

Marketing & Retail



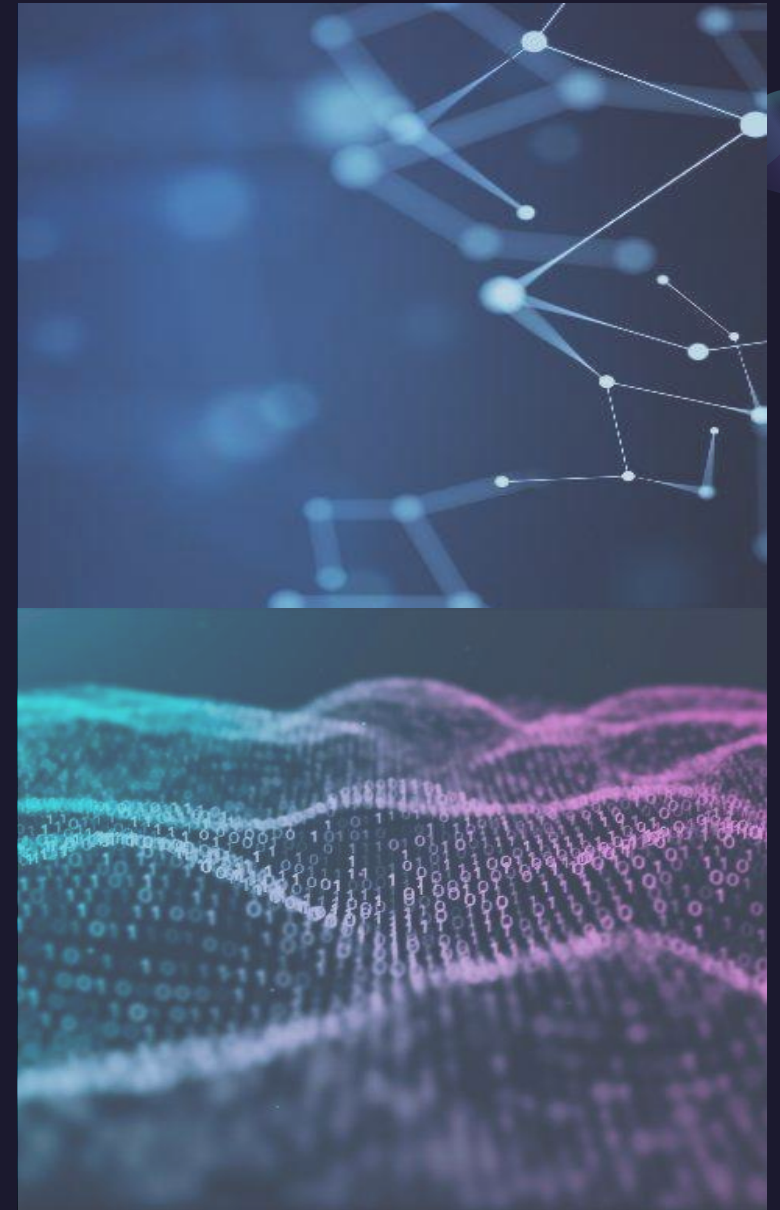
Capstone Project

Targeted Company: OList e-commerce



Agenda

- Objectives
- Background
- Insights
- Recommendations
- Appendix



olist



Objectives

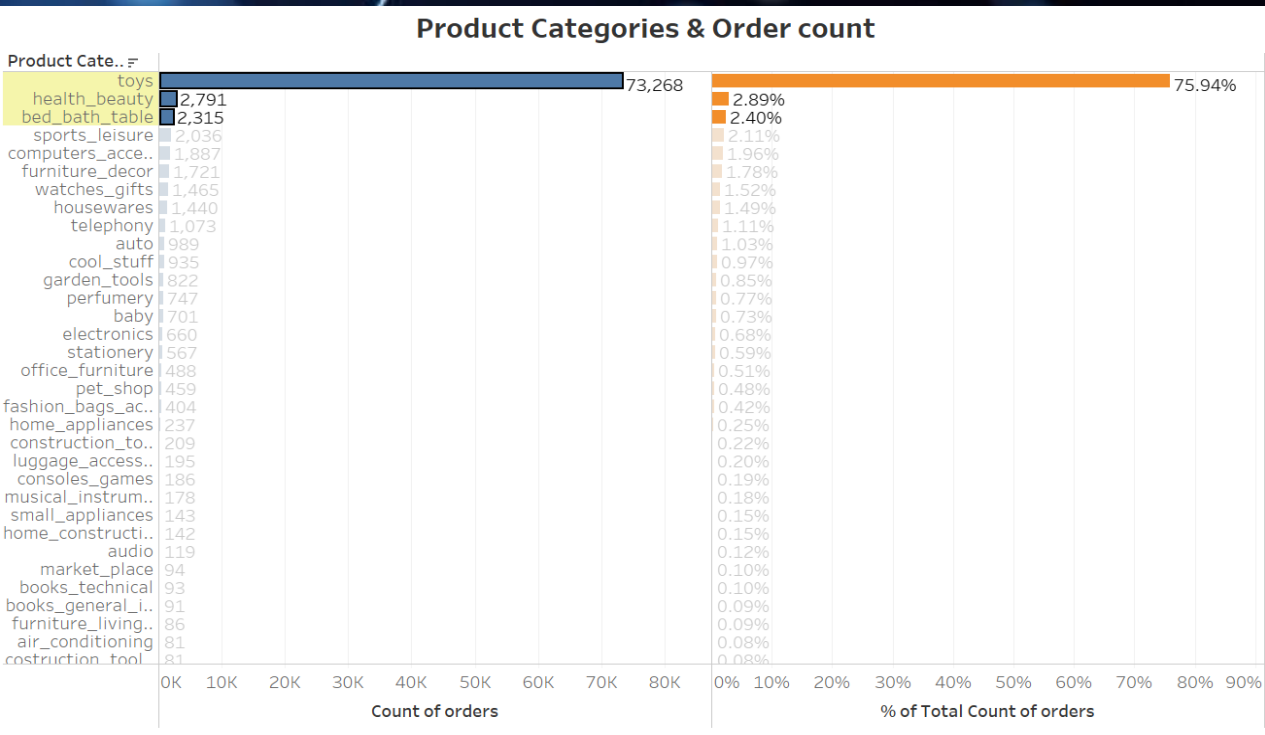
- Understand data driven insights and improve inventory management
- Identify top revenue-generating products (80/20 rule, or Pareto analysis).
- Apply market basket analysis to understand most likely purchased items, both individually or in combination with other product categories (Apriori analysis).

Background

- OList is an e-commerce company based in Brazil.
- The company has faced some losses recently and they want to optimize their huge inventory, reducing costs by reorganizing the list of products they store in their warehouse.
- The company has a wide variety of products for sale.

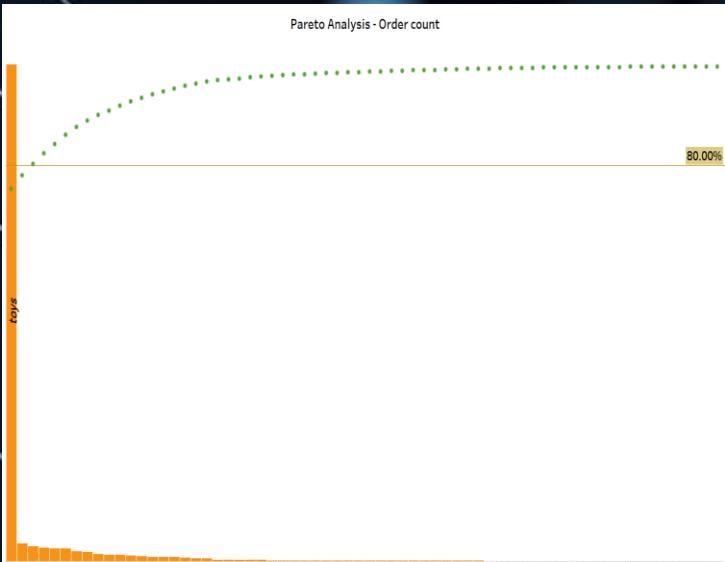
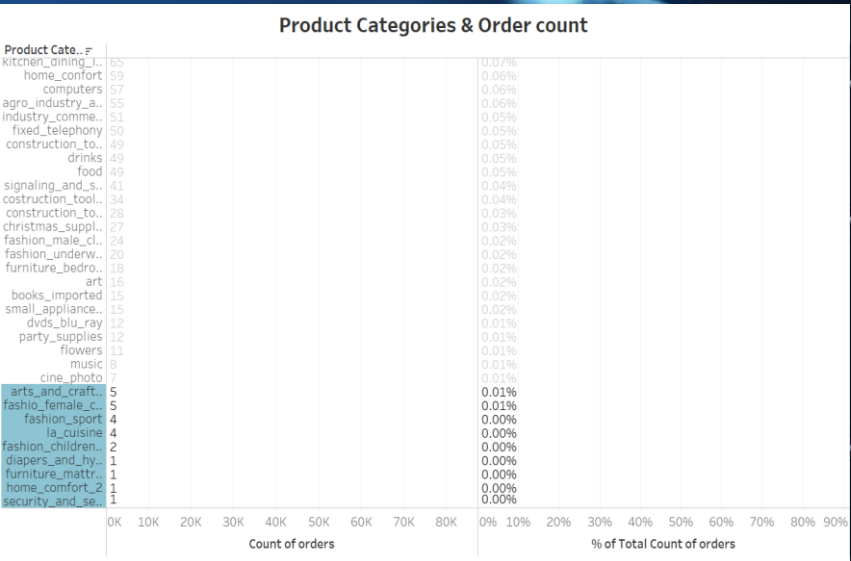
Insights

- In terms of order count, the best selling products are in the “toys” category, which has 73,268 orders (~76% total sales)
- The next highest selling categories are “health_beauty” and “bed_bath_table” make up the next 5% of sale. With “toys” they comprise the Pareto-relevant 80% of total orders.

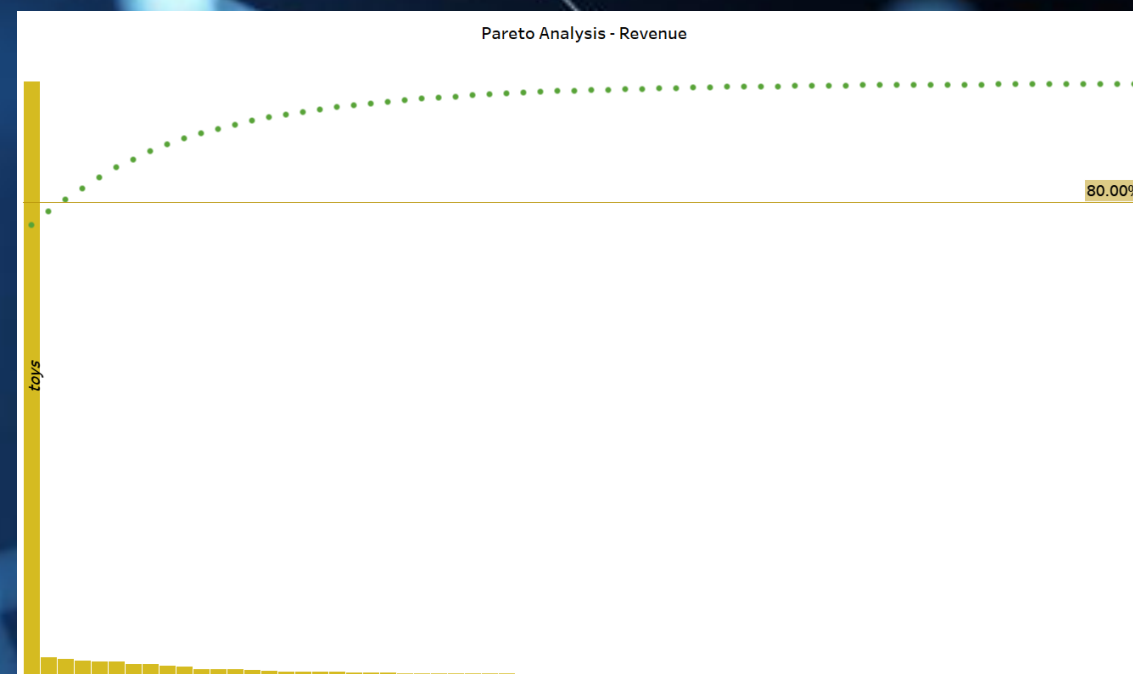
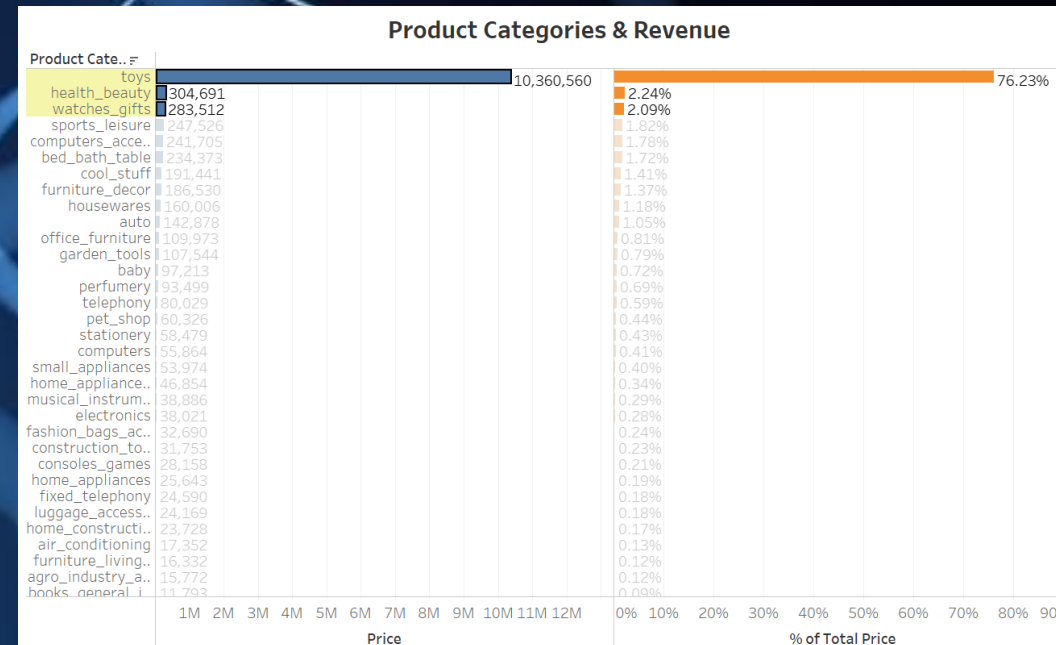


- Most product categories have more than 5 orders, except the following:

- art_and_craftmanship
- fashion_female
- fashion_sport
- fashion_children
- diapers_and_hygiene
- Furniture
- home comfort
- security_and_services

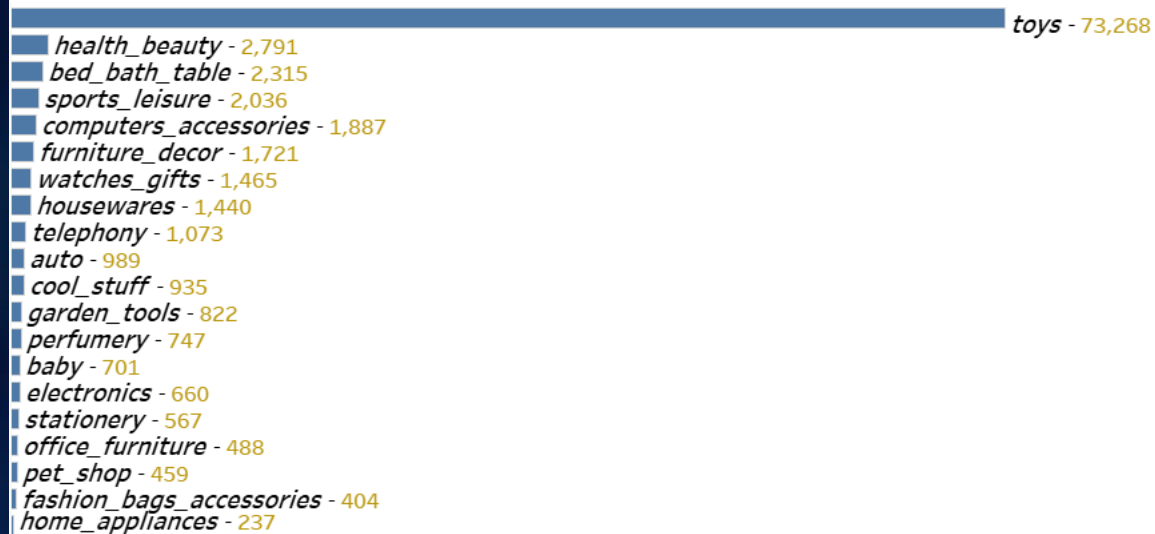


- Financial impact: Considering revenue, like orders, the best revenue items are in the 'toys' category (76.23% of the total).
- Items in 'toys', 'health_beauty' and 'watches_gifts', combined, account for more than 80% of the total revenue.
- The total percentage of all other products is less than 20%.



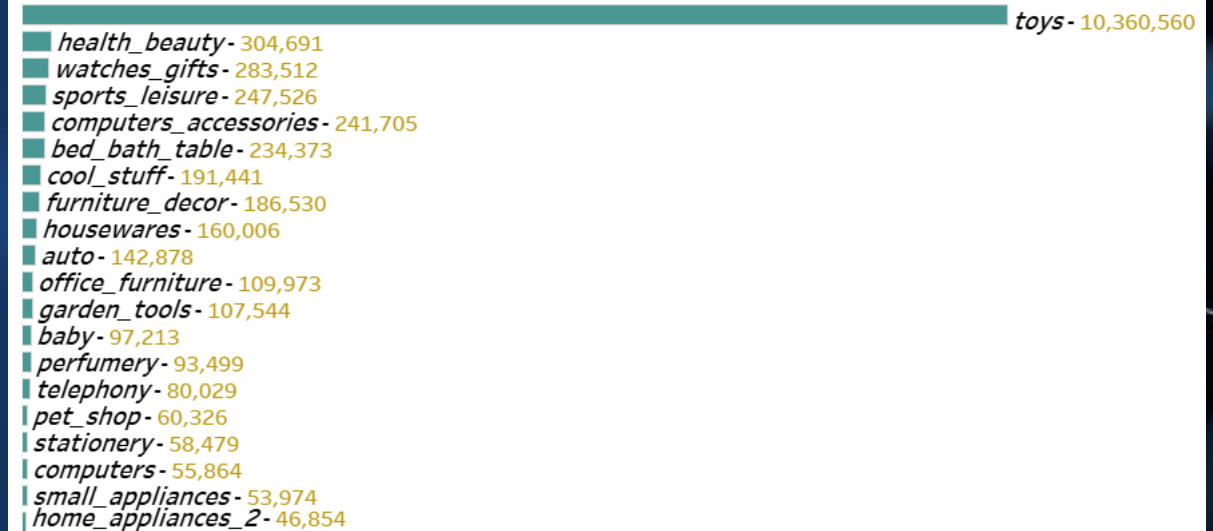
Top 20 products by order count

Top 20 Products by Order Counts



Top 20 products by revenue

Top 20 Products by Revenue



- The number of delivered orders increased from 2016 to 2018
- In 2017, there was a huge jump from 267 orders to over 40,000. 2018 also had a fairly large increase up to over 55,000 orders.
- Because of the large order increases, delivery capacity has improved sharply.

Delivered orders through years

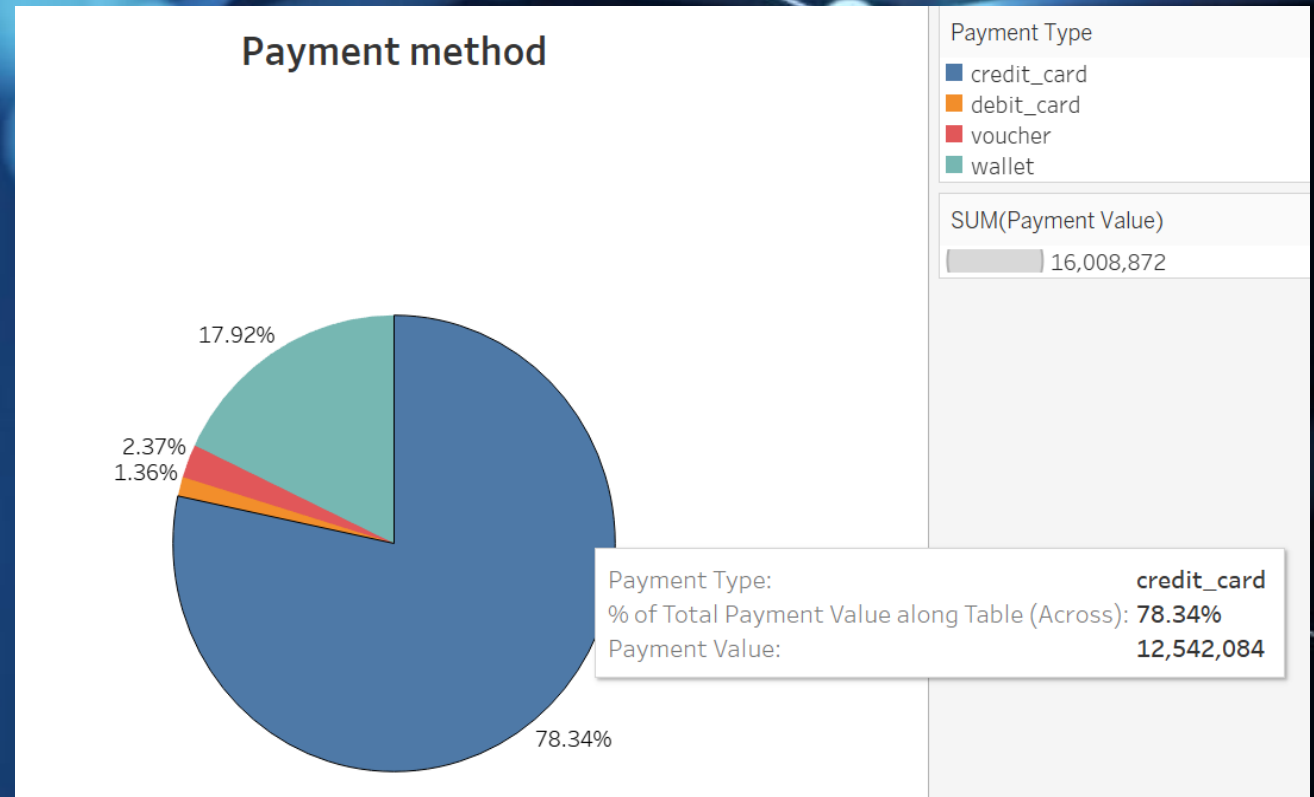


- There are 4 types of payment methods:

- credit card
- debit card
- Voucher
- wallet

- The most common type of payment is credit card, accounting for more than 78% with 12,542,084 of payment value

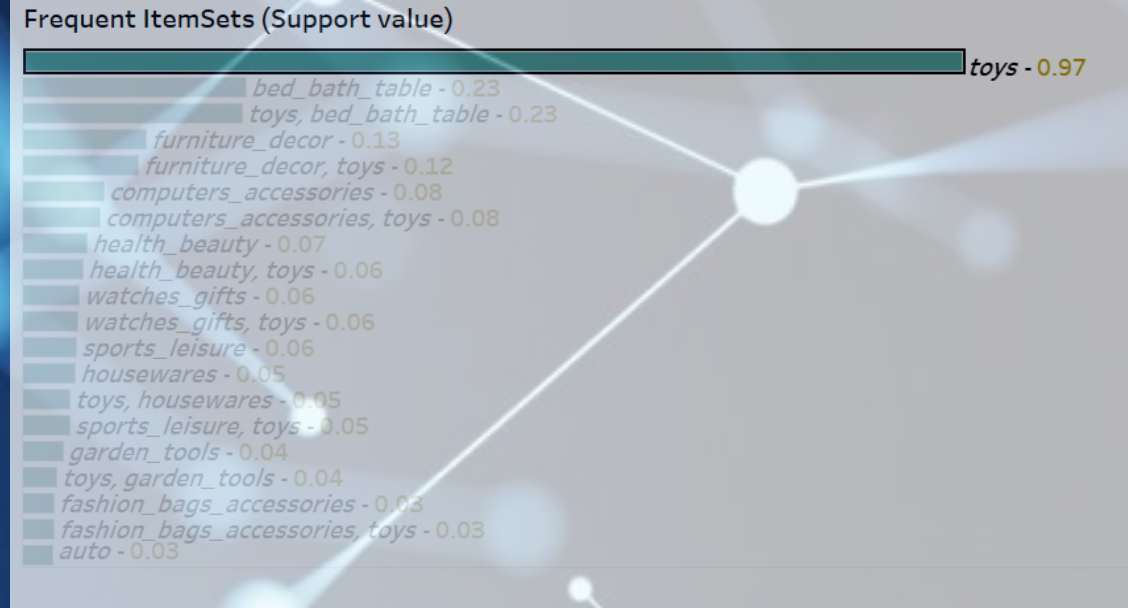
- The second most common payment is via wallet.



Cross-selling based on support index, confidence index, and lift index (>1) as the following:

- ❑ The highest support index (frequent item) is toys (0.97)
- ❑ Confidence index (product combination) toys is also the most item which the customer follows to buy.
- ❑ Lift index (>1): the pairs with toys
 - bed_bath_table
 - fashion_bags_accessories
 - auto
 - watches_gifts

➡ Toys can be applied to **cross-sell** efficiently with other products.



Product Combinations (Confidence value)

Antecedents	Conseq..	Confidence
auto	toys	0.9750
bed_bath_table	toys	0.9831
computers_acce..	toys	0.9537
fashion_bags_a..	toys	0.9762
furniture_decor	toys	0.9387
garden_tools	toys	0.8333
health_beauty	toys	0.9529
housewares	toys	0.9130
sports_leisure	toys	0.8732
toys	bed_bath_..	0.2337
	furniture_..	0.1229
watches_gifts	toys	0.9733

Product Combinations (Lift > 1)

Antecedents	Consequents	Lift
bed_bath_table	toys	1.01232
toys	bed_bath_table	1.01232
fashion_bags_a..	toys	1.00520
auto	toys	1.00398
watches_gifts	toys	1.00226

Recommendations

- ❖ To improve the positive financial impact on the company's business, the company should focus on marketing, retailing, and stocking the categories which generated more than **80% of the Revenue**. Especially, for individual selling, ensure more toys constantly store in their warehouse for the high demand of purchase.
- ❖ Based on Apriori trick (Confidence and Lift index), product combinations can be sold at a lower price (with a discount on one of the items), this will help optimize the inventory (overstocked items can be marked down). Items in the toy category by far makeup the largest amount of orders. For efficiency all toy items, and other items that make up the bulk of the orders, should be placed near each other in the warehouse.
- ❖ Low-value items which contribute to little revenue and few number of orders should not be stocked.

Appendix

- **Data sources**

- OList retail dataset excel file containing order-related information
- The data is for the years 2016 to 2018

- **Data methodology**

- Conduct a thorough analysis of Olist dataset
- Clean dataset with python and extract the new dataset excel file
- Analyze and visualize with Tableau (Market Basket Analysis)

- **Data assumption**

- Assume the data provided was achieving the desired revenue
- Assume the company does not expand to new warehouses
- Assume that there are no problems with payment methods.



Thank you.