

Analyzing eCommerce Business Performance with SQL



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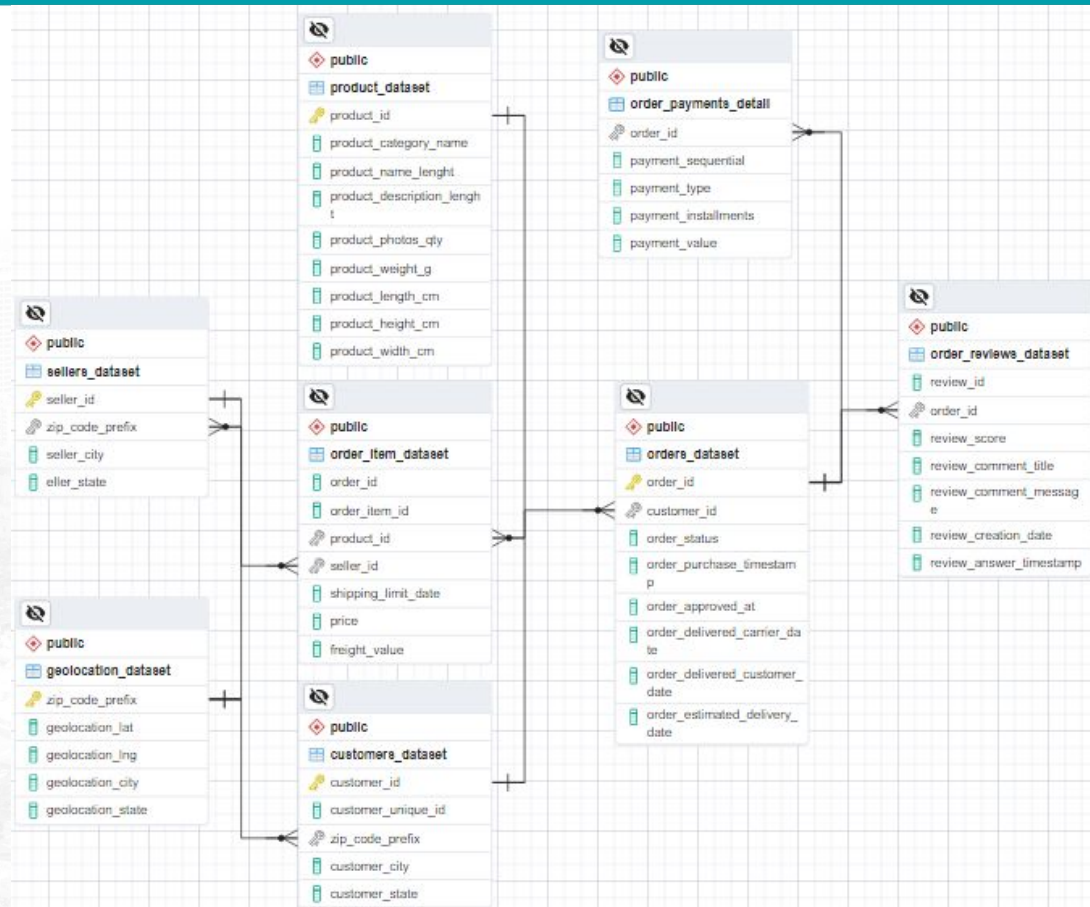
Hello! I'm Destya, a career shifting enthusiast with a strong interest in Data Science. Equipped with a solid foundation from a Data Science Bootcamp, I specialize in data preprocessing and machine learning. With it I am determined to make a meaningful impact as a Data Scientist, and eager to collaborate with fellow data enthusiasts and organizations seeking to harness the power of data for informed decision-making.

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“Dalam suatu perusahaan mengukur performa bisnis sangatlah penting untuk melacak, memantau, dan menilai keberhasilan atau kegagalan dari berbagai proses bisnis. Oleh karena itu, dalam paper ini akan menganalisa performa bisnis untuk sebuah perusahaan eCommerce, dengan memperhitungkan beberapa metrik bisnis yaitu pertumbuhan pelanggan, kualitas produk, dan tipe pembayaran.”

ERD (Entity Relationship Diagram)

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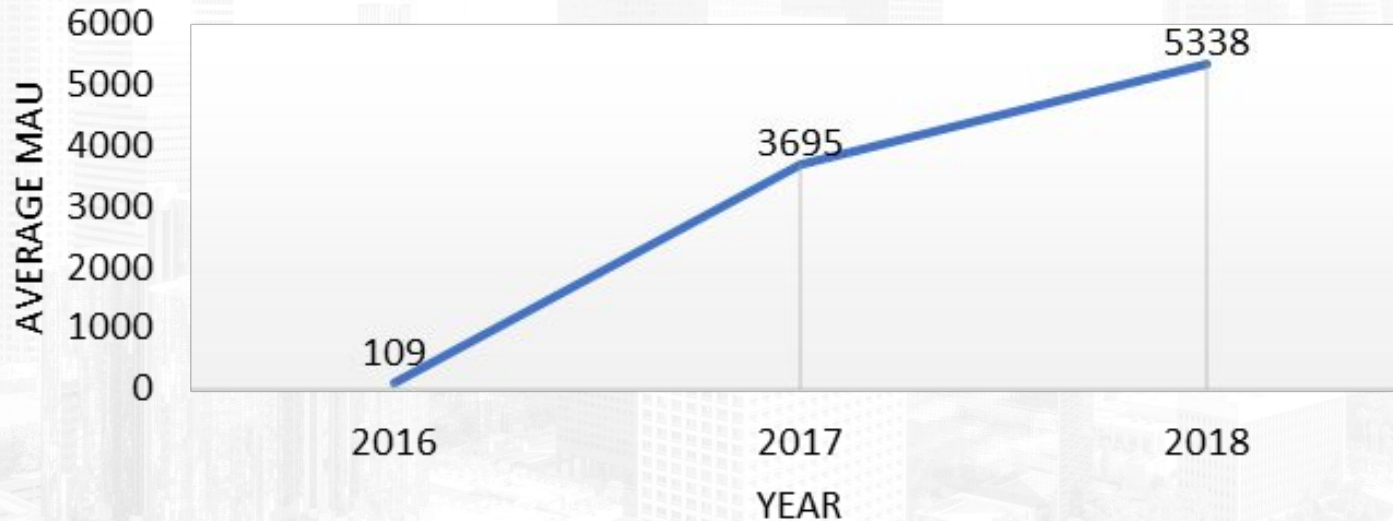


Tahapan proses membuat database hingga ERD sebagai berikut :

1. Membuat database baru pada aplikasi pgAdmin.
2. Membuat tabel beserta kolom yang diperlukan sesuai dengan dataset yang dimiliki dengan memperhatikan tipe data setiap kolom menggunakan **CREATE TABLE..**
3. Melakukan import data CSV ke database.
4. Merubah nama kolom geolocation_zip_code_prefix, seller_zip_code_prefix, & customer_zip_code_prefix menjadi zip_code_prefix menggunakan **ALTER TABLE ... RENAME COLUMN** untuk menyamakan nama kolom.
5. Menentukan Primary Key dan Foreign Key untuk melihat relation antar tabel dengan **ALTER TABLE ... ADD PRIMARY KEY** atau **ADD FOREIGN KEY**.
6. Pilih submenu ERD For Database dengan klik kanan database untuk generate ERD secara otomatis.

Annual Customer Activity Growth Analysis

Average of Monthly Active User per year



There is a significant growth in monthly active users for the eCommerce business from 2016 to 2018. This growth is indicative of improved user engagement and likely increased revenue opportunities.

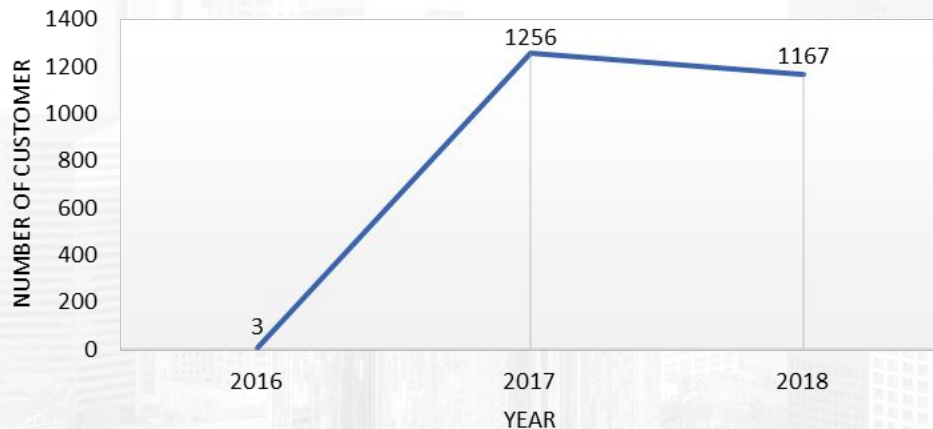
Annual Customer Activity Growth Analysis



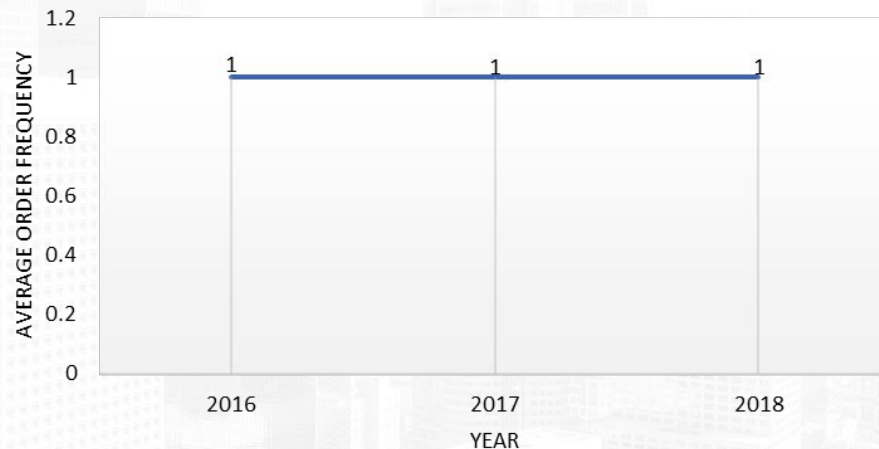
There is an increase in the number of new customers acquired from 2016 to 2017, with continued growth in 2018. The growth in customer acquisition may indicate successful in expanding customer base.

Annual Customer Activity Growth Analysis

Number of Customer Who Make Repeat Order
per Year



Average of Customers Order Frequency per Year



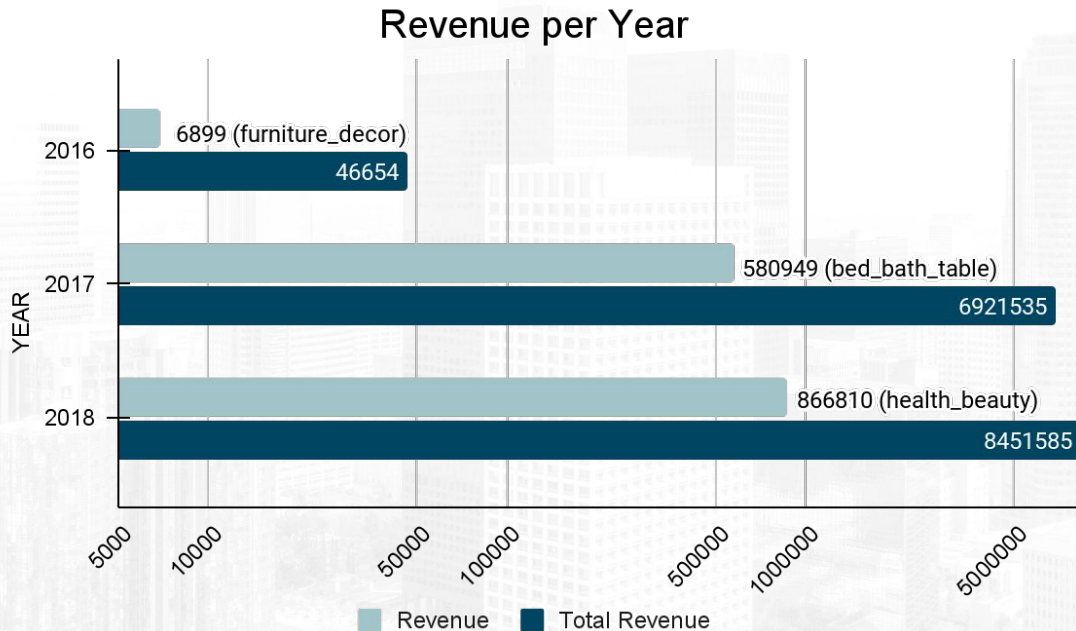
While the average customer order frequency remained consistent at 1 order per year, the total number of repeat orders increased significantly from 2016 to 2017, indicating success in encouraging repeat purchases. In 2018, although the total repeat orders remained relatively high, there was no further change in average order frequency.

Annual Customer Activity Growth Analysis

	year double precision 	avg_mau numeric 	total_new_customers bigint 	total_repeat_order bigint 	avg_order_freq numeric 
1	2016	109	326	3	1
2	2017	3695	43708	1256	1
3	2018	5338	52062	1167	1

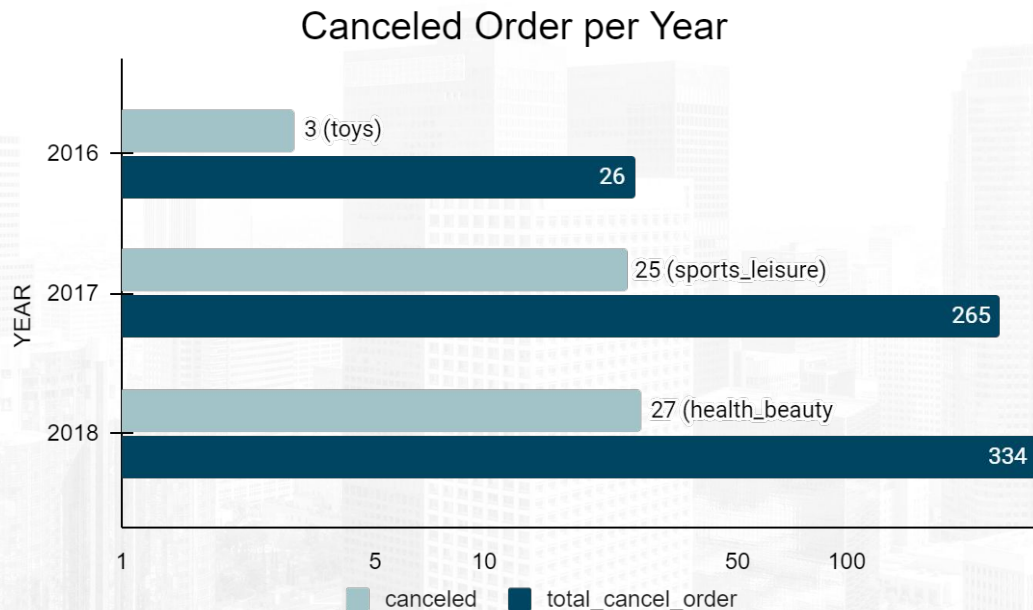
In summary, the eCommerce business experienced significant growth in terms of average monthly active users, the number of new customer acquisitions, and total repeat orders from 2016 to 2017. However, the total number of customers making repeat orders reached its peak in 2017, and although it remained relatively high in 2018, there was no further change in average order frequency from 2016 to 2018. Further analysis may be needed to explore strategies to encourage more frequent purchases or expand the customer base in the future.

Annual Product Category Quality Analysis



The total revenue of the e-commerce business has significantly growth from 2016 to 2017, increasing from \$46,654 to \$6,921,535. This trend continued in 2018, reaching \$8,451,585. The top-selling product category, based on revenue, shifted from Furniture & Decor in 2016 to Bed & Bath Table in 2017 and then to Health & Beauty in 2018.

Annual Product Category Quality Analysis








The number of canceled orders and total canceled items increased over the years. The top products category that customers canceled changed each year. In 2016, it was toys, in 2017, sports & leisure items, and in 2018, health & beauty products.

Annual Product Category Quality Analysis

	year double precision 	total_revenue double precision 	total_cancel_order bigint 	top_product_category character varying 	revenue double precision 	top_canceled_product character varying 	canceled bigint 
1	2016	46654	26	furniture_decor	6899	toys	3
2	2017	6921535	265	bed_bath_table	580949	sports_leisure	25
3	2018	8451585	334	health_beauty	866810	health_beauty	27

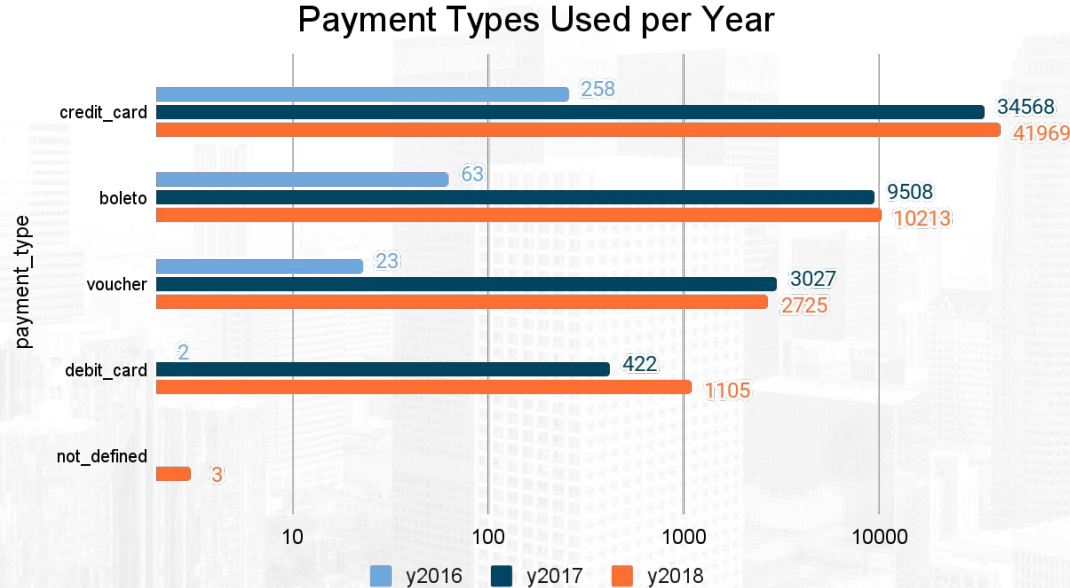
- The data shows that the business experienced significant total revenue growth from 2016 to 2018. This growth in total revenue indicates successful sales and overall business performance.
- On the other hand, the number of cancelled orders increased each year, reaching 334 in 2018. This trend suggests potential issues with product quality, customer service, or other factors that need to be addressed to reduce cancellations and improve customer satisfaction.

Analysis of Annual Payment Type Usage

	payment_type character varying 	total_usage bigint 	y2016 numeric 	y2017 numeric 	y2018 numeric 
1	credit_card	76795	258	34568	41969
2	boleto	19784	63	9508	10213
3	voucher	5775	23	3027	2725
4	debit_card	1529	2	422	1105
5	not_defined	3	0	0	3

These data indicate the popularity and usage trends of different payment types over the specified years. Credit cards were the most frequently used payment method, followed by boleto, voucher, and debit cards, with a small number of transactions falling into the "not defined" category.

Analysis of Annual Payment Type Usage



Credit cards are the most preferred payment method, indicating that credit card is comfortable for online transactions. Boleto is also popular, as evidenced by its usage over the years. Vouchers and debit cards are used less frequently, with vouchers showing a slight decline in popularity. "Not Defined" transactions represent a minimal number of transactions, the company needs to ensure clear payment categorization for this payment method.

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