ANALYZING ECOMMERCE BUSINESS PERFORMANCE WITH SQL

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OVERVIEW

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

TOOLS
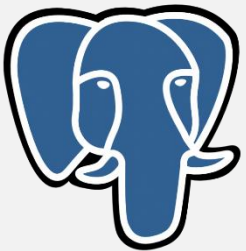
PostgreSQL

DATA PREPARATION

Create workspace

- Create a database using the CREATE DATABASE statement.
- Create 8 tables using the CREATE TABLE statement and set the suitable data type and primary key (if exist) for each column.

Import Data

Import CSV dataset using the COPY statement.

Build ERD

- Assign a foreign key using ALTER TABLE for each column.
- Generate ERD diagrams and then export them as images.
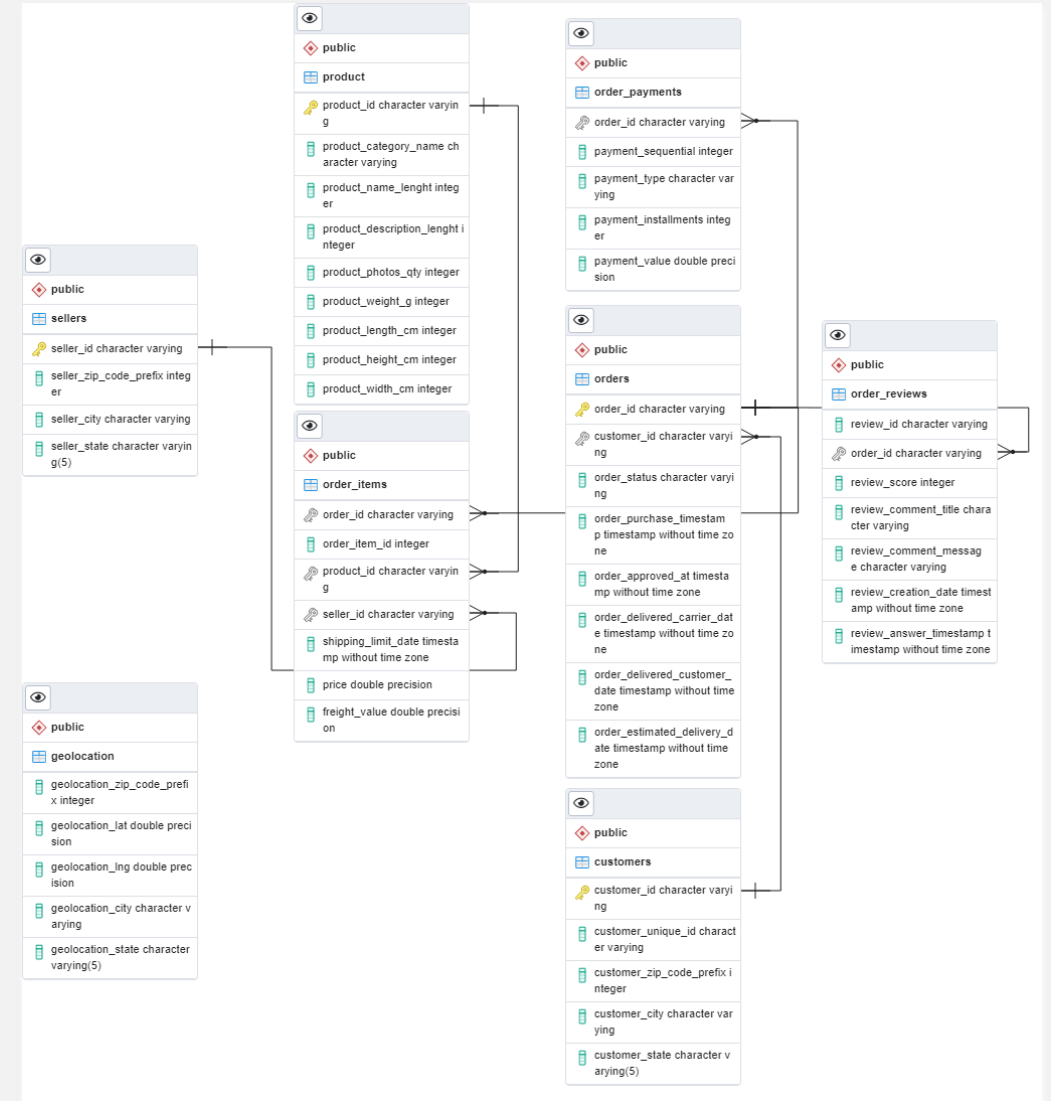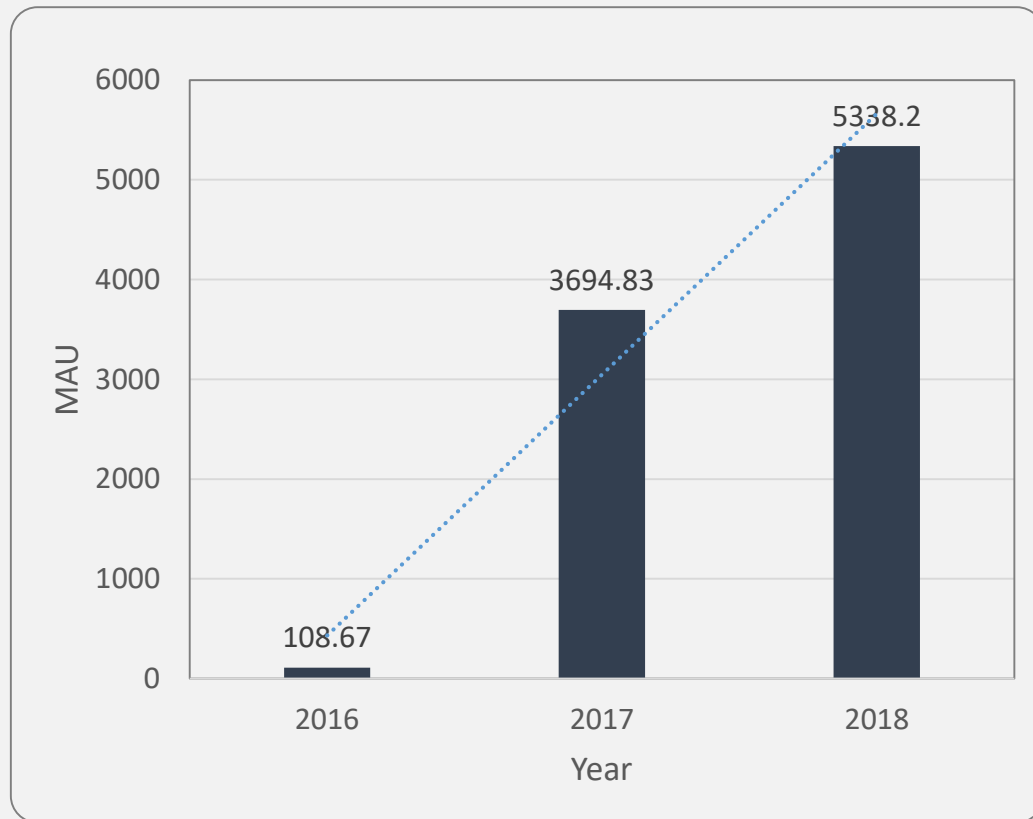
ANNUAL CUSTOMER ACTIVITY GROWTH ANALYSIS

Customer growth is one of the main goals for companies. It is not only important to grow customers but also retain them for the long term. After all, a growing customer base ensures the sustainability of a business.

The following are the results of the analysis obtained:

year	Avg_MAU	Total_new_customers	Repeat_order_cust	Average_order
2016	108.67	326	3	1.01
2017	3694.83	43708	1256	1.03
2018	5338.20	52062	1167	1.02

MONTHLY ACTIVE USER (MAU) PER YEAR

MAU measures the number of users who have made transactions for company products in the last 30 days/month.
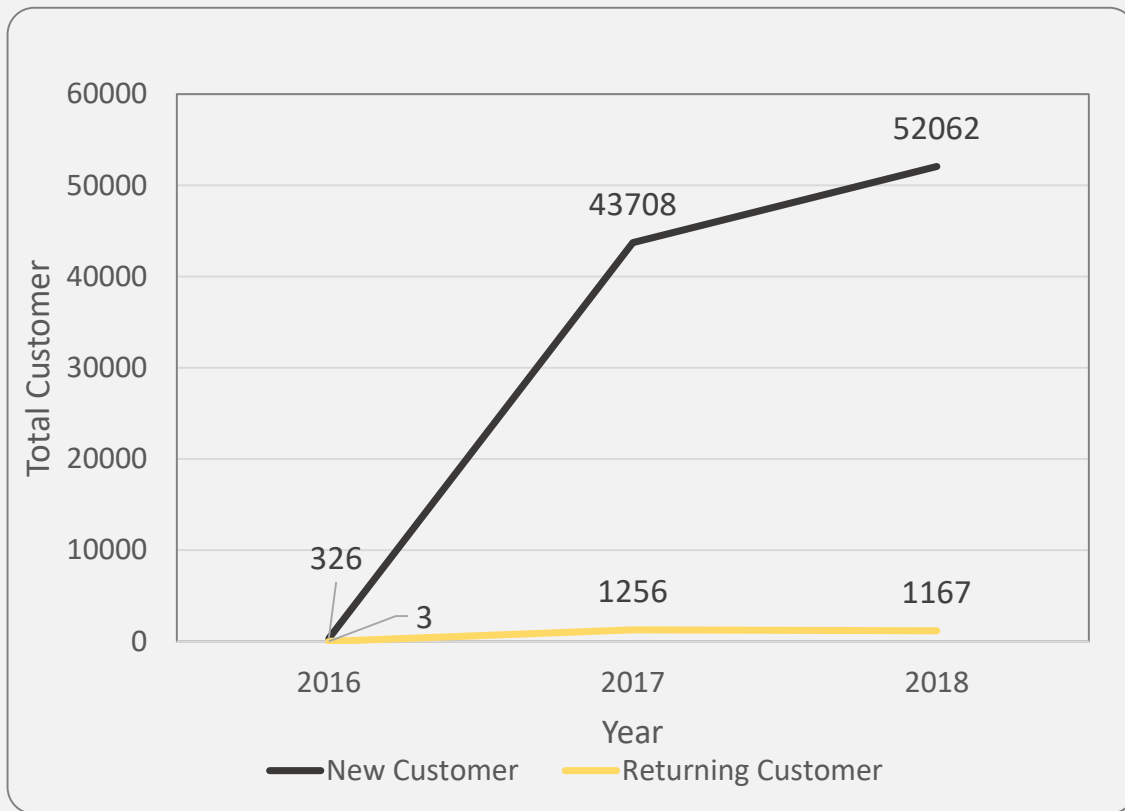

Analysis/Insight:

MAU increased dramatically in 2017. Low customer activity in 2016 occurred because transaction data was only available from September 2016. From this 3 year data, customers have positive growth. This situation needs to be maintained by increasing brand awareness to providing promos for new customers.

NEW CUSTOMER AND RETURNING CUSTOMER

New customers are customers who have made transactions for the first time, while repeating customers are customers who have made transactions more than once.

Analysis/Insight:

The number of new customers has positive growth, but unfortunately the trend of customers making repeated transactions is not good and even decreased in 2018, from the average order data it is known that most of the customers only order once throughout the year.
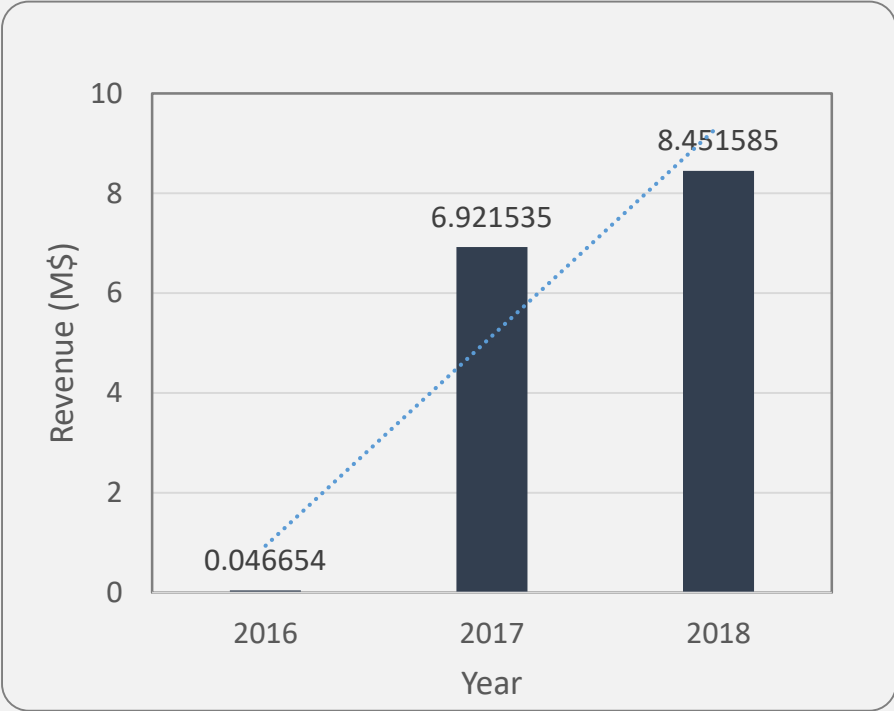
ANNUAL PRODUCT CATEGORY QUALITY ANALYSIS

eCommerce business performance is related to the products provided. Analyzing product quality in eCommerce can provide decisions for growing a business. For companies, product quality earns customer loyalty, helps establish brand recognition and manages costs.

The following are the results of the analysis obtained:

year	revenue	Total_cancel_order	Top_product	Revenue_product	Top_cancel_product	Total_cancel_product
2016	46654	26	furniture_decor	6899	toys	3
2017	6921535	265	bed_bath_table	580949	sports_leisure	25
2018	8451585	334	health_beauty	866810	health_beauty	27

ANNUAL REVENUE

TOP PRODUCT

Revenue (M$)

10

8 — 8.451585

6.921535

6

4

2

0 — 0.046654

2016   2017   2018

Year

2016

**Furniture
& décor**

14,78% of Annual Revenue

2017

**Bed Bath
Table**

8.39% of Annual Revenue
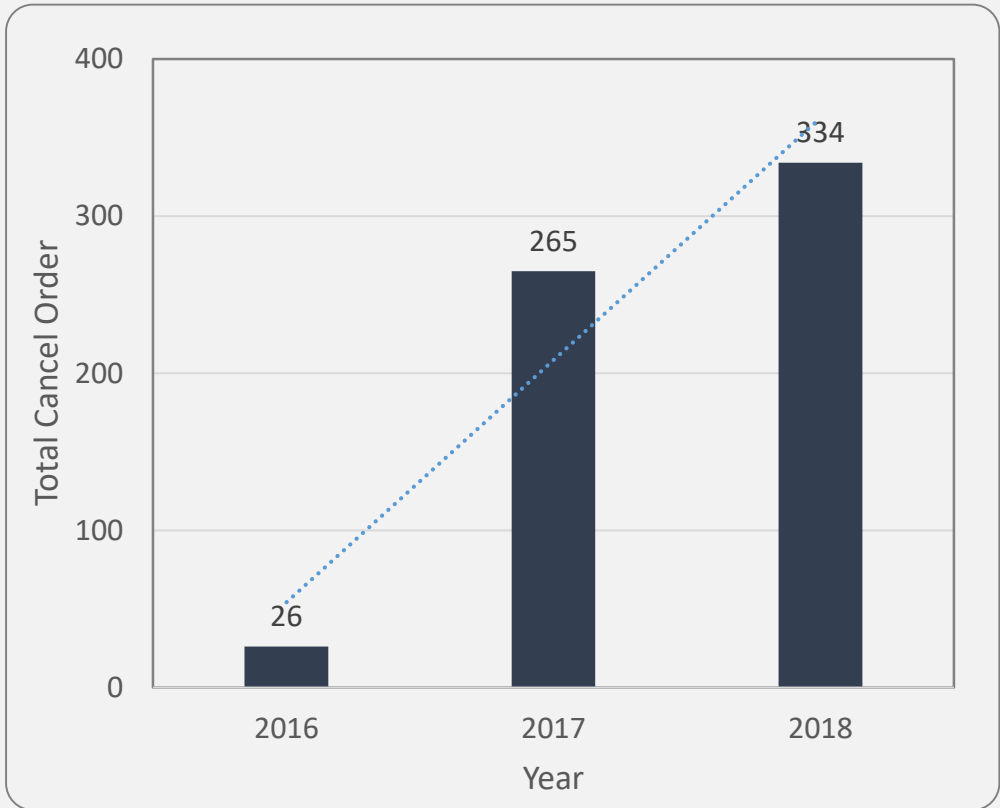
2018

**Health
Beauty**

10,25% of Annual Revenue

Analysis/Insight:

The amount of annual revenue has been steadily increasing for the last 3 years. This indicates that the company has good growth. There is something interesting here, from year to year the best-selling products always change every year. In 2016 and 2017, products were dominated by the furniture and equipment category with male customers. Meanwhile, in 2018 the products were dominated by the health and beauty category, where most of the customers were women.

TOTAL CANCEL ORDER

MOST CANCELLED PRODUCT

2016	2017	2018
Toys	**Sports Leisure**	**Health Beauty**
3 unit	25 unit	27 unit

Analysis/Insight:

Total cancel orders have increased from year to year, however the value of the cancel rate actually decreased in 2017 from 7.9% to 0.59% and have a slight increase in 2018 to 0.61%. Further research is needed to determine the order cancellation factor.

Products with the most cancellations also change every year. Despite being the product with the highest revenue in 2018, health and beauty were also the products with the most number of cancellations in the same year. It is assumed that because the number of orders in this category is high, the probability of the product being canceled is also high.

ANALYSIS OF ANNUAL PAYMENT TYPE USAGE

Payment method is one aspect to consider in an income analysis by comparing various payment methods. 42% of customers will cancel their purchase if they don't see their preferred payment method available. Apart from that, providing alternative payment methods can also help when one of the payment systems is having problems so that cancellation of purchases by customers can be avoided.

Analyzing the performance of each type of payment will provide insight into establishing cooperation with payment method providers, the results of the analysis of each payment method each year are as follows:

Payment_type	year_2016	year_2017	year_2018
boleto	63	9508	10213
credit_card	258	34568	41969
debit_card	2	422	1105
not defined	0	0	3
voucher	23	3027	2725

Annual Payment Type Usage
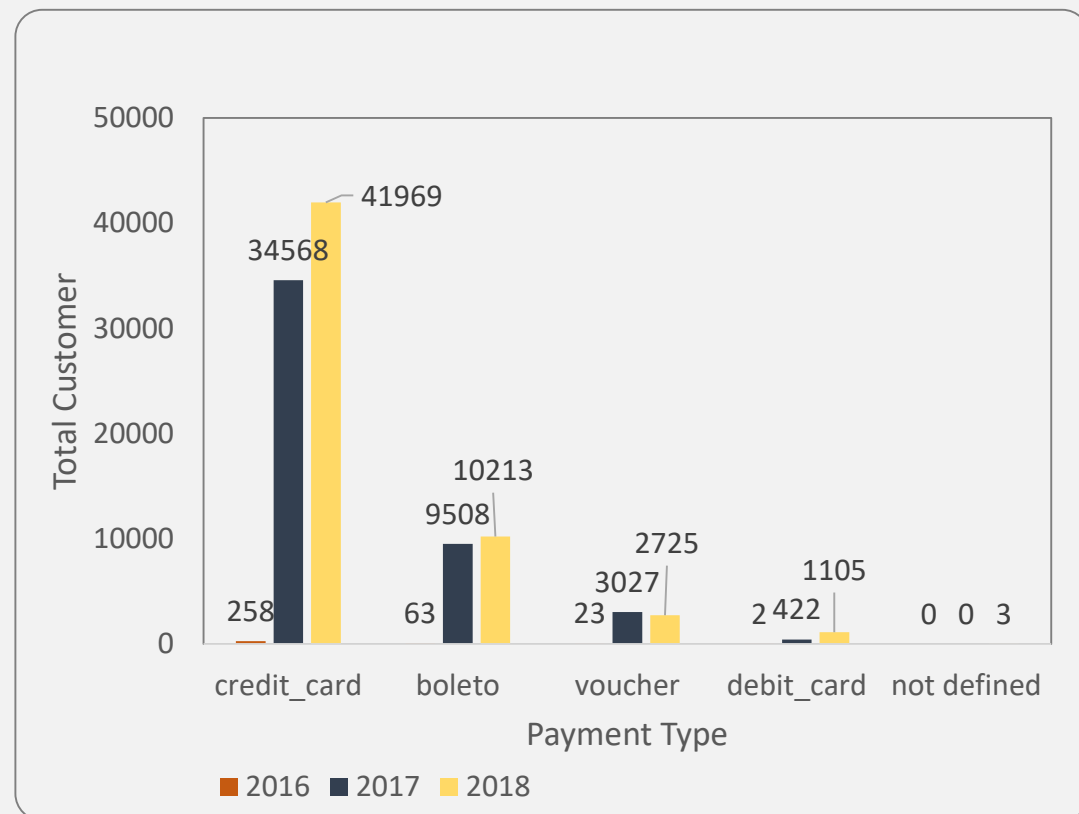
Analysis/Insight:

The most used payment method in the last 3 years is credit card, followed by boleto, voucher and debit card. The payment method using a credit card usually offers many advantages such as giving rewards and discounted promos so that customers are more interested in making payments using this method.

In addition, the increase in the use of debit cards was very significant, more than 100% from 2017 to 2018. On the other hand, the use of vouchers actually decreased from 2017 to 2018.

Further analysis can be carried out by confirming with other departments, for example Marketing or Business Development regarding this matter.