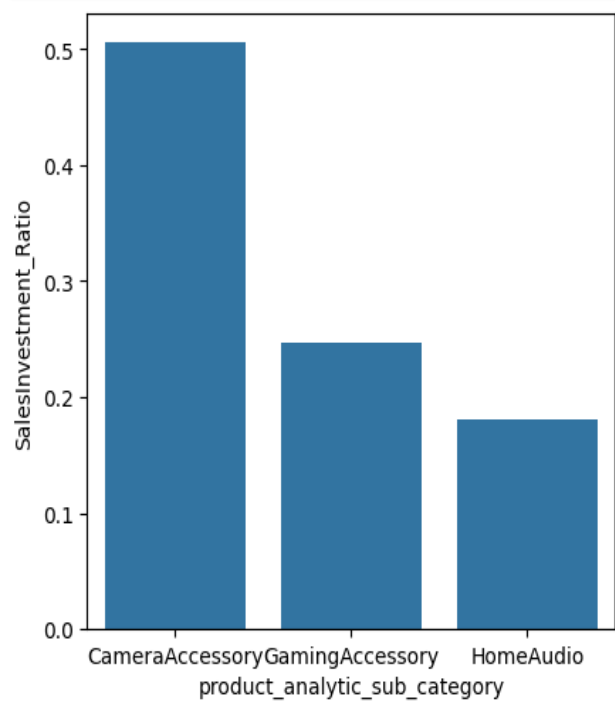
# Product Dashboard



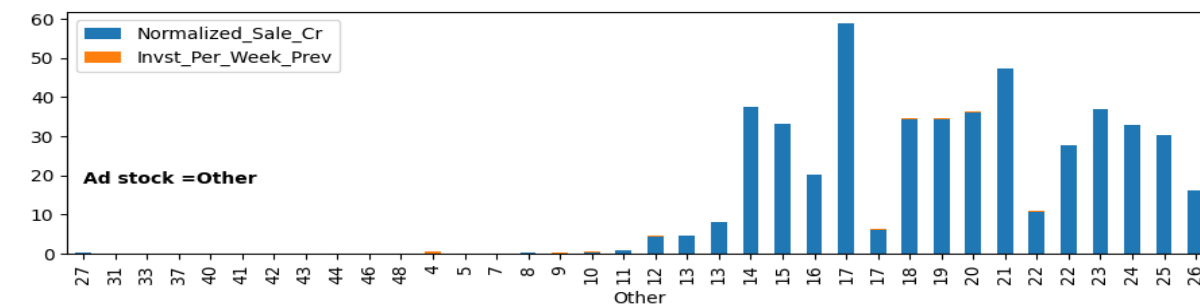
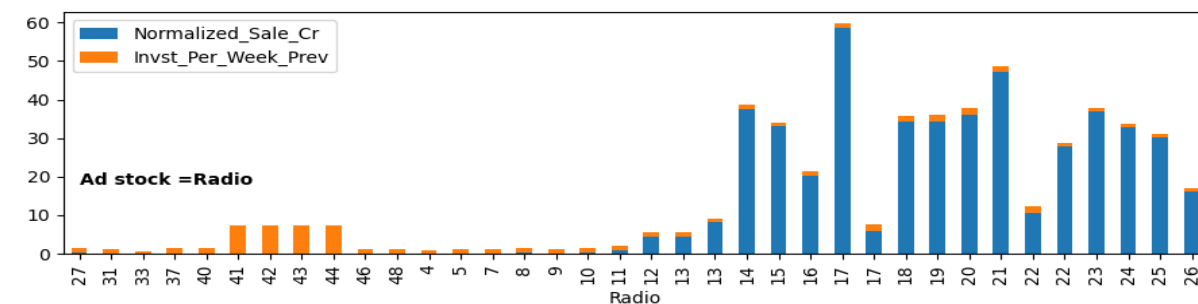
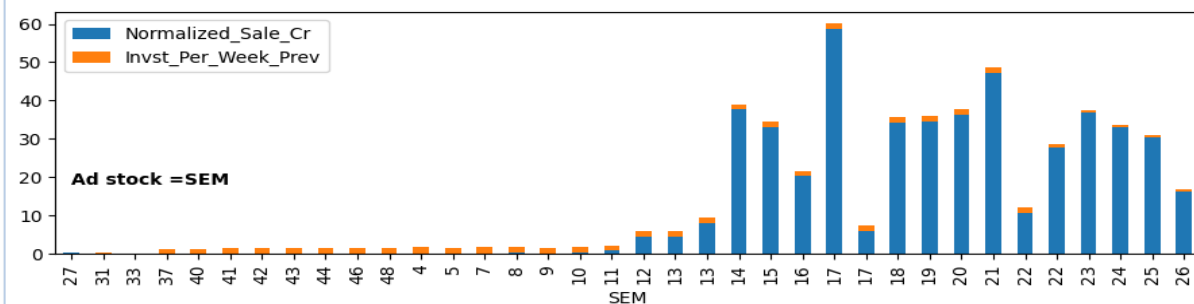
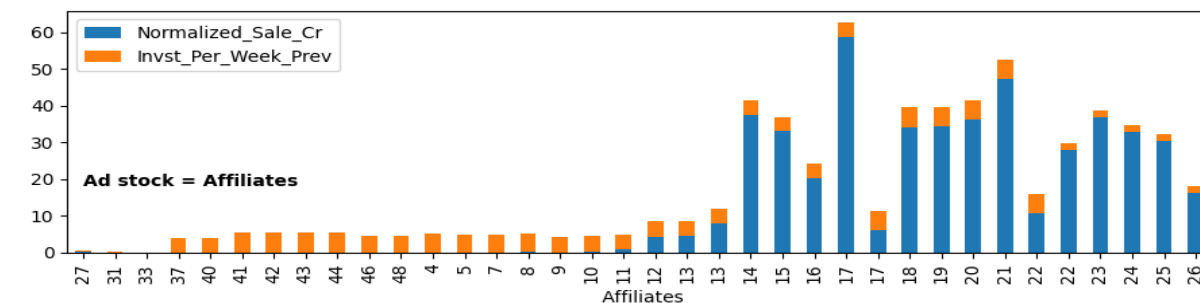
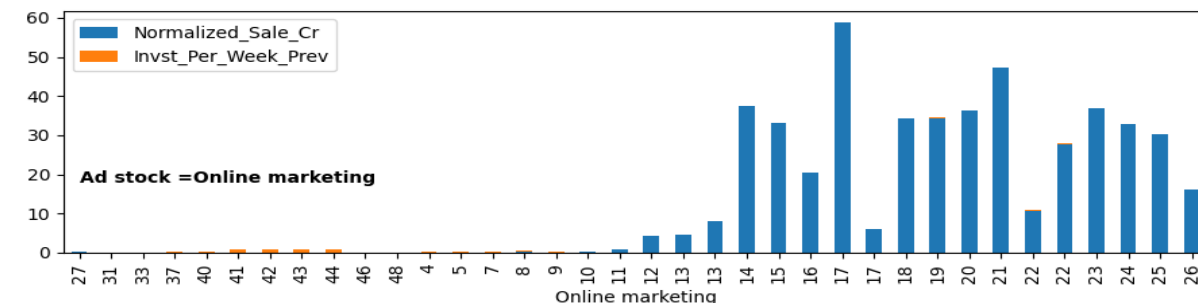
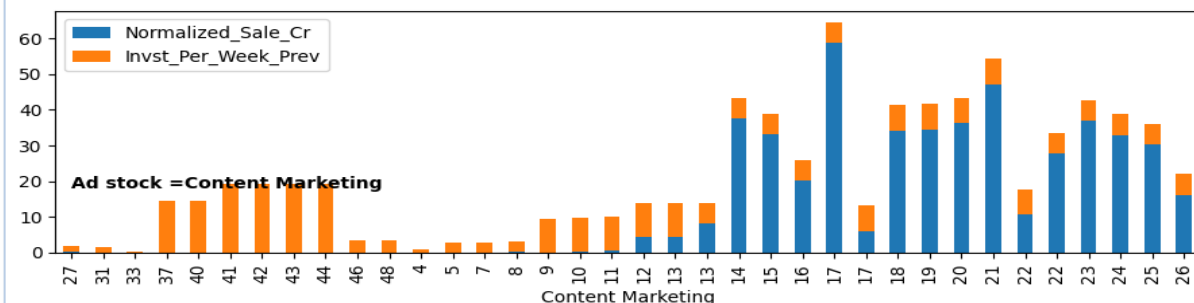
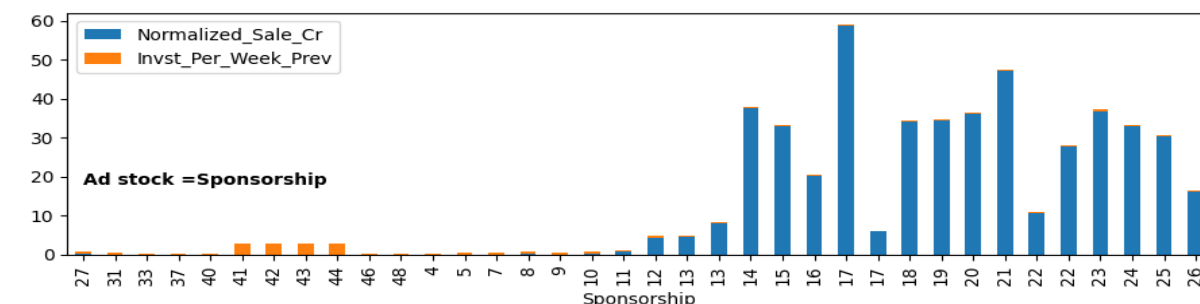
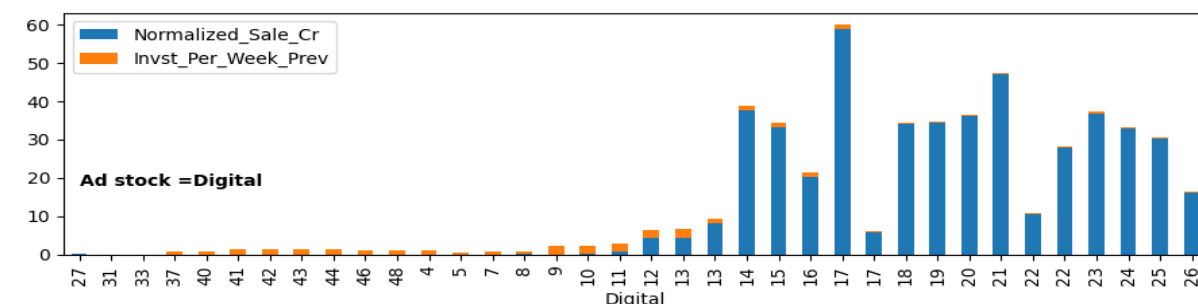
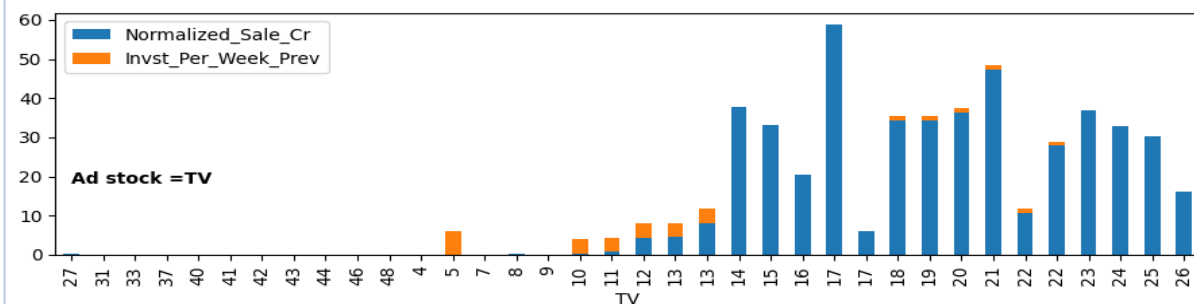
# Sales Dashboard



# Investment Dashboard



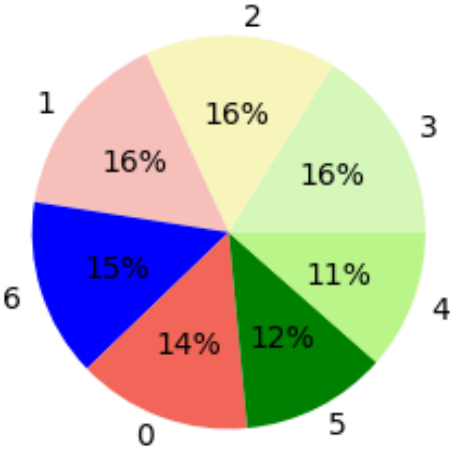
AdStock Vs Sales by Order\_Week





# Geo Distribution (vs SLA) Dashboard

#distribution of Pincode clusters



Color Scale: Total Sales(Million) by Pincode cluster Vs Customer segment

customer_segments	High-Value	9.4	10	6.9	7.1	8	6.2	7
	Low-Medium Value	1.6	1.7	2.7	2.1	1.3	1.9	2.5
	Low-Value	0.64	0.73	0.91	0.75	0.55	0.63	0.83
	Medium-High Value	3.6	3.7	6.6	5.1	3.1	4.6	6.1
	Top-Customers	7.8	8.6	8	9.2	5.5	5.6	7.2
	Very-Low-Value	0.14	0.17	0.89	0.58	0.14	0.57	0.84
		0	1	2	3	4	5	6

product_procurement_sla<=5	0	3.9e+03	4.5e+03	4.5e+03	4e+03	3.5e+03	3.4e+03	4.1e+03
	1	9.2e+03	9.8e+03	1e+04	1.1e+04	7.2e+03	7.7e+03	9.3e+03
	2	3.7e+03	4.3e+03	4.2e+03	3.7e+03	2.9e+03	3e+03	4e+03
	3	9.1e+02	9.2e+02	9.8e+02	8.3e+02	6.9e+02	7.8e+02	8.6e+02
	4	2.7e+03	2.7e+03	2.8e+03	3.3e+03	2.1e+03	2.2e+03	2.7e+03
		0	1	2	3	4	5	6

sla<=12	0	1.1e+02	1.2e+02	1.1e+02	1e+02	73	1.2e+02	1.6e+02
	1	5.9e+02	5.8e+02	6.5e+02	5.9e+02	4.8e+02	5.1e+02	6.3e+02
	2	4.1e+02	3.9e+02	4.4e+02	4.1e+02	3.5e+02	3.7e+02	3.7e+02
	3	1.9e+03	2.1e+03	2.2e+03	3.5e+03	1.5e+03	1.6e+03	2.1e+03
	4	3.3e+03	3.6e+03	3.3e+03	3.2e+03	2.7e+03	2.7e+03	3.3e+03
	5	3.6e+03	3.9e+03	4e+03	4.5e+03	2.9e+03	3e+03	3.6e+03
	6	3.8e+03	4.3e+03	4.2e+03	3.8e+03	3e+03	3.2e+03	3.8e+03
	7	3e+03	3.2e+03	3.3e+03	3e+03	2.4e+03	2.5e+03	3e+03
	8	1.8e+03	1.9e+03	2e+03	1.8e+03	1.4e+03	1.4e+03	1.8e+03
	9	1e+03	1.2e+03	1.2e+03	1.2e+03	8.8e+02	9.3e+02	1.1e+03
	10	5e+02	4.8e+02	5.8e+02	4.7e+02	4.6e+02	4e+02	5.2e+02
	11	3.1e+02	2.9e+02	3.5e+02	2.9e+02	2.4e+02	2.7e+02	2.6e+02
	12	1.7e+02	1.4e+02	1.4e+02	1.2e+02	1.2e+02	1.1e+02	1e+02
		0	1	2	3	4	5	6

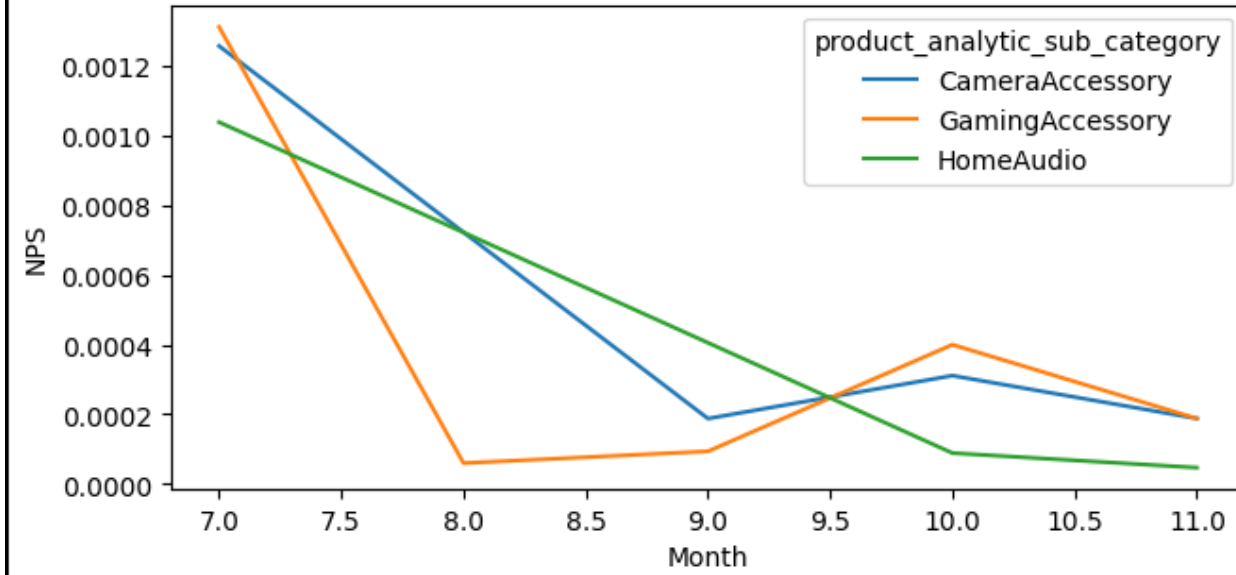
product_procurement_sla>5	6	3	0	4	4	1	4	4
	7	15	5	7	8	5	1	5
	8	0	0	0	0	0	0	1
	9	2	6	1	2	4	7	1
	10	0	5	2	3	2	1	1
	11	21	24	16	35	19	15	18
	12	47	61	52	46	41	44	62
	13	0	0	0	0	2	0	0
		0	1	2	3	4	5	6

sla>12	13	63	64	79	67	60	51	66
	15	36	32	38	31	20	16	38
	17	24	27	29	19	17	11	14
	19	15	12	21	12	13	11	14
	21	8	9	5	9	6	2	4
	23	14	5	0	3	5	8	6
	25	5	0	3	3	3	5	2
	27	2	5	2	2	1	2	1
	29	10	3	3	2	3	1	3
	31	2	5	4	2	2	6	12
	33	4	6	0	1	7	2	7
	35	5	8	3	5	2	1	6
	37	2	11	4	4	2	18	19
		0	1	2	3	4	5	6

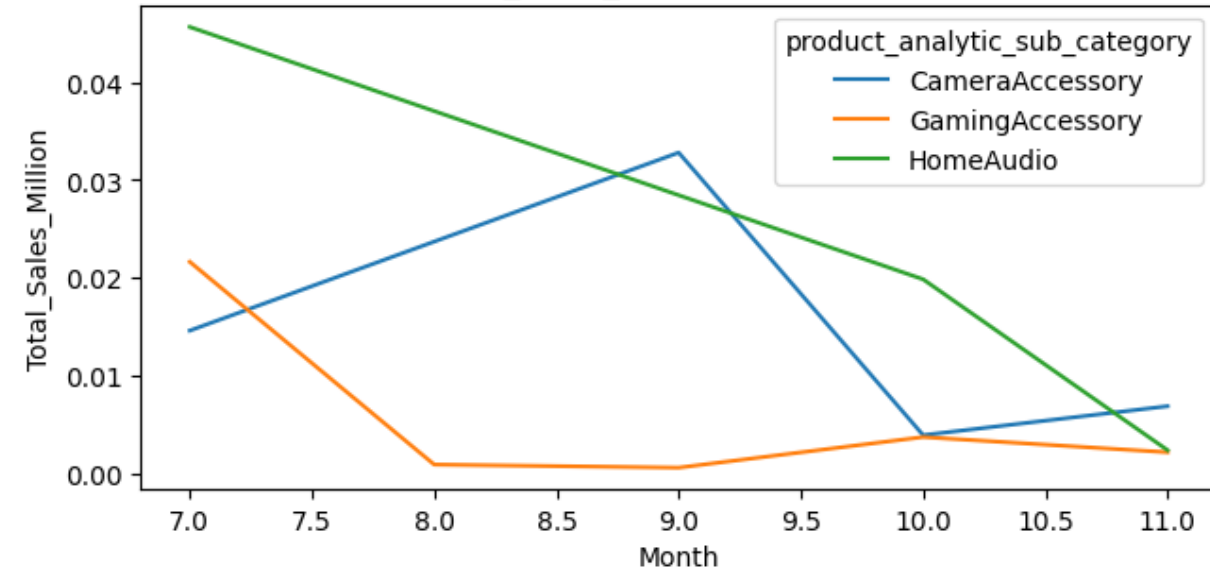


# NPS Dashboard

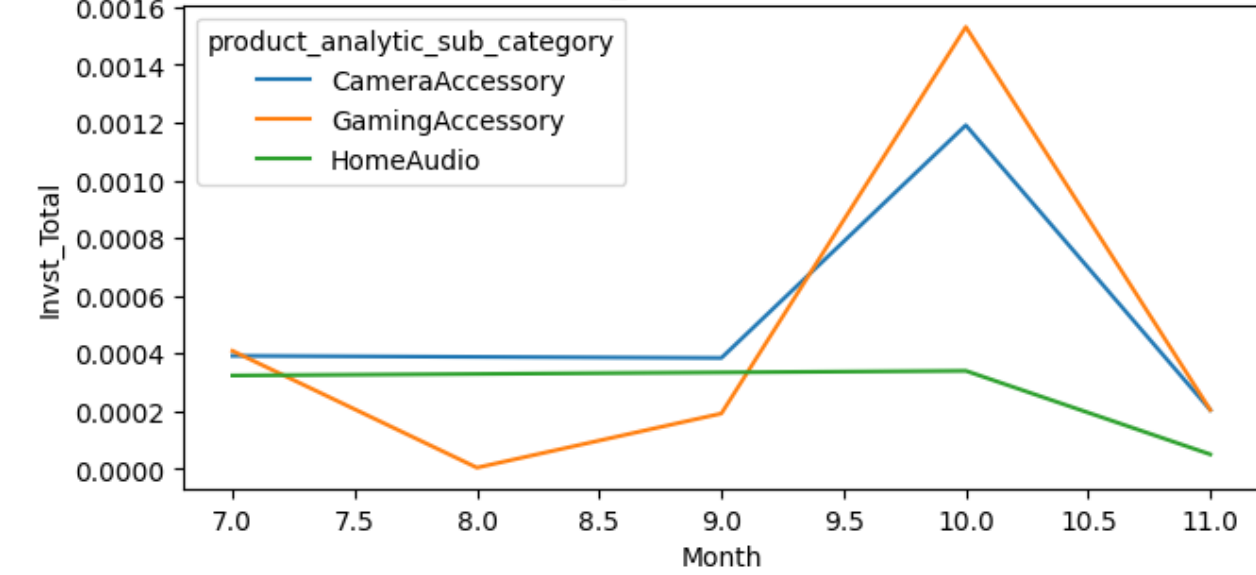
NPS:[Year=2015]



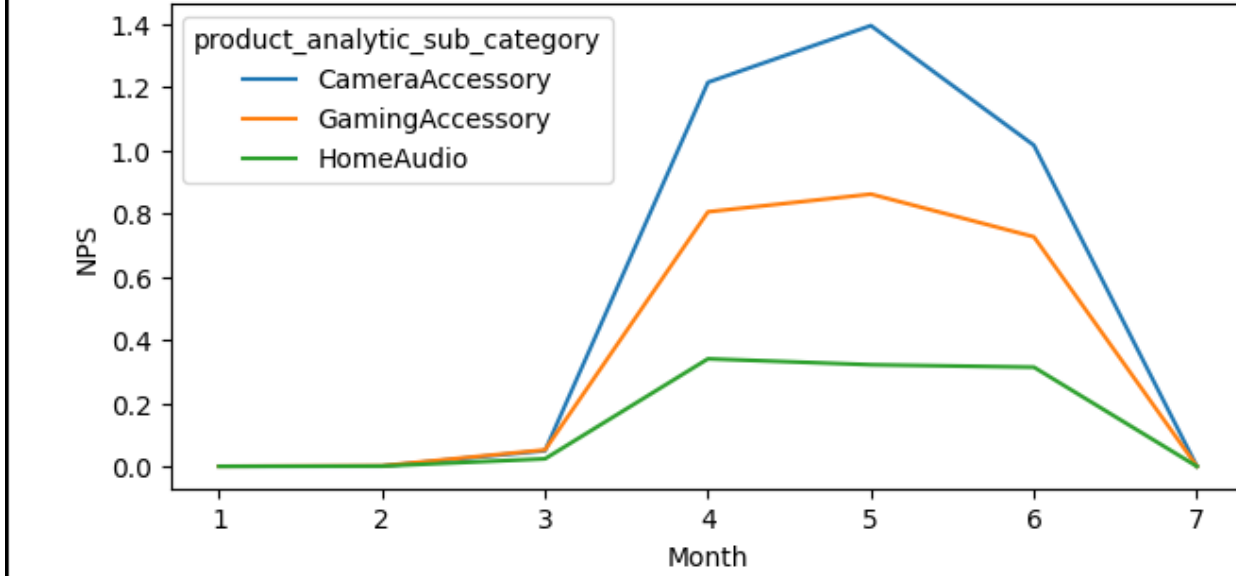
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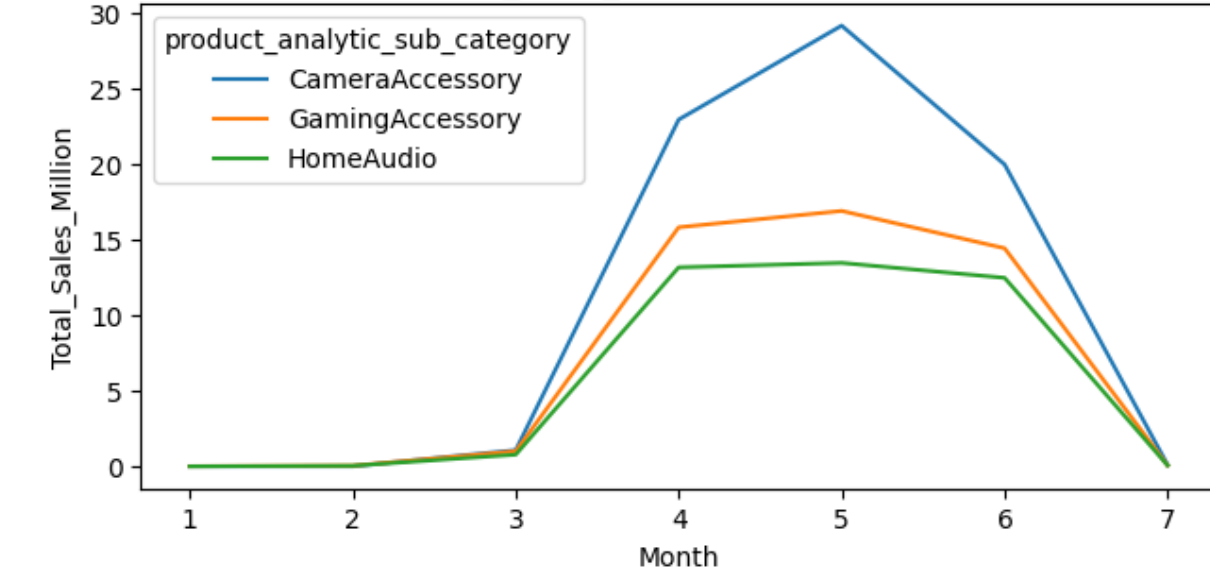
Invst\_Total:[Year=2015]



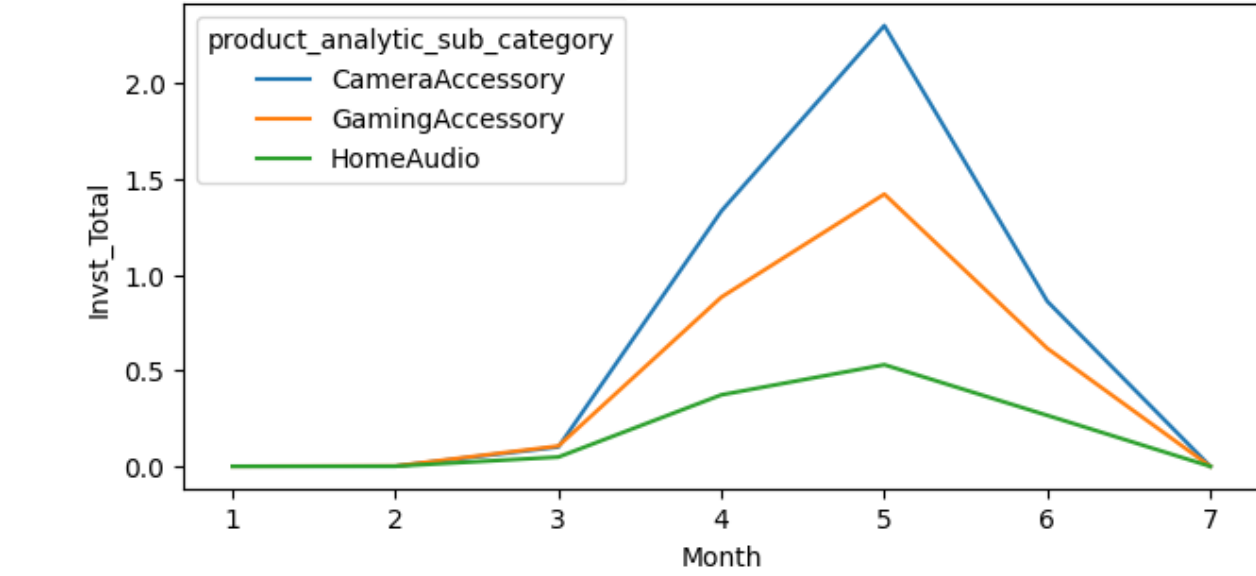
NPS:[Year=2016]



Total\_Sales\_Million:[Year=2016]



Invst\_Total:[Year=2016]



# Weather Correlations

Max_Temp__Degc	0.021	-0.0031	0.014
Min_Temp__Degc	0.017	-0.0019	0.019
Mean_Temp__Degc	0.02	-0.0027	0.017
Heat_Deg_Days__Degc	-0.0026	0.0049	-0.024
Cool_Deg_Days__Degc	0.013	0.0086	0.017
Total_Rain__mm	0.0029	-0.011	-0.019
Total_Snow__cm	-0.0061	0.0026	-0.009
Snow_on_Grnd__cm	-0.0011	-0.0044	0.0012
Total_Precip__mm	0.0019	-0.01	-0.02
	CameraAccessory	GamingAccessory	HomeAudio
	index		

# Target Audience



## Head of Data Analytics

Solution Approach

Data Understanding

Feature Engineering

EDA

Correlations

KPIs

Data Modelling

# Solution Approach Overview

## Source Path Setup

- Data is imported by linking the Data Source G Drive Shortcut.
- All coding is done using Google Colab, in case if verified from local machine requesting to copy all the sources and the Jupyter notebook in same path.

**Common Reusable Methods** implemented to standardize and reduce time.

## Data Imports

- getData\_\* methods is written to import each data source: Consumer Electronics, Media and Investment (Investment, NPS, Sales)
- **Weather Data for 2015 and 2016 is unified into single data set.**

## Feature Engineering:

- All getData\_ methods adds additional columns, does formatting and all data changes needed for each data entity. Basic cleanup like Dropping duplicates, removing nulls are done.

## Merging Data Entities:

- A dictionary definition is created how to merge Data Entities with Consumer Electronics Data and merged through getDataMergedEntities method

## EDA

- **Null Handline:** Data is cleaned for Null.
- **Outliers:** A method is implemented to loop through the Data for each entity , check and drop outliers, and show the Box plots.

## Correlations:

- showCorrelationMatrices method displays correlations in 4 quadrants for various aspects.
- showFactorsCorrelatedWithTotalSales displays Factors that correlate with Total Sales –vely and +vely

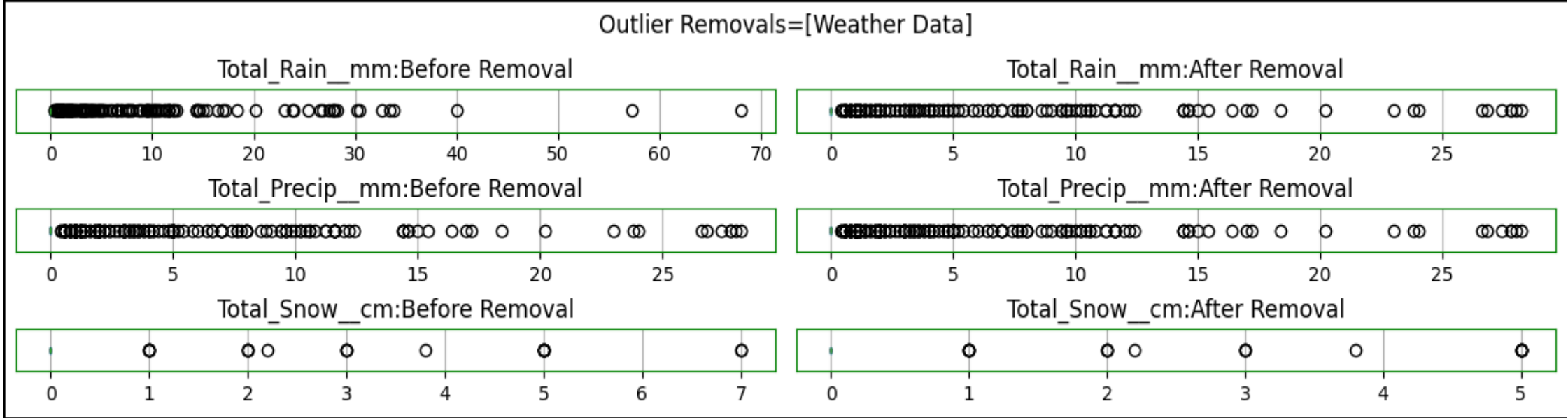
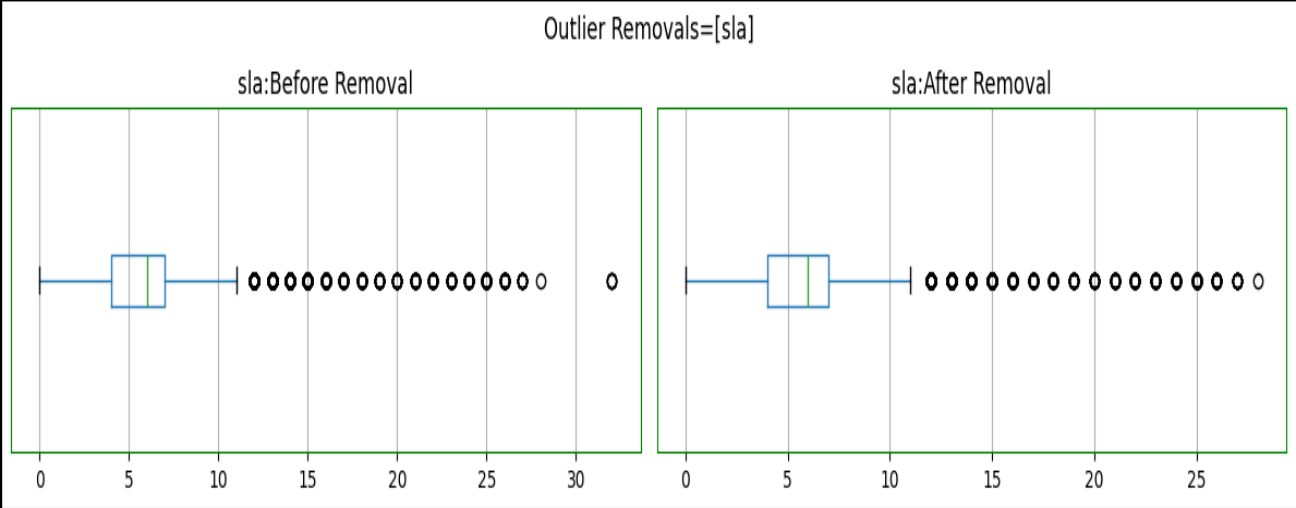
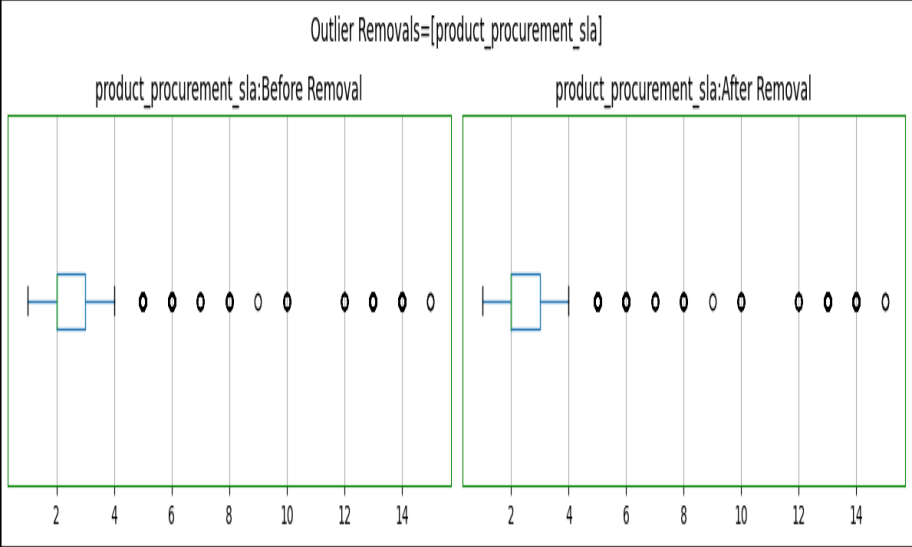
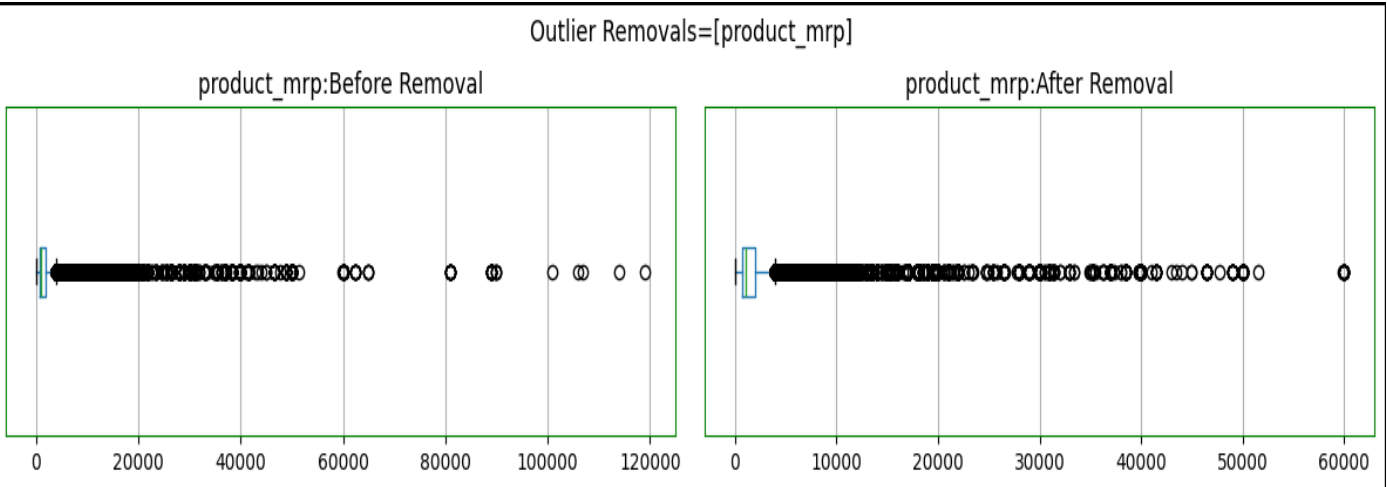
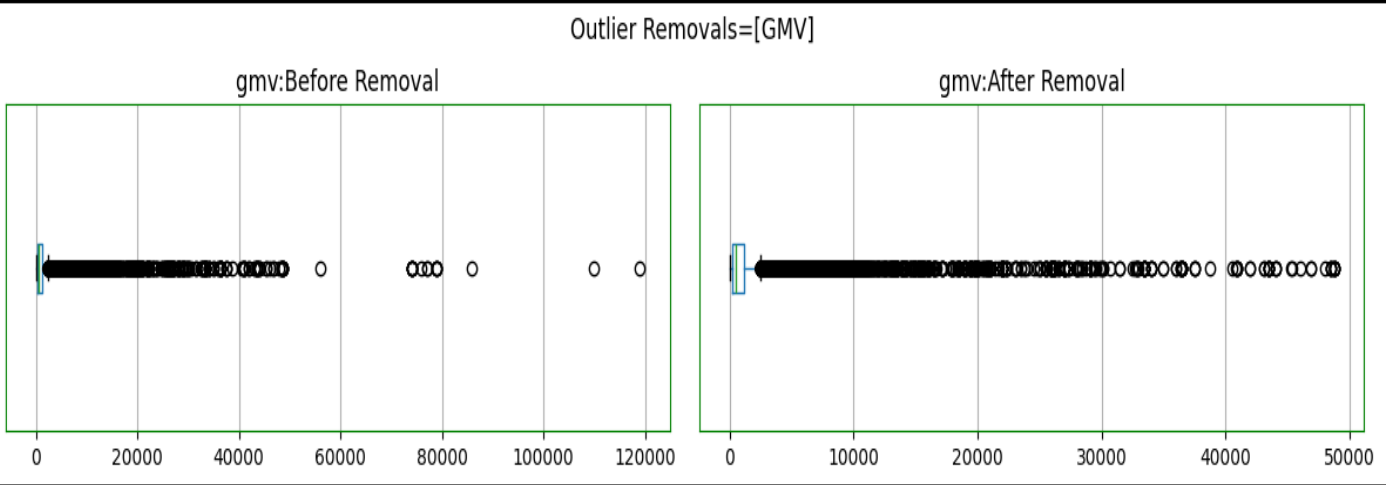
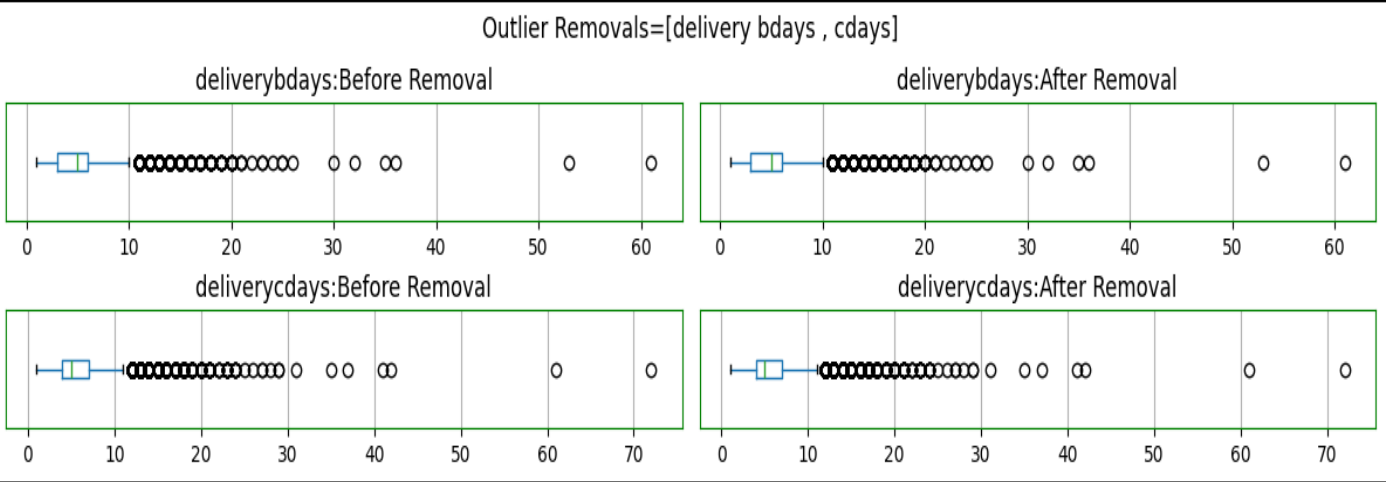
## KPIs

- **A KPI method section is placed** with all showKPI\_ methods to prepare the KPI data , separate methods to consume the KPI data and display.

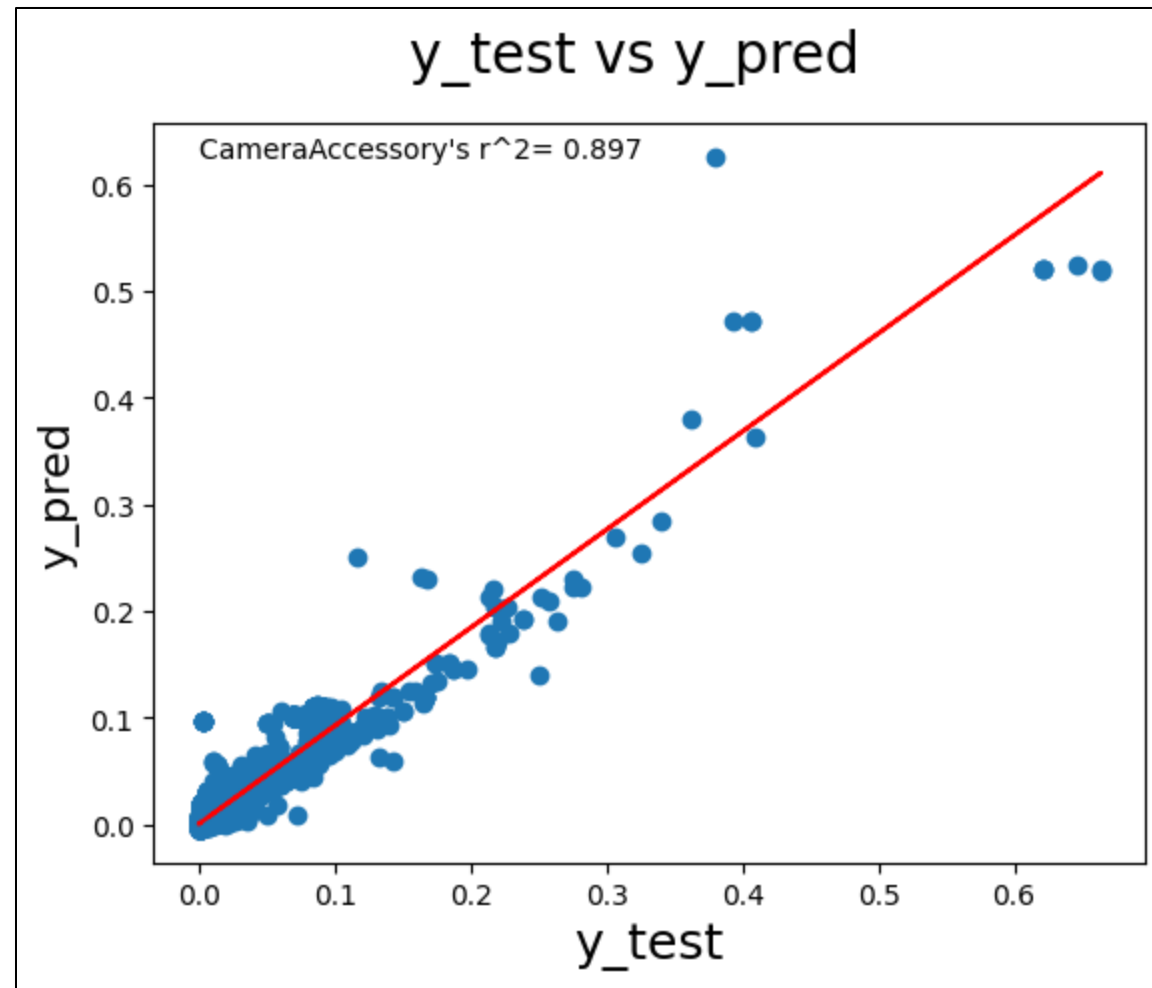
## Data Modelling

- **An user defined class** is created to manage the Data Modelling and improve re-usability.
- Before Modelling for Separate Sub Categories, this class is tested for stability.
- This class has Basic RFE, RFECV and GridSearchCV implemented.
- This class initializes Test and Training Data, loops through and drops the insignificant columns by (p-value and VIF), does residual Analysis, plots the final model and display the model equation.

# EDA – Outlier Removals



# Data Model – Camera Accessory



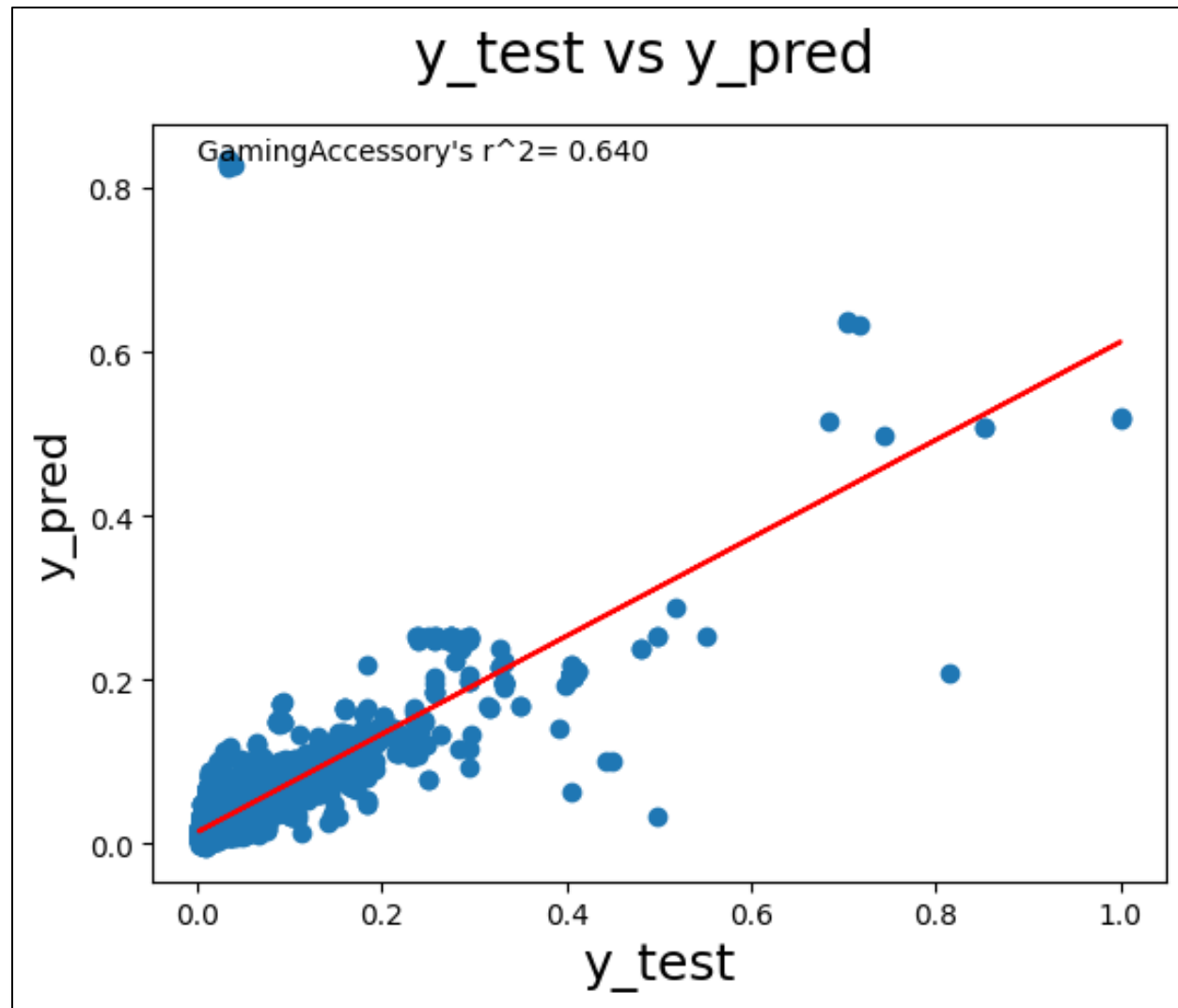
## CameraAccessory Model Equation

```
[93] lg_CA.getModelEquation()
```

```
'0.0002*Radio+-0.0003*sla+0.0009*Digital+-0.0005*Other+0.0001*Filter+-0.0007*NPS+0.001*deliverydays+0.0004*CameraAccessory+0.0004*CameraBattery+0.0014*CameraFilmRolls+0.0578*const+0.9998*product_mrp+-0.5183*discount'
```



# Data Model – Gaming Accessory

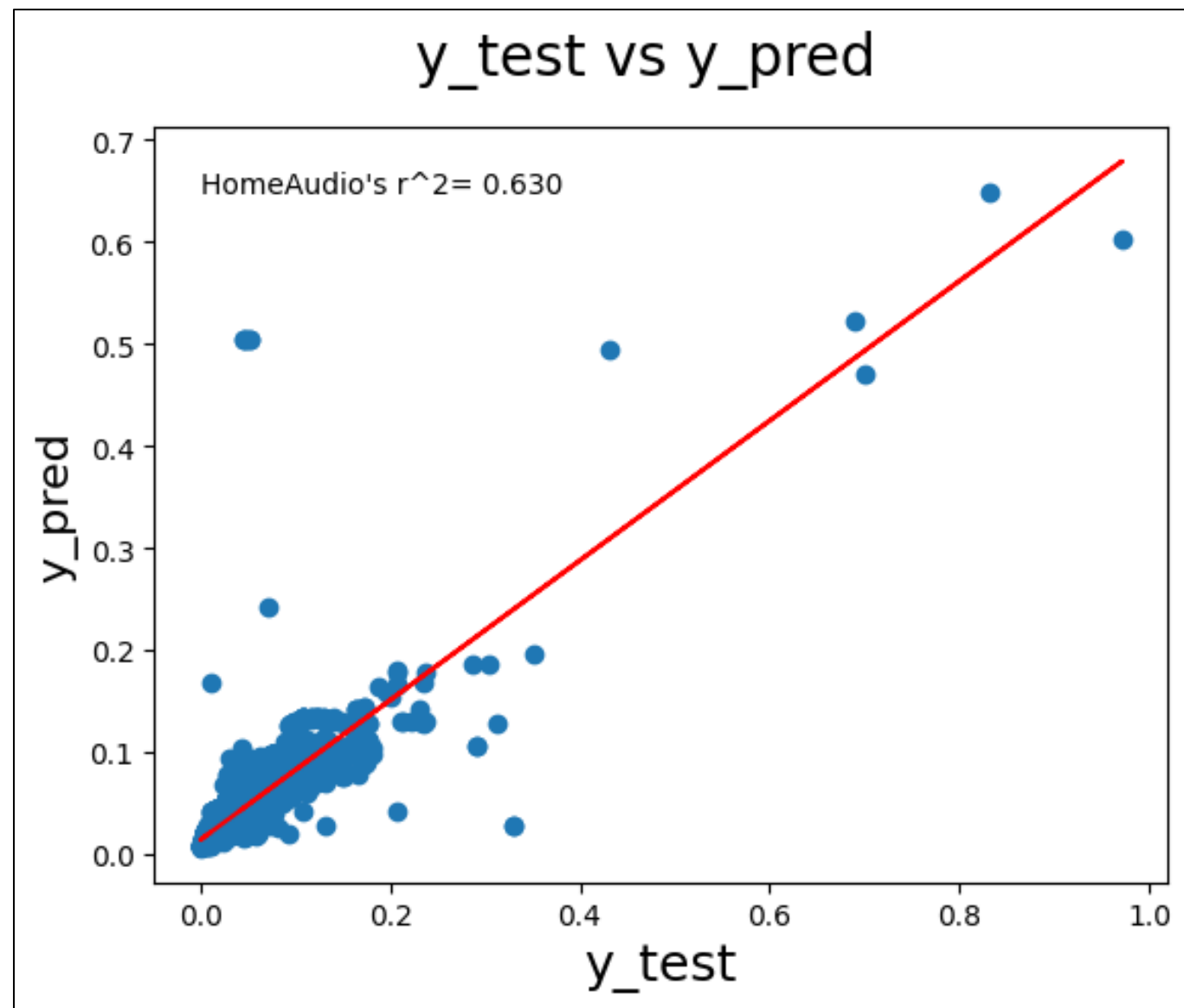


## Gaming Accessory Model Equation

lg\_GA.getModelEquation()

'-0.0005\*Pay\_Date+-0.0021\*sla+0.0004\*GamePad+-0.0009\*Online marketing+0.0016\*JoystickGamingWheel+0.0019\*TVOutCableAccessory+0.0361\*const+-1.8673\*discount+1.8652\*product\_mrp'

# Data Model – Home Audio



## Home Audio Model Equation

```
[95] lg_HA.getModelEquation()
```

```
➞ '-0.0022*Sponsorship+0.0046*VoiceRecorder+0.0218*const+-0.923*discount+1.0202*product_mrp'
```

# Summary

- A thorough Analysis of Consumer Electronics data of Elec Kart (2015,2016) was done along with Data Entities like Investment, NPS, Sales Calendar , Weather data available.
- Insights for Root cause of the problems derived from analysis for various Dimensions: Customers, Sales, Products, Geo Distribution, Investment, Weather and Website.
- A Market Mix Model was proposed for each sub category: Camera accessory, Gaming Accessory and Home Audio.
- Dashboard for most of the dimensions are presented.
- Technical Solution Approach with visuals to reflect the Data Handling and Data Modelling being presented.



**THANK  
YOU**

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