



Marketing and Retail Analytics Capstone Project

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Problem Statement:-

OList is an e-commerce company that has faced some losses recently. It wants to manage its inventory very well so as to reduce any unnecessary costs that it might be bearing. It needs to identify the product categories to get rid of without significantly impacting business.

Objective of the Analysis:-

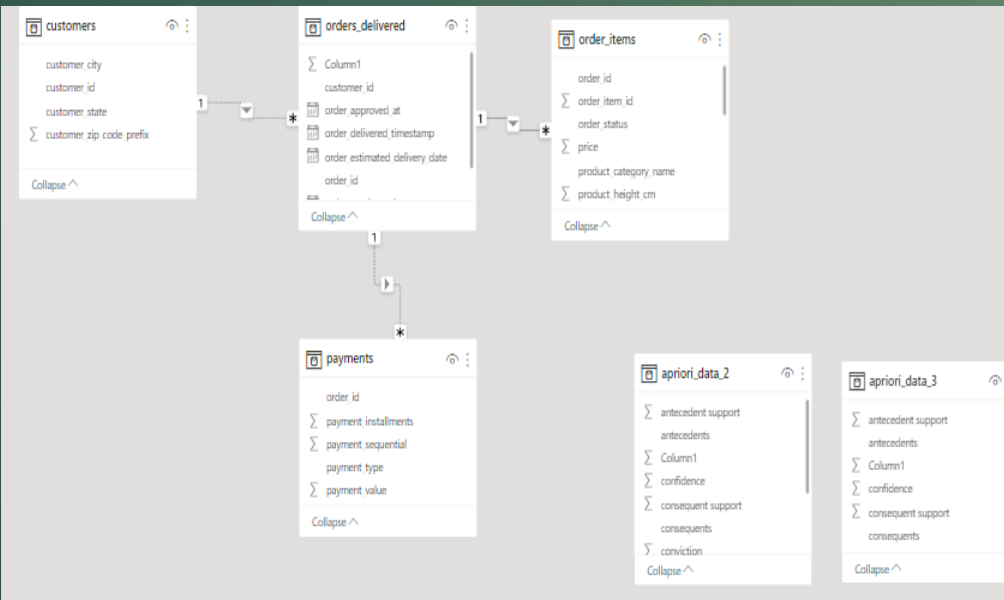
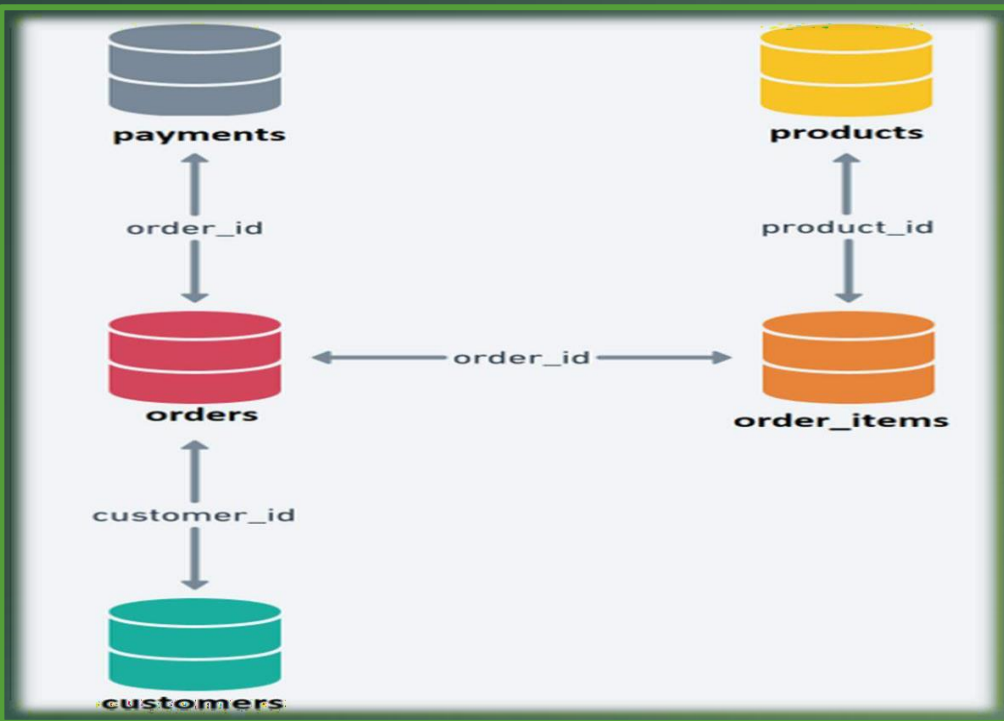
- Provide recommendation to reduce company's inventory management case
- How is the distribution of sales among all categories
- Identify top products that contribute to the revenue.
- Market basket analysis to analyze the purchase behavior of individual customers.
- Suggestion for reducing inventory cost by optimizing it.
- What is revenue generated by top products compare to other products .

Entity Relationship Diagram

- Input file has 5 tables. Payments, Orders, Customers, Products and Order_Items

In this project, we have modified the dataset table into

- order_delivered---- Order table filtered with delivered orders only.
- order items---- Order Item table combine with Products , and category
- Apriori data sets 2 and 3 :- which shows the combination of products which sales together.
- Customers :- it has all data of customer who purchase product
- Payments:- it indicates the payment method of customer and all payments details.



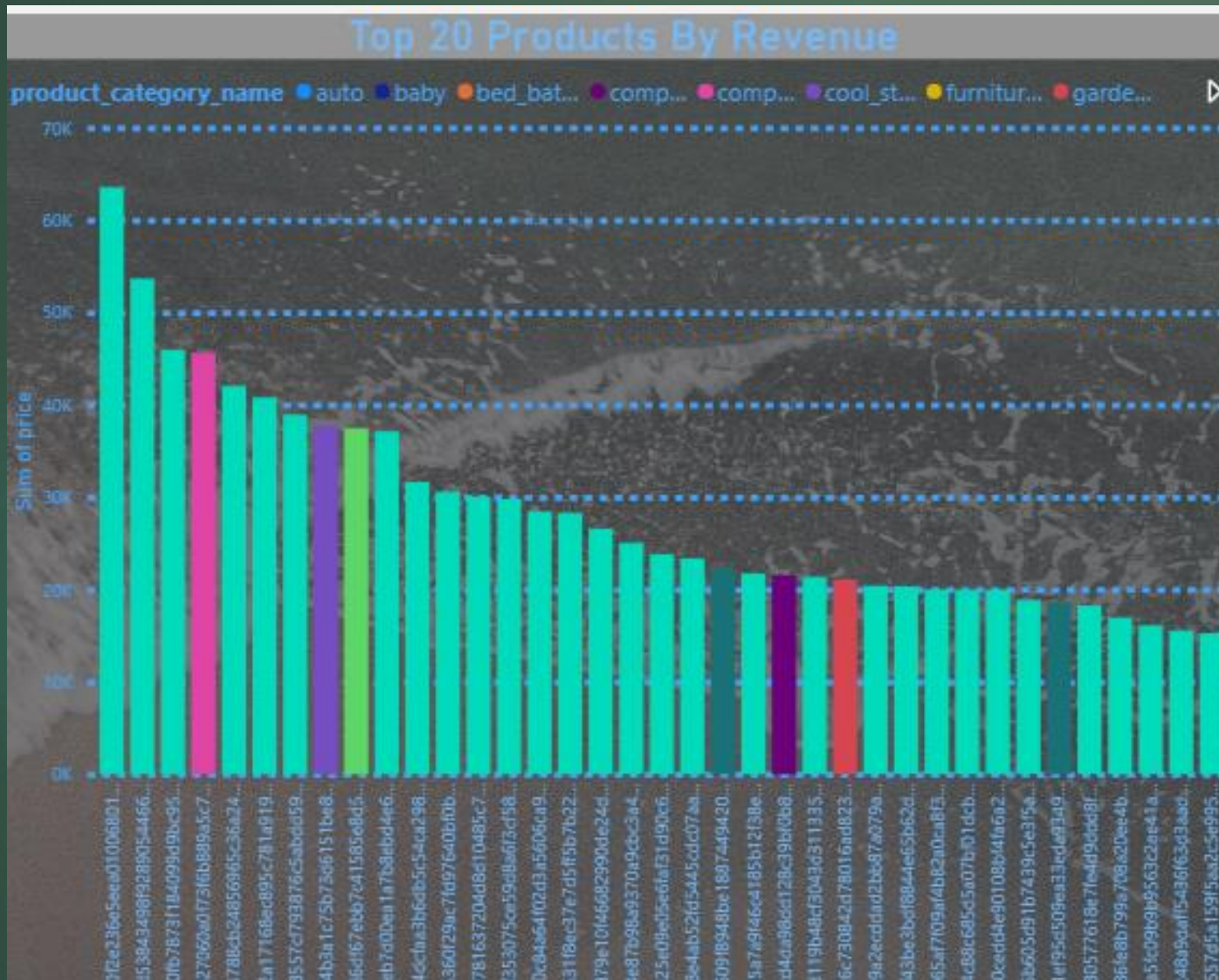
Top 20 Highest selling products



- Top 20 products by Number of Sales are shown in table
- aca2eb7d00ea1a7b8ebd4e68314663af in Toy product category made up 8.98% of total count of product_id.
- Most of the top revenue generating products are from toy category and then Garden Tools, computers accessories, Health_beauty and watches.



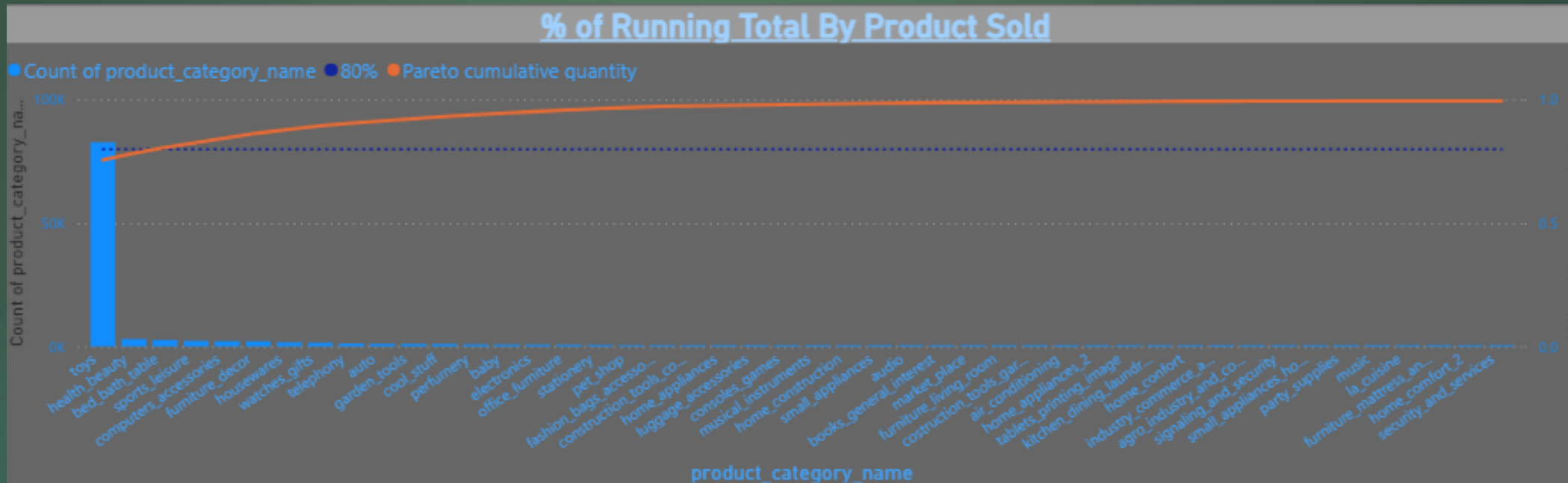
Top 20 Products By Revenue



- Top 20 products by revenue are shown in chart also shown indicator of color and name of bar on title .
- bb50f2e236e5eea0100680137654686c from Toy Product category made up 8.82% of total sum of price. ,
- Most of the top revenue generating products are from toy category and one product each from computers accessories, cool stuff and watches and their collection of prices is above 25k.

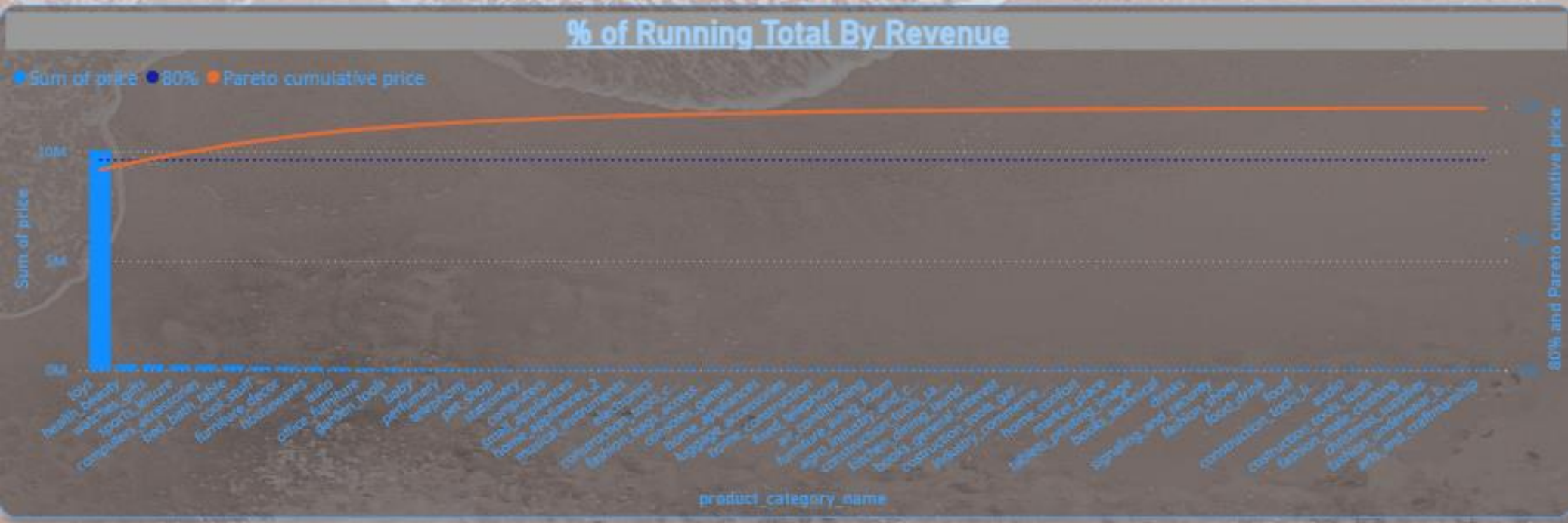


% Running Total By Product Sold



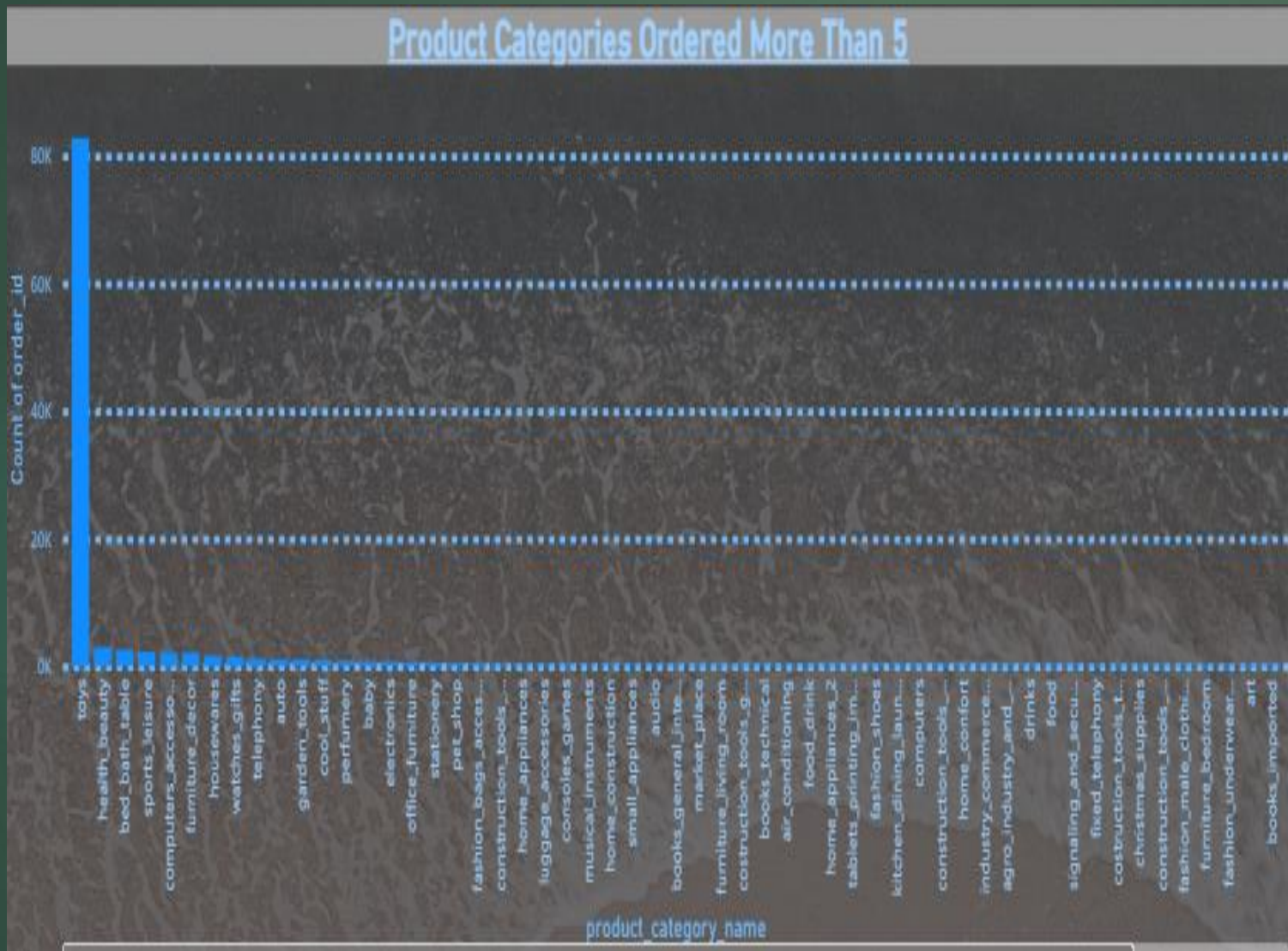
- Only three categories are contributing to 80% of Product Sold, 'toys', 'health_beauty' and 'bed_bath_table'. Among which major contribution is of 'Toys'.

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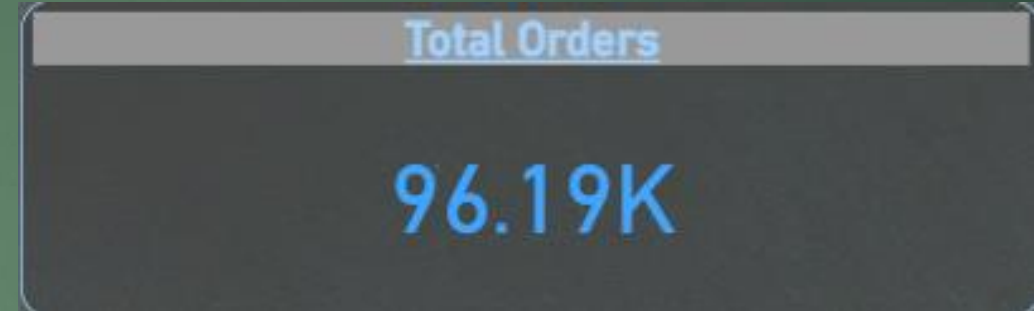
- Only three categories are contributing to 80% revenue, 'toys', 'health_beauty' and 'watches_gifts'. Among which major contribution is of 'Toys'. Pareto mostly used for indicates the strength product of the company which majority is toys .the curve is gradually going towards efficancy of the business and show that try to increase more sales in company of varies products.

Product Categories Ordered More Than 5 Times



- Count of order_id was highest for toys above 80k followed by healthy beauty, bed bath, sports and computer related products, furnitures, watches gifts.

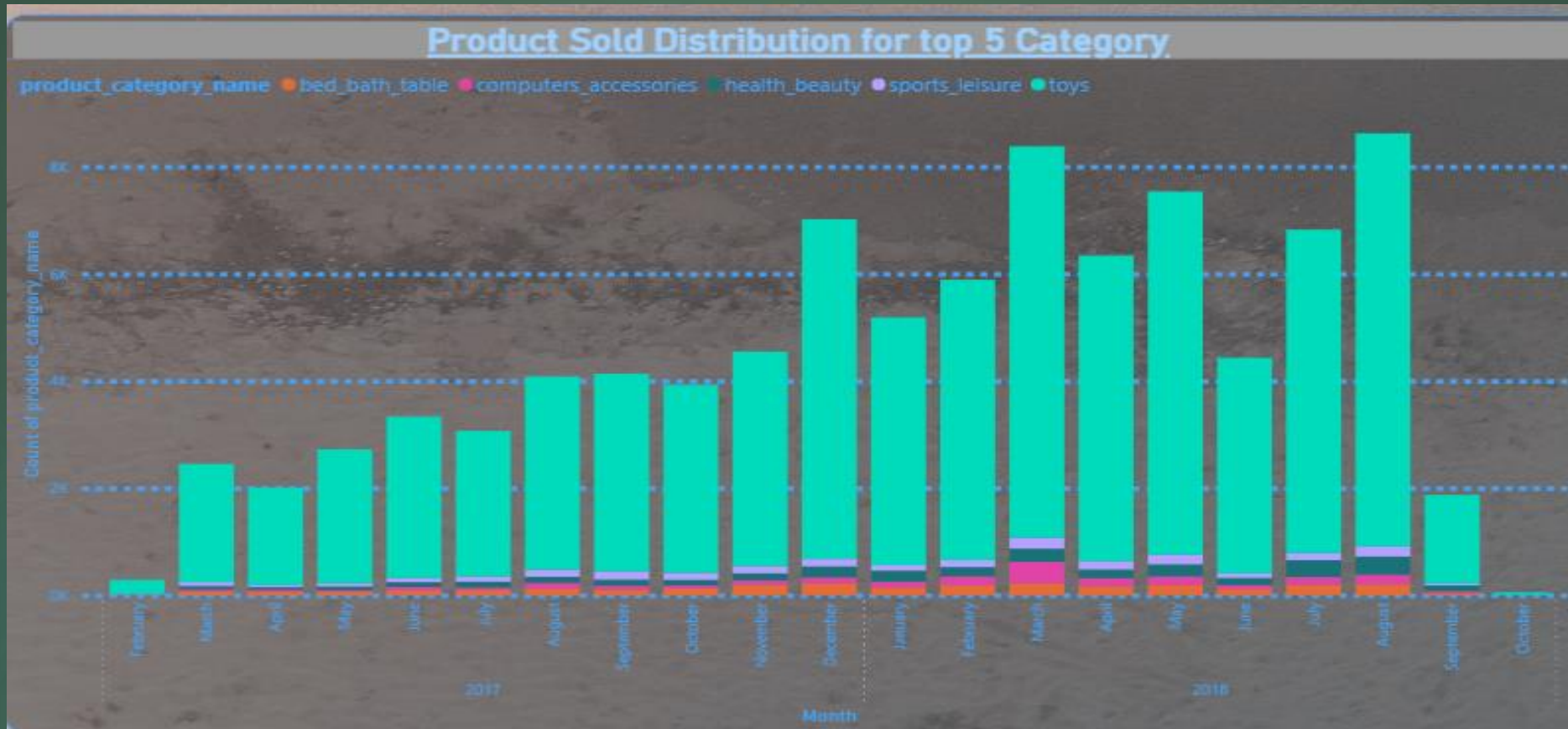
Total Sales And Total Orders



1.OLIST COMPANY TOTAL SALES OF ALL PRODUCT IS 13.18M , WHERE ONLY APPROX. 7M REVENUE GENERATED BY TOP 20 PRODUCTS AND MAJORITY IS TOYS .

2. TOTAL ORDERS OF THE OLIST COMPANY IS 96.16K. IN THIS THERE MANY REASON SOME ARE CANCELLED , SOME DELIVERED, FEW IN PROCESSING .

Product Sold Distribution Across Two Years (Month wise)



- We can see sudden rise in sales in some months like December, March, May and August. This can be due to some festive season like Christmas, Easter.

Revenue By Different Category



- 'Toys' Category covered almost 75% of price of all products.

Market Basket Analysis

Two Product which are likely to sold together

antecedents	consequents	Sum of support
bed_bath_table	toys	0.23
toys	bed_bath_table	0.23
furniture_decor	toys	0.12
toys	furniture_decor	0.12
computers_accessories	toys	0.08
health_beauty	toys	0.06
watches_gifts	toys	0.06
housewares	toys	0.05
sports_leisure	toys	0.05
garden_tools	toys	0.04
fashion_bags_accessories	toys	0.03
auto	toys	0.03
Total		1.08

Top products categories in groups of twos are:

- Toys and Bed Bath Table
- Toys and Furniture decor
- Toys and Auto
- Toys and Watches Gift
- Toys and computer accessories

Market Basket Analysis

Three Product which are likely to sold together

antecedents	consequents	Sum of support
bed_bath_table	furniture_decor	0.20
bed_bath_table	health_beauty	0.10
bed_bath_table	housewares	0.10
bed_bath_table	office_furniture	0.10
bed_bath_table	office_furniture, toys	0.10
bed_bath_table	toys	0.50
bed_bath_table	toys, furniture_decor	0.20
bed_bath_table	toys, health_beauty	0.10
bed_bath_table	toys, housewares	0.10
bed_bath_table, furniture_decor	toys	0.20
bed_bath_table, health_beauty	toys	0.10
bed_bath_table, housewares	toys	0.10
bed_bath_table, toys	furniture_decor	0.20
bed_bath_table, toys	health_beauty	0.10
bed_bath_table, toys	housewares	0.10
bed_bath_table, toys	office_furniture	0.10
cine_photo	telephony	0.10
cine_photo	toys	0.10
cine_photo	toys, telephony	0.10
Total		12.00

Top products categories in groups of threes are:

- Toys, Furniture Decor and Bed Bath Table
- Toys, Furniture Decor and Garden Tools
- Toys, Health & Beauty and Bed Bath Table
- Toys, Housewares and Bed Bath Table
- Toys, Office Furniture and Bed Bath Table
- Toys, Cine photos and Telephony
- Toys, Home Construction and Computer Accessories
- Toys, Garden Tools and Computer Accessories
- Toys Furniture Decor and Electronics
- Total Sales supports is 12

Recommendation And Insights

- With all the analysis we can see 'Toys' is major contributed in revenue and number of product sold. So 'Toys' should be stock by a good margin it has 75% of all products. Giving the offer in toys we can sale large amounts of other products where we can generate more revenue
- Products which are giving good sale together should be promoted more with some offer to increase the sales number
- Products which are not much contributor in revenue or in terms of number of sales should not be stock. This can save inventory cost by large amount
- The products listed in 'Top 20 products' in terms of revenue and number of sales should be targeted with some separate or combo offers to attract more customers and increase revenue.
- Olist should also plan for inventory in festive season as people gives gifts in such season and online sales increases significantly.
- BY giving this kind of discount we can get increase approx. 7% of revenue and sales which is more significant value in 13M total sales .
- Despite high price some products are frequently purchased by customers which notable offer them with some additional voucher and coupons for next purchase for repeating behavior.



Thank You
