

Analyzing eCommerce Business Performance with SQL



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“A People Analytics & Information System who has an interest in Data Science. I have 1-year of experience in Data Analytics in several projects, communities, and professional experiences. Moreover, I am a graduate of the Rakamin Data Science Bootcamp.”

“In a company, measuring business performance is very important to track, monitor, and assess the success or failure of various business processes. Therefore, in this project, we will analyze business performance for an eCommerce company, taking into account several business metrics, namely customer growth, product quality, and payment types.”

First Section

Data Preparation

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- Data Collecting

We collect data from the given resource in csv format. We have total 8 files with various number of fields, those are

1. customers_dataset
2. geolocation_dataset
3. order_items_dataset
4. order_payments_dataset
5. order_reviews_dataset
6. orders_dataset
7. product_dataset
8. sellers_dataset

- Data Preparation

We create new database and new tables in PostgreSQL to store all of the data that we got by importing those data into each tables.

- Create Entity Relationship Diagram

In order to simplify our understanding about each tables relationship, we create Entity Relationship Diagram used PostgreSQL generate ERD tools.

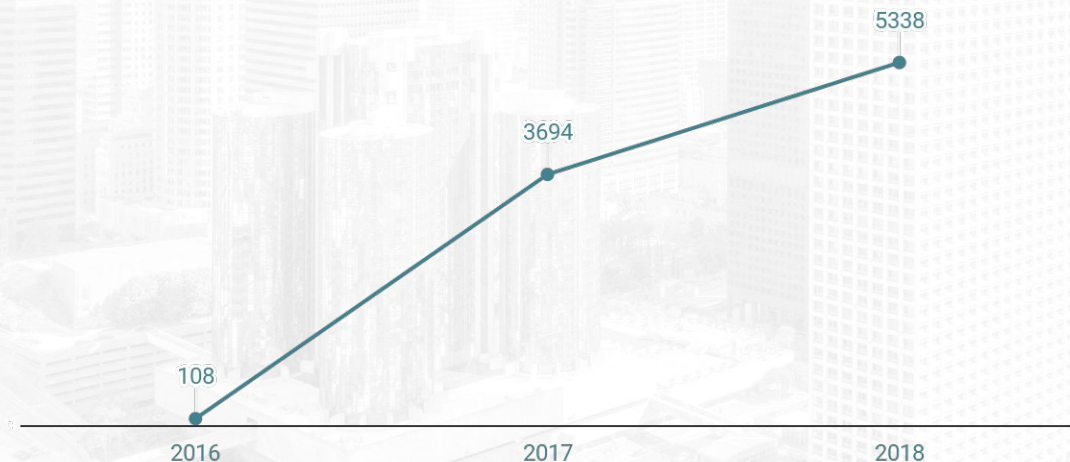
Second Section

Annual Customer Activity Growth Analysis

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We Have a Great User Growth in 2016-2018

Average Monthly Active Users per Year



The available transaction data starts from September 2016, it's causing the results of the analysis in 2016 to have far differences compared to the values in 2017 and 2018.

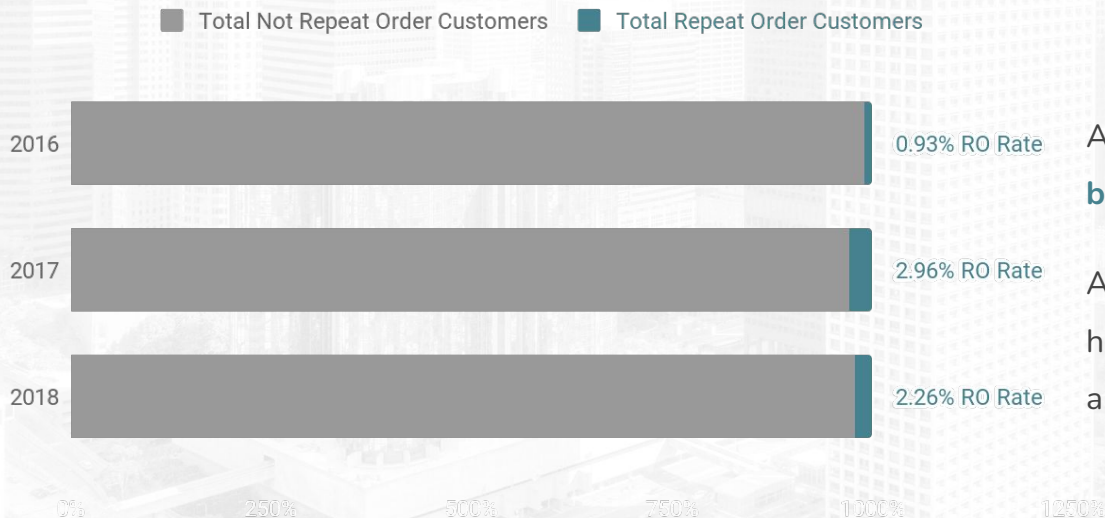
Overall, there was an **increasing number of monthly active users in 2016-2018 with the highest increase rate in 2017.**

However, there was a decrease in the increase rate of the monthly active users in 2018.

Annual Customer Activity Growth Analysis

However.. Mostly Customers Only Buy Once a Year

Repeat Order Customers Rate per Year



Among all of the active users, **mostly they only buy once a year.**

As we can see the highest repeat order rate only has 2.96% of users in 2017 and was followed by an insignificant decrease in 2018.

Annual Customer Activity Growth Analysis

We Need to Increase Customer Engagement

Total New Customers vs Leave Customers per Year



Unfortunately, not only buy once a year, **most** customers only buy once and didn't buy more in the next year.

Therefore, we need to **increase our customer engagement** to get loyal customers.

Third Section

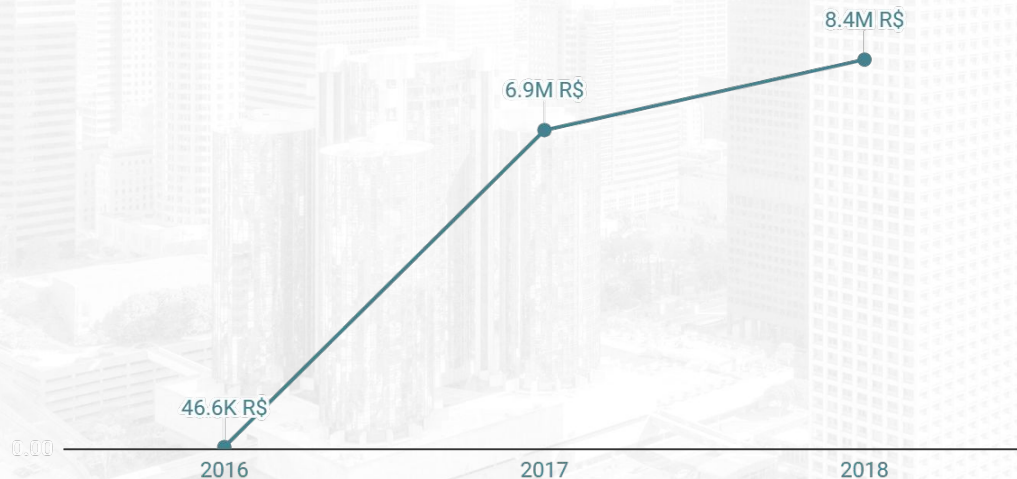
Annual Product Category Quality Analysis

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Annual Product Category Quality Analysis

We Have a Great Revenue Growth in 2016-2018

Revenue (BRL) per Year



Overall, there was an increasing revenue in 2016-2018.

The product category that most contribute to the annual revenue are,

15.41% Furniture Decor

Category contributes for company's revenue in **2016**.

8.53% Bed Bath Table

Category contributes for company's revenue in **2017**.

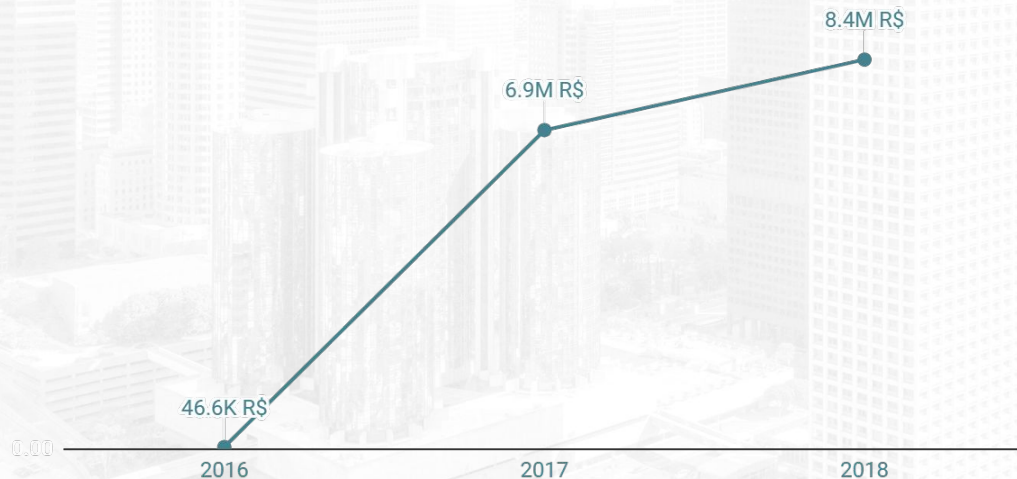
10.47% Health Beauty

Category contributes for company's revenue in **2018**.

Annual Product Category Quality Analysis

We Have a Great Revenue Growth in 2016-2018

Revenue (BRL) per Year



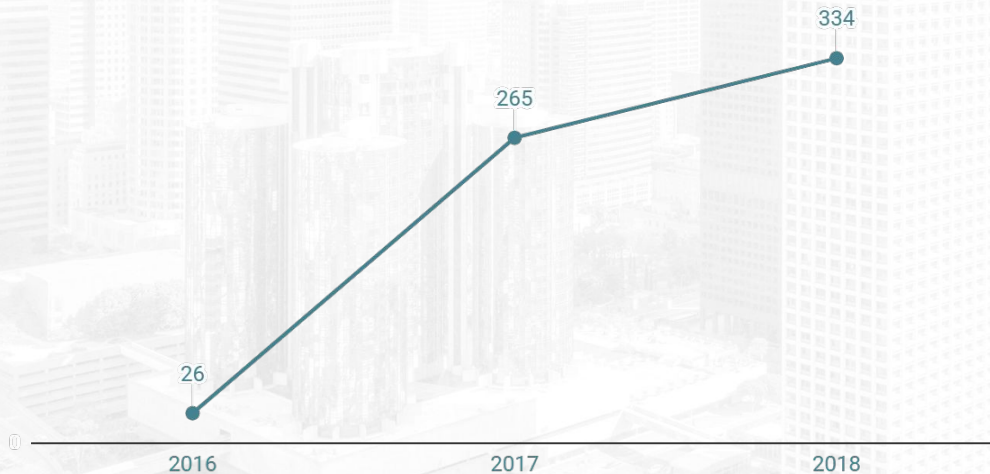
Based on the analysis, it can be seen that **product trends change every year**. Starting from **Furniture Decor Products Category** in **2016**, **Bed Bath Table Products Category** in **2017**, and **Health Beauty Products Category** in **2018**.

Therefore, **we need to analyze popular product trends every year** to be able to improve the quality of the products that are most in demand every year.

Annual Product Category Quality Analysis

Unfortunately.. Total Canceled Order Increased Every Year

Total Canceled Order per Year



Unfortunately, there was an increasing number of canceled products from 2016-2018.

The product category with the most number of canceled order are,

11.54% Toys

Category dominates canceled orders in **2016**.

9.43% Sports Leisure

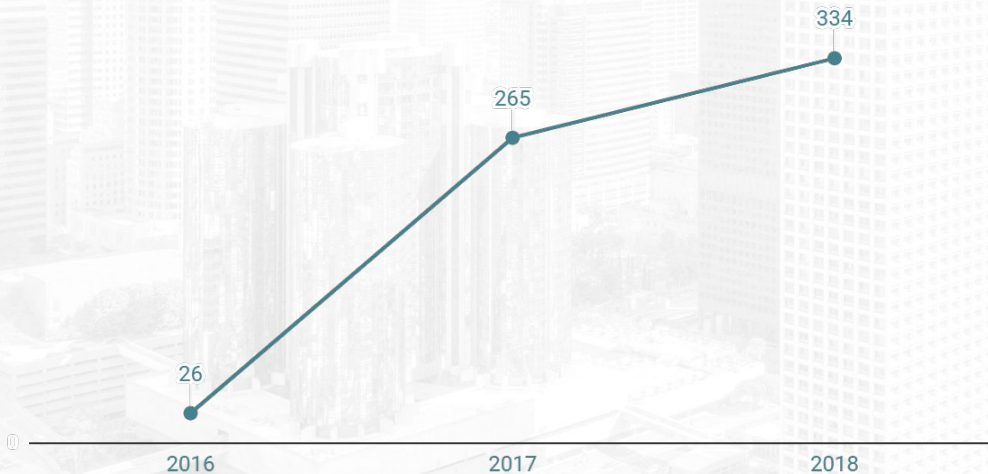
Category dominates canceled orders in **2017**.

8.08% Health Beauty

Category dominates canceled orders in **2018**.

Unfortunately.. Total Canceled Order Increased Every Year

Total Canceled Order per Year



Based on the analysis, it can be seen that **the most canceled product trends change every year.**

Canceled order mean opportunity costs for the company. Because it should be a revenue for company, but users take it back. **It can indirectly affect to company's revenue.**

Therefore, **we need to further analyze why they canceled their order** by asking their reason, so we can improve that user's problem.

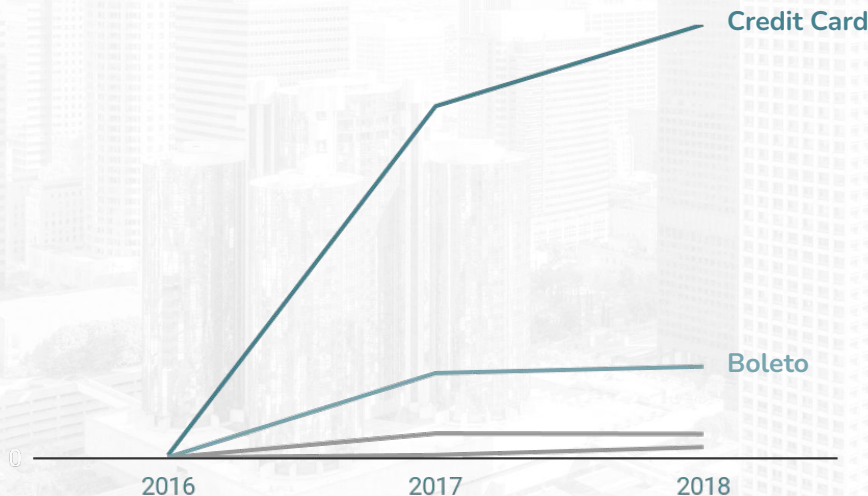
Last Section

Analysis of Annual Payment Type Usage

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Credit Card Payment Method has a Good Trend

Payment Method Users per Year

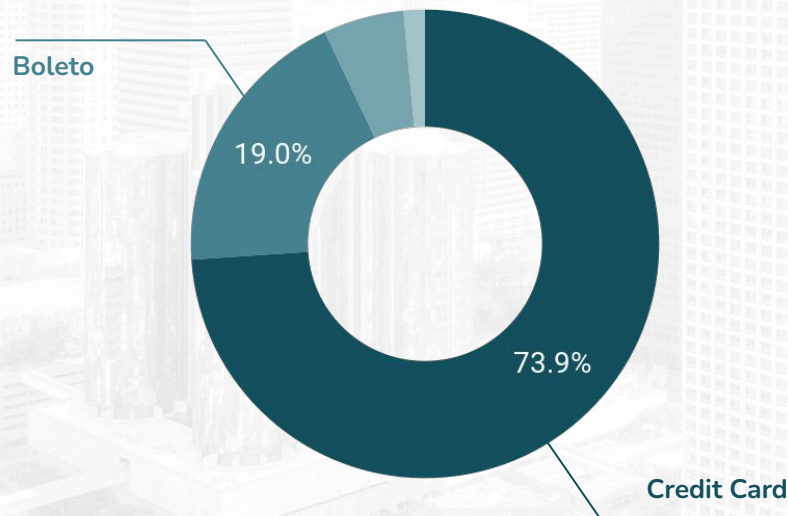


Among all of the payment methods, the **credit card method has the highest usage increase** every year, followed by Boleto and other methods with a significant value difference.

Further analysis can be carried out on **customer habits in using credit cards**, such as the selected length of tenure, what product categories are usually purchased with a credit card, etc.

Boost the Credit Card Payment Experience

Payment Method Users Percentage



Most customers like to pay the order using the **Credit Card** method. As much as **73.9% of customers pay using Credit Cards**, followed by **Boleto with 19%**, and the rest are **Vouchers and Debit Cards**.

Based on Pareto Theory, because **25% of payment method contributes to 75% of total transactions**, therefore we have to ensure customers have a good experience while they pay the order using a credit card.