Analyzing eCommerce Business Performance
with SQL

OVERVIEW

A company's measuring business performance is crucial to track, monitor, and assess the success or failure of various business processes. Consequently, this paper will analyze the business performance of an eCommerce company by considering several business metrics such as customer growth, product quality, and payment types.
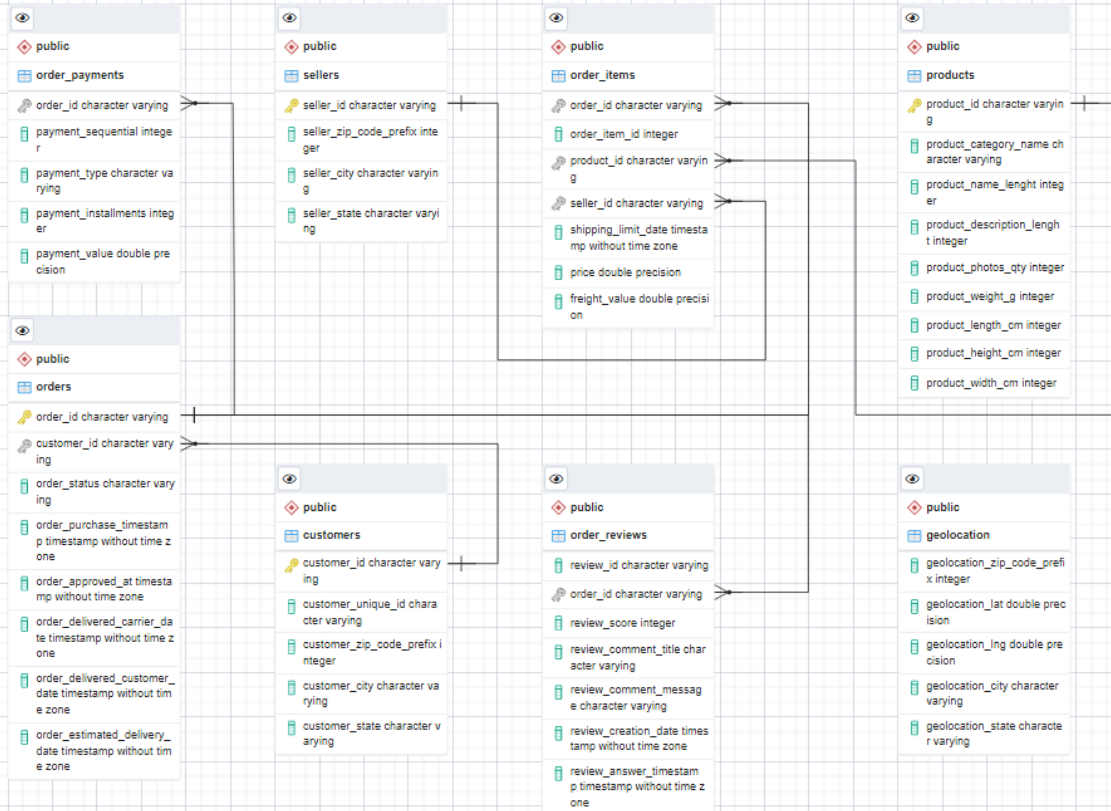
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01

DATA
PREPARATION

ENTITY RELATIONSHIP DIAGRAM

The Entity Relationship Diagram (ERD) beside shows the relationship between tables in a database. There are eight entities in the ERD, namely products, customers, orders, order_payments, order_items, order_reviews, geolocation, and sellers.

Download ERD (<u>Click Here</u>)

THREE STEPS TO GENERATE ERD

01

CREATE TABLES

Create a new table using CREATE TABLE statement and determine the data type and constraints. The number of tables is adjusted to the number of columns in the dataset.

02

IMPORT DATASET

Import the dataset into the previously created tables. In this case, the dataset contains eight columns.

03

GENERATE ERD

Generate ERD based on primary and foreign keys. It can be created by using PgAdmin.

Dataset (Click Here**)**
Create Table Query (Click Here**)**

02

ANNUAL CUSTOMER ACTIVITY
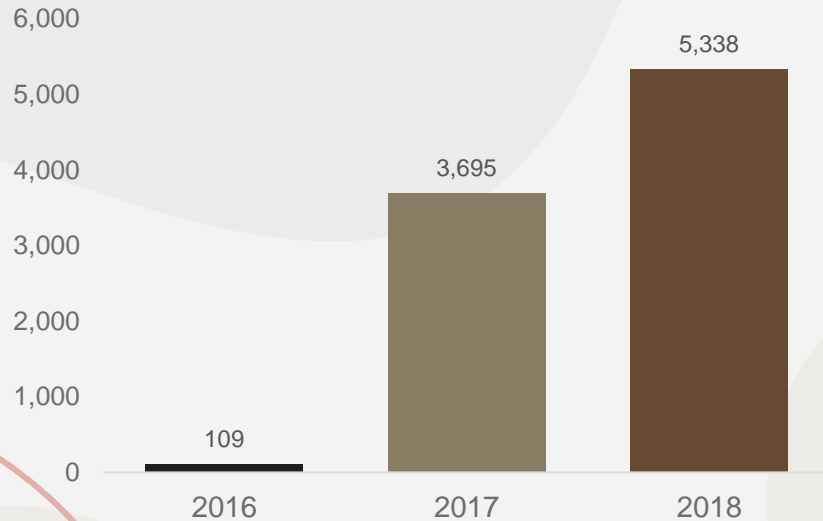### GROWTH ANALYSIS

ANNUAL CUSTOMER ACTIVITY
# GROWTH ANALYSIS

Resulted Table:

	year double precision	average_mau numeric	total_new_customer bigint	total_customer_repeat_order bigint	average_frequency_order numeric
1	2016	109	326	3	1.01
2	2017	3695	43708	1256	1.03
3	2018	5338	52062	1167	1.02

Query Script (Click Here)

ANNUAL CUSTOMER ACTIVITY GROWTH ANALYSIS

Average Monthly Active Users Per Year

Year	Value
2016	109
2017	3,695
2018	5,338

Total New Customers Per Year

Year	Value
2016	326
2017	43,708
2018	52,062
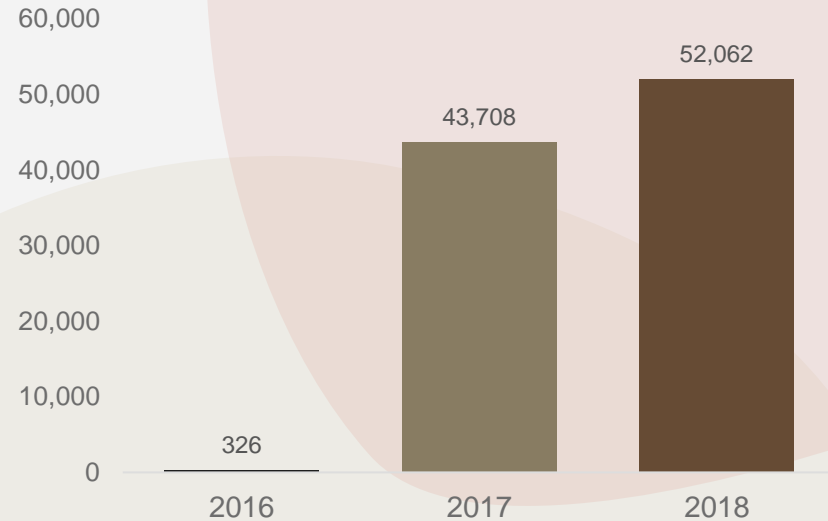
The graph shows the average Monthly Active Users (MAU) and total new customers per year from 2016 to 2018. It can be seen that the average MAU and total new customers increased steadily in the given period. The average MAU and total new customers in 2018 compared to 2017 experienced a growth of 44.47% and 19.11% respectively.

ANNUAL CUSTOMER ACTIVITY GROWTH ANALYSIS

**Total Customer Repeat Order and
Average Order Frequency Per Year**
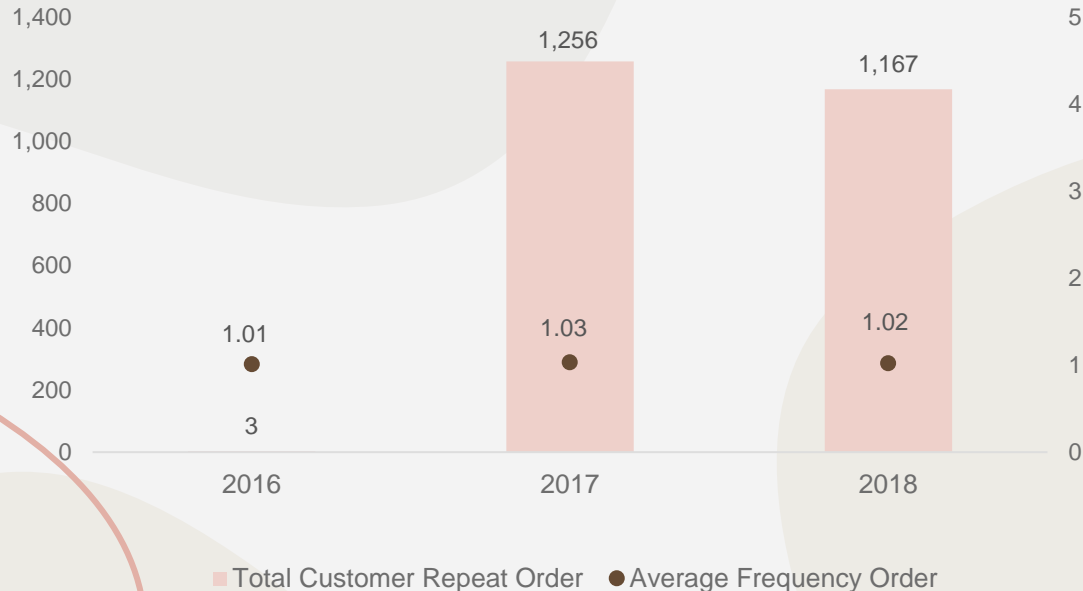
The number of customers who conducted repeated orders faced a fluctuation change. The average order frequency for each customer has a similar number about 1 order from 2016 to 2018.

1,256   1,167

1.01   1.03   1.02

3

2016   2017   2018

■ Total Customer Repeat Order   ● Average Frequency Order

03

ANNUAL PRODUCT CATEGORY
QUALITY ANALYSIS

ANNUAL PRODUCT CATEGORY
QUALITY ANALYSIS

Resulted Table:

	year numeric	total_revenue numeric	total_canceled_order bigint	top_product_name character varying	total_revenue_top numeric	canceled_product_name character varying	total_cancel bigint
1	2016	46653.74	26	furniture_decor	6899.35	toys	3
2	2017	6921535.24	265	bed_bath_table	580949.20	sports_leisure	25
3	2018	8451584.77	334	health_beauty	866810.34	health_beauty	27

Query Script (<u>Click Here</u>**)**

ANNUAL PRODUCT CATEGORY QUALITY ANALYSIS

Total Revenue Per Year
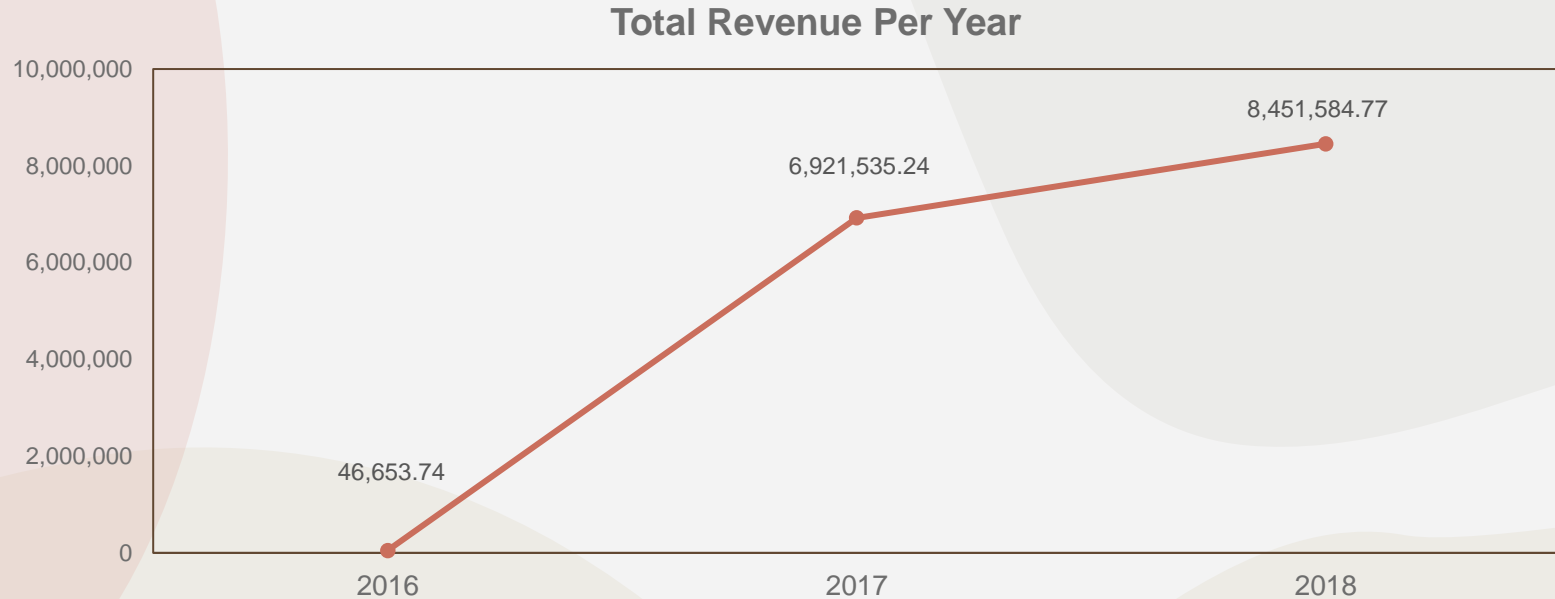
This graph explains that total revenue increased from 2016 to 2018. In 2018, total revenue gained to $8,5 million and faced a change of around 22.11% compared to 2017.

ANNUAL PRODUCT CATEGORY QUALITY ANALYSIS

TOTAL CANCELED ORDER

2016   2017   2018

26   265   334

Although total revenue increased, the total of canceled orders also experienced a rise. In 2018, the number of canceled orders gained to 334. Therefore, it should be considered to increase the total revenue.

ANNUAL PRODUCT CATEGORY QUALITY ANALYSIS

TOP PRODUCT CATEGORY BASED ON REVENUE :

2016

FURNITURE DÉCOR
$6,899.35

2017

BED BATH TABLE
$580,949.20

2018

HEALTH BEAUTY
$866,810.34

The data shows that the top product category based on revenue has different products in the period given. HEALTH BEAUTY is the highest revenue at $866,810.34 in 2018.

ANNUAL PRODUCT CATEGORY QUALITY ANALYSIS

TOP PRODUCT CATEGORY BASED ON THE MOST CANCELED ORDERS:

2016

TOYS
3

2017

SPORTS LEISURE
25

2018

HEALTH BEAUTY
27

The product that has the most canceled orders is different each year. The most canceled orders are HEALTH BEAUTY at 27 in 2018. Yet, this product also has the highest revenue in the same year.

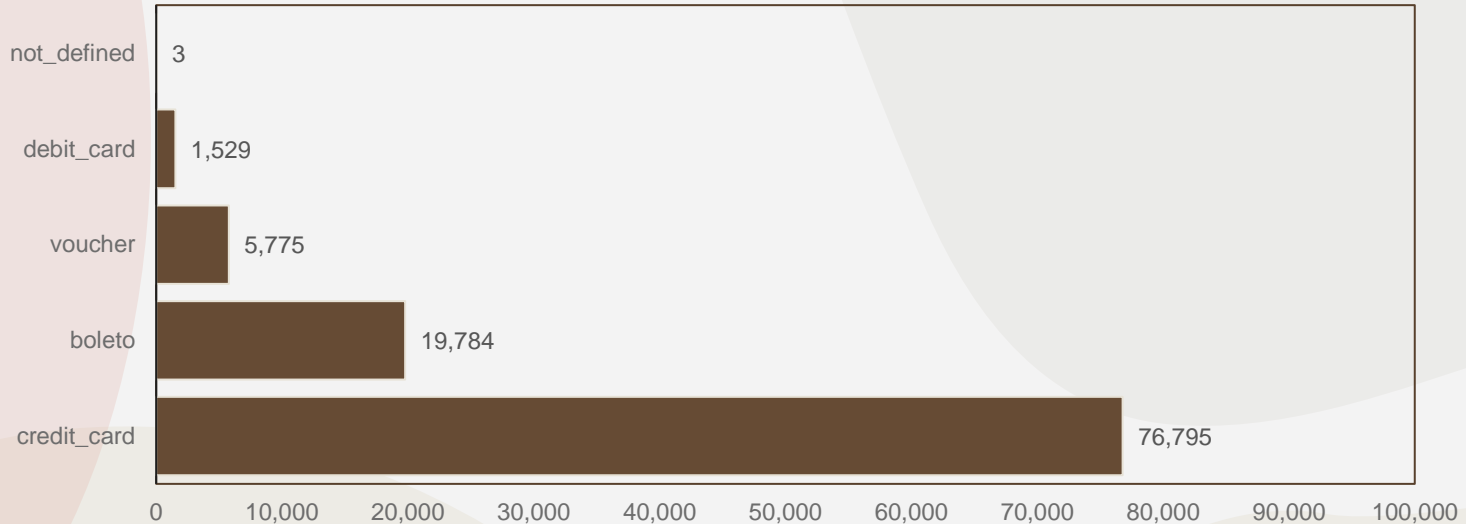# ANNUAL PAYMENT TYPE USAGE ANALYSIS

04

ANNUAL PAYMENT TYPE
USAGE ANALYSIS

Resulted Table:

	payment_type character varying	total bigint	persentase numeric	year_2016 numeric	year_2017 numeric	year_2018 numeric
1	credit_card	76795	73.92	258	34568	41969
2	boleto	19784	19.04	63	9508	10213
3	voucher	5775	5.56	23	3027	2725
4	debit_card	1529	1.47	2	422	1105
5	not_defined	3	0.00	0	0	3

Query Script (Click Here)

ANNUAL PAYMENT TYPE USAGE ANALYSIS

Payment Type Usage 2016 - 2018

Payment Type	Value
not_defined	3
debit_card	1,529
voucher	5,775
boleto	19,784
credit_card	76,795

In the bar chart above, it can be seen that **Credit Card** is the most used by customers from 2016 to 2018.

ANNUAL PAYMENT TYPE USAGE ANALYSIS

BOLETO | 19.04%

VOUCHER | 5.56%

CREDIT CARD | 73.92%

DEBIT CARD | 1.47%
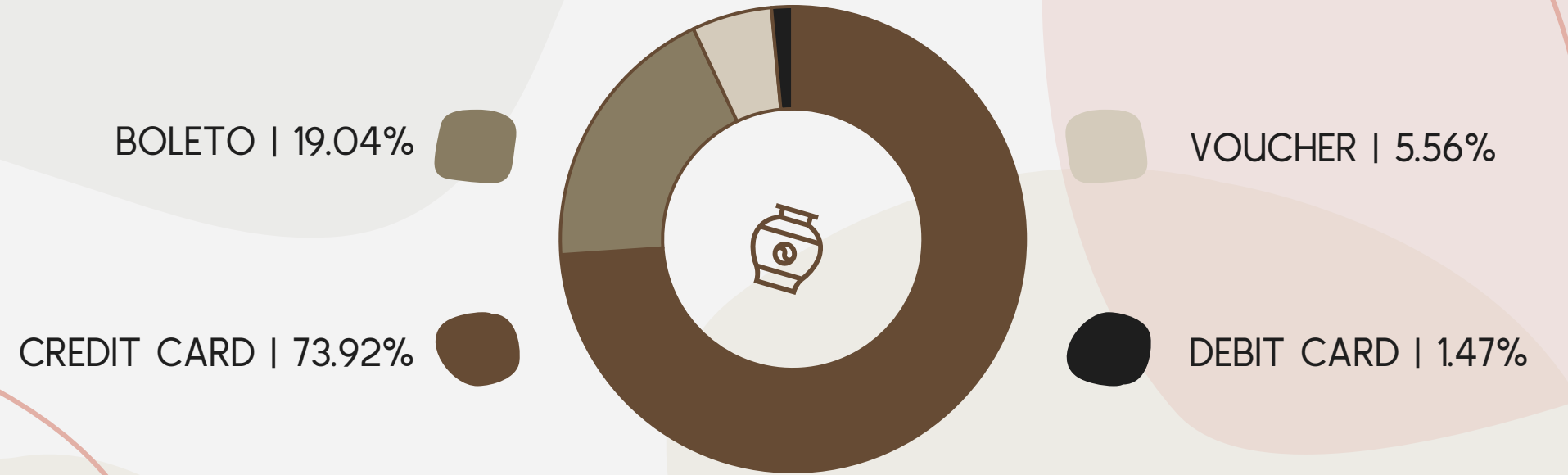
Percentage of Payment Type Usage 2016 - 2018

THANK YOU!

Do you have any questions?
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