

Analyzing eCommerce Business Performance with SQL

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Overview

Measuring business performance is very important for company to monitor the success or failure of various business processes. Therefore in this paper, we will analyze business performance for an eCommerce company, focusing on some business metrics (customer growth, product quality, and payment types). This paper is using dataset provided by Rakamin Academy. It has an information from 2016 to 2018. I'm using PostgreSQL to analyze data and Microsoft Excel to create the visualization.

Outline



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2

**Annual Customer
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3

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4

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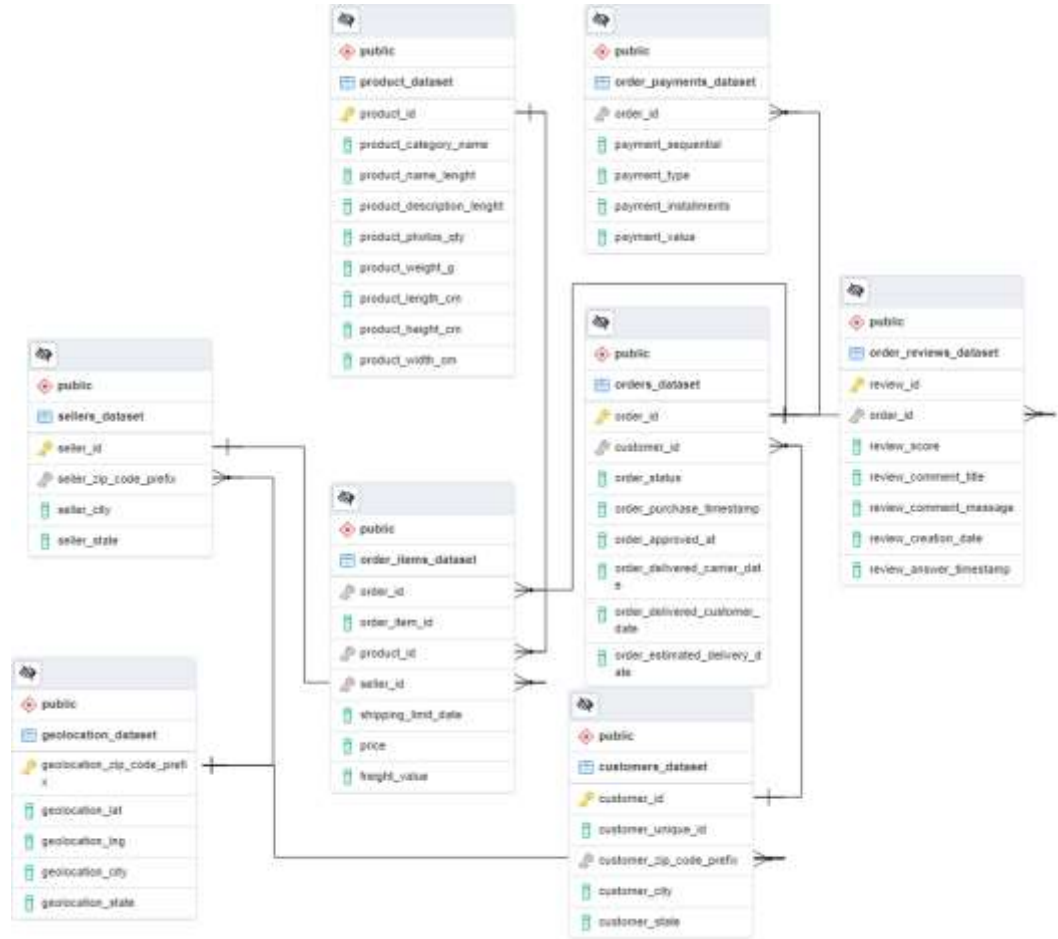


01

DATA PREPARATION

Generate ERD

Entity Relationship Diagram (ERD) describe the relation between each table. Whether it's one-to-one, one-to-many, or many-to-many. The picture beside is the ERD for this dataset.



How I Make ERD

1.

Create a Database

Make a new database that contain of several tables.

2.

Importing Data

Importing datasets (csv) to each tables. Data type for each columns have to match with dataset.

3.

Generate ERD

Generate ERD and adding a primary key and foreign key for each tables, and determine where it's refers to.

4.

Export and Generate Query

Export ERD into image format and generate query. Full query and image can be seen in the link below.

Download ERD [here](#)
ERD Query [here](#)



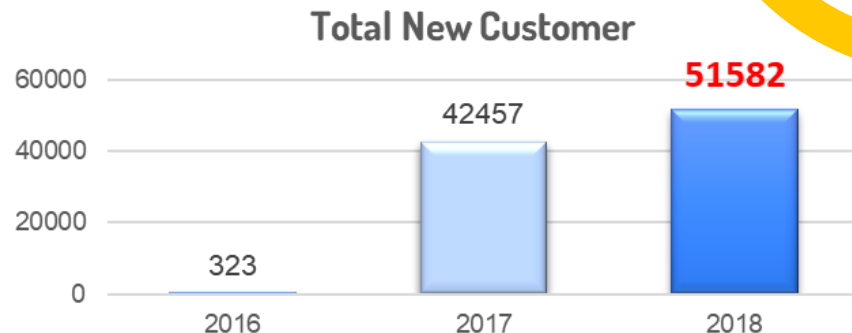
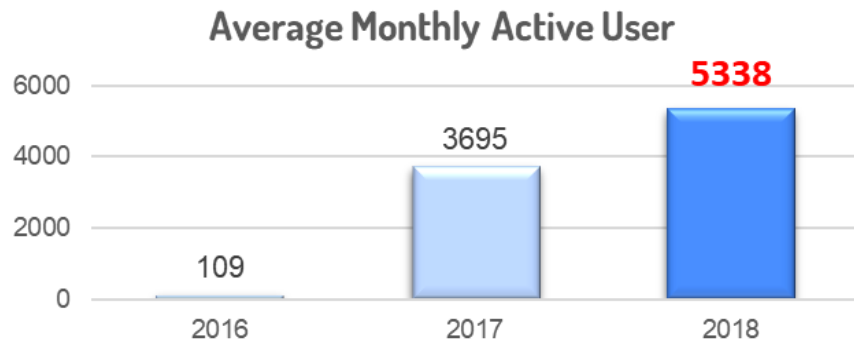
02

Annual Customer Activity Growth Analysis

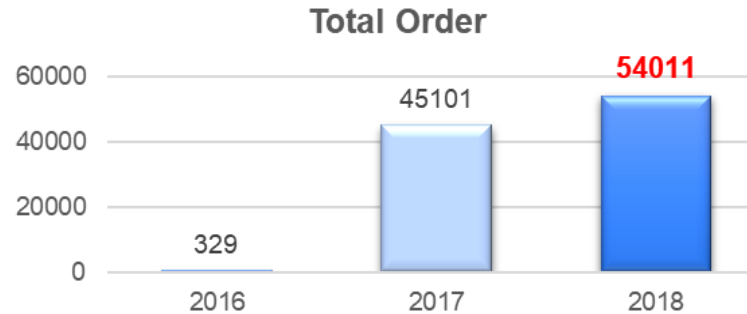
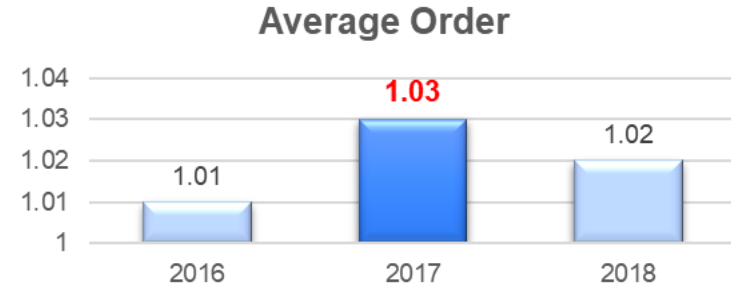
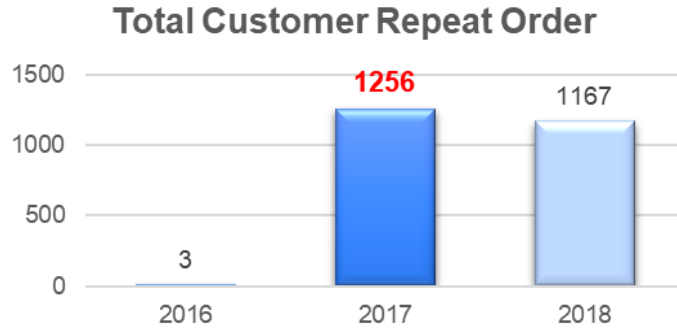
In this section I analyze some metrics that related to customer activity. It's shown in the table bellow. This analysis is about monthly average user (MAU) per year, total new user each year, total customer that repeating order (ordering more than once), average order per customer each year, and total order per year

	Average MAU	Total New User	Total Customer Repeat Order	Average Order	Total Order
2016	109	326	3	1.01	329
2017	3695	43708	1256	1.03	45101
2018	5338	52062	1167	1.02	54011

Visualization & Analysis



The dataset is starting from September 2016, so the value from 2016 has a big difference from other years. In the graph above, we can see that average MAU and total new customer is increasing every year. So that the highest average MAU and the highest of total new customer is in 2018



From these graph, the highest total number of customers that made a repeat orders is in 2017 and it's decreased in 2018. Likewise with the average order made by customers. However, for total orders is increasing every year and so the highest total order was in 2018.



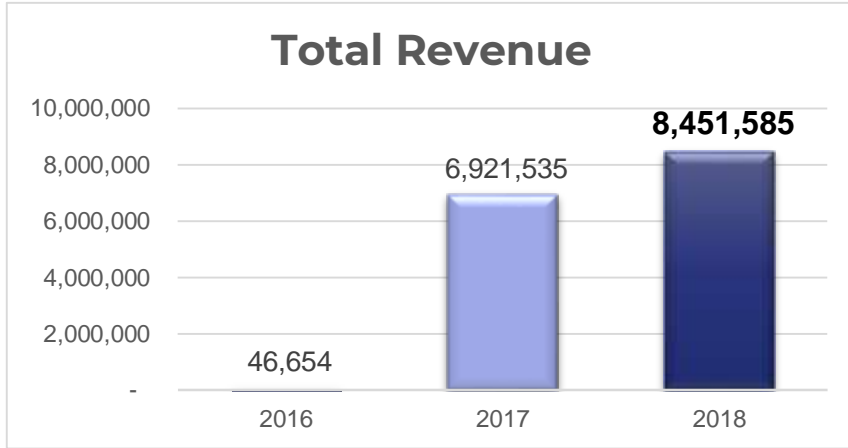
03

Annual Product Category Quality Analysis

eCommerce company's business performance is related to the products. Analyzing the products quality can develop business performance better. Here I analyze the performance of product. Which product category give the highest revenue to company, and which product category that customer canceled the most for each year.

	Total Revenue	Total Canceled Order	Highest Revenue Product	Revenue Count	Most Canceled Product	Canceled Count
2016	46,654	26	furniture_decor	6,899	toys	3
2017	6,921,535	265	bed_bath_table	580,949	sports_leisure	25
2018	8,451,585	334	health_beauty	866,810	health_beauty	27

Visualization & Analysis



From the graph above it can be seen that there's an increase in total revenue every year. This is related to the previous customer growth chart, where total orders are continue to increase, total revenue also increases. But with the increase of total orders, total canceled orders also increases. However if we look at the percentage of total canceled orders to total orders, in 2017 and 2018 is still below 1%

HIGHEST **REVENUE** PRODUCT CATEGORY



2016

Furniture, Decoration
(14.8%)



2017

Bed, Bath, Table
(8.4%)



2018

Health & Beauty
(10.3%)

MOST **CANCELED** PRODUCT CATEGORY



2016

Toys
(0.91%)



2017

Sport, Leisure
(0.06%)



2018

Health & Beauty
(0.05%)

Product category that gives the highest revenue for company is different every year. So is most canceled product category.

The interesting point here is in 2018 **health & beauty** product is a category that gives the highest revenue but also most canceled product by customer.



04

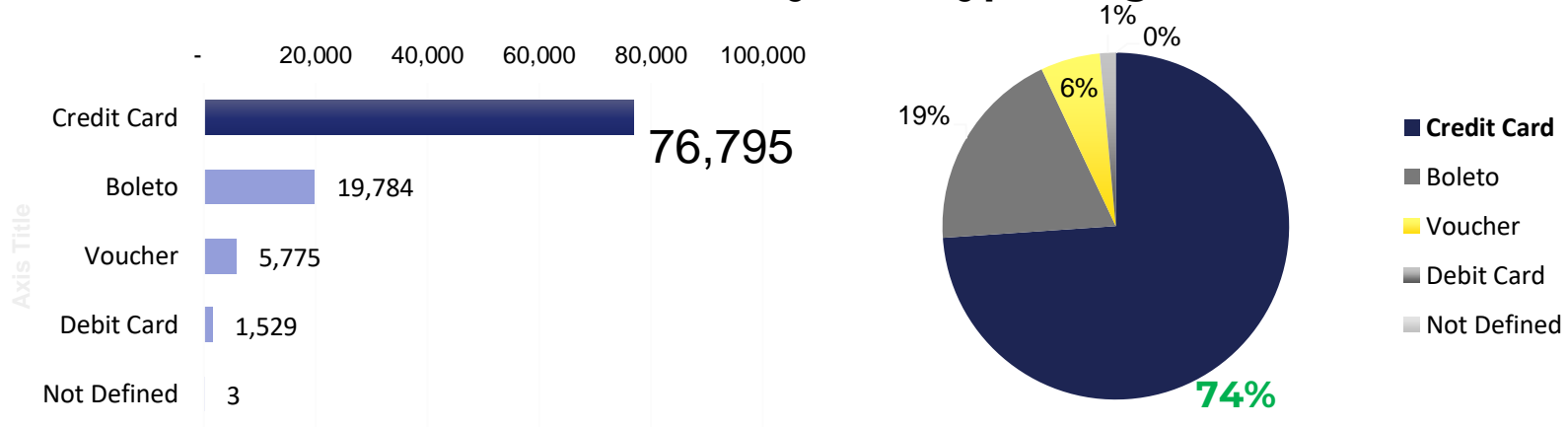
Analysis of Annual Payment Type Usage

This eCommerce provides various payment type methods. This can make it easier for customers to complete payments. Analyzing the performance of payment types can provide insight to create strategic partnerships with payment service providers. Here I analyze all payment types and observe at the changing trends that have occurred over the last few years.

Payment Type	All Time Use	2016 Usage	2017 Usage	2018 Usage
Credit Card	76795	258	34568	41969
Boleto	19784	63	9508	10213
Voucher	5775	23	3027	2725
Debit Card	1529	2	422	1105
Not Defined	3	0	0	3

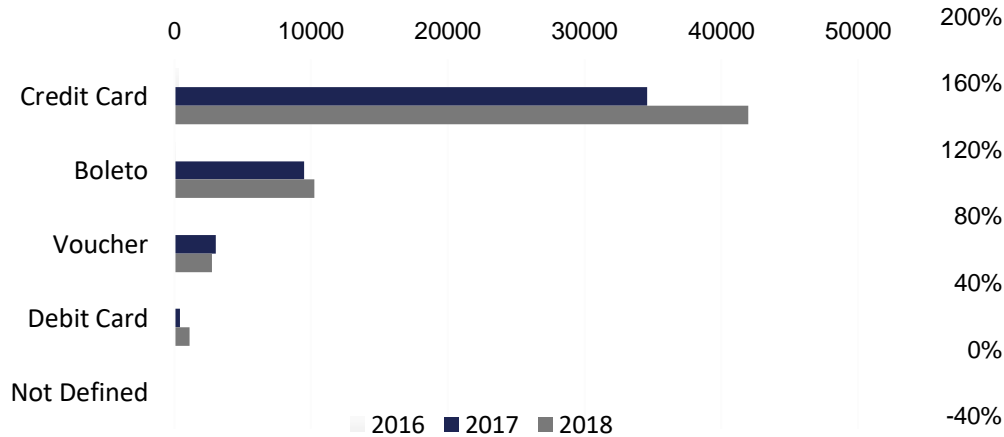
Visualization & Analysis

All-Time Payment Type Usage

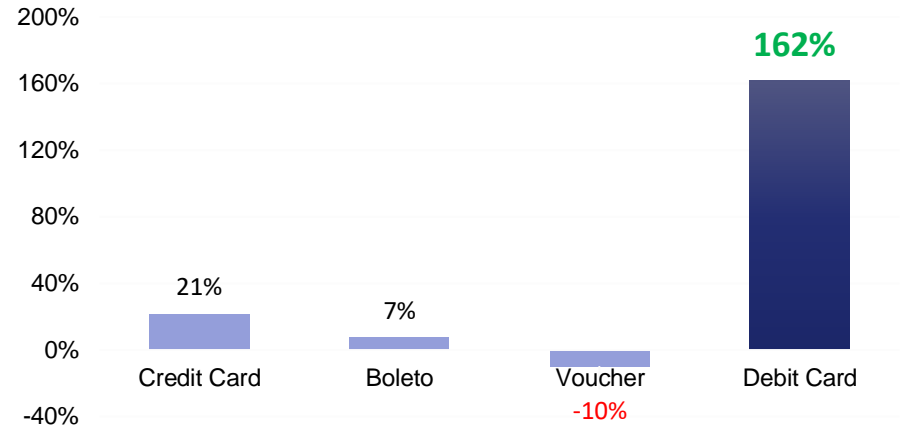


There are some different payment type in this eCommerce. This is one of the company's efforts to make it easire for customer to complete payments according to customer will. From the graph above, the most favorite payment type is by using Credit Card. As much as **74%** of the total orders throughout the year were made using these payments.

Payment Type Usage Per Year



Payment Type Usage Enhancement



Payment type usage in each year is diverse. Some tend to balance, increase, or decrease. These graph shows changes of payment types usage in every year. Of 5 payments types, only payment using Vouchers decreased by 10% from 2017 to 2018.

The highest percentage increase is a payment using Debit Card. It is increased by **162%** from 2017 to 2018. However this payment type is in the 2 lowest ranks by all-time total payment type usage. Companies can work with payment service providers for further increase using this payment type



THANK YOU