Analyzing eCommerce Business Performance with SQL
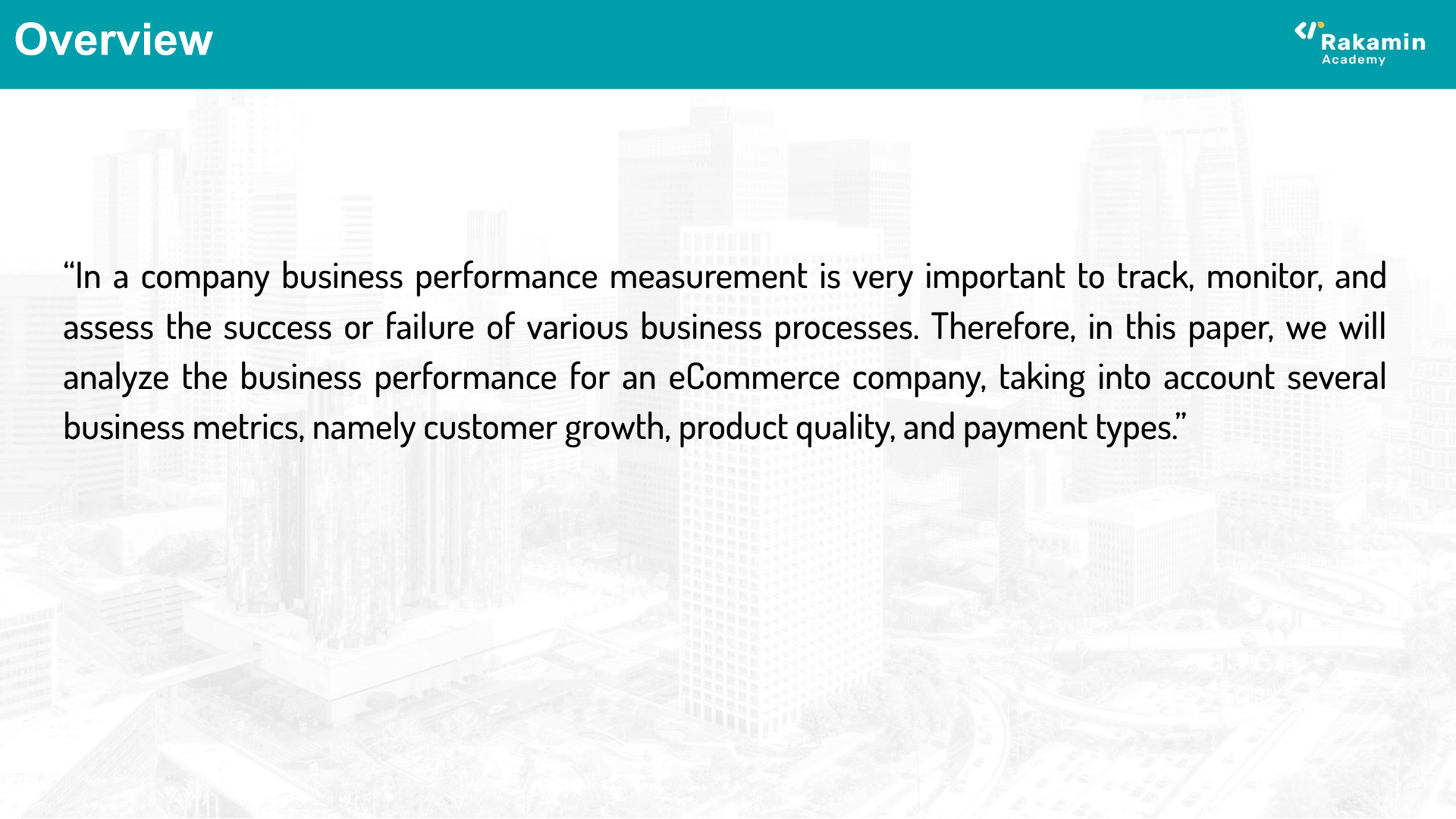
Created by:
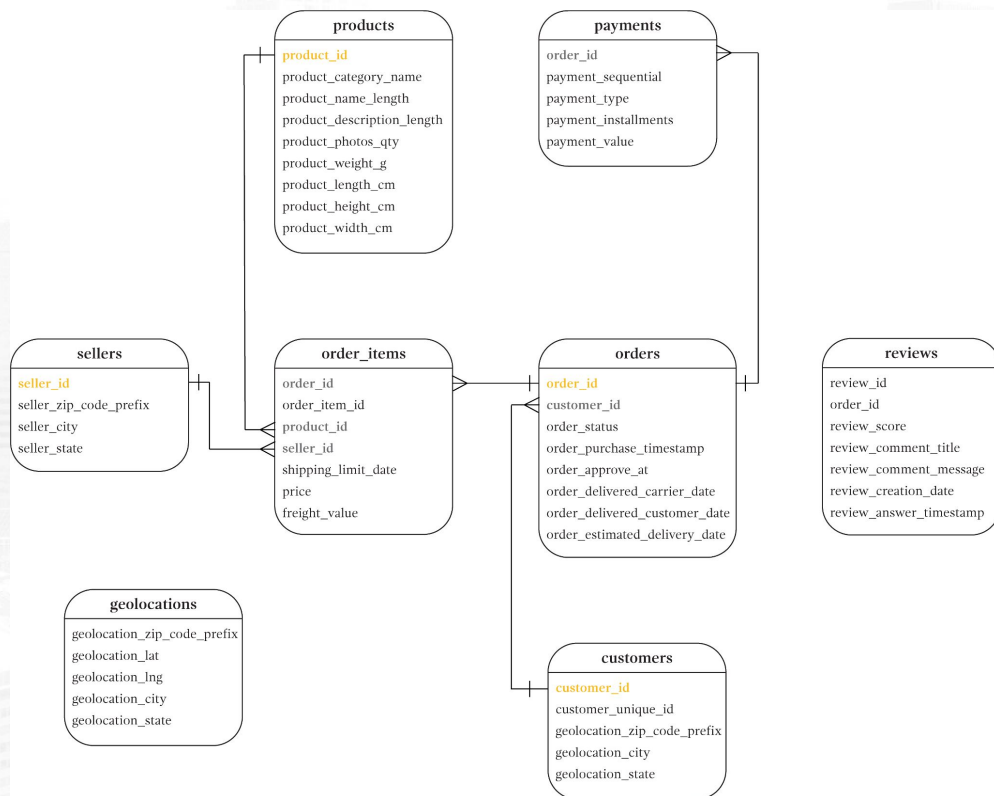**Abdurrahman Syafiq Izhharuddin**
abdurrahman.syafiqi@gmail.com
Linkedin Profile: abdsyfq

Hello, my name is Syafiq. I graduated from Gadjah Mada University with a Bachelor of Science in January, 2021. I am a detail oriented person with critical thinking skills and essential skills to work and perform well. Highly motivated to learn things and very interesting to solve problems by doing related data analysis. Therefore, I studied and deepened the field of Data Analyst and Data Science. Some of the projects I've worked on can be seen here.

Rakamin
Academy

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

Data Preparation

products
- product_id
- product_category_name
- product_name_length
- product_description_length
- product_photos_qty
- product_weight_g
- product_length_cm
- product_height_cm
- product_width_cm

payments
- order_id
- payment_sequential
- payment_type
- payment_installments
- payment_value

sellers
- seller_id
- seller_zip_code_prefix
- seller_city
- seller_state

order_items
- order_id
- order_item_id
- product_id
- seller_id
- shipping_limit_date
- price
- freight_value

orders
- order_id
- customer_id
- order_status
- order_purchase_timestamp
- order_approve_at
- order_delivered_carrier_date
- order_delivered_customer_date
- order_estimated_delivery_date

reviews
- review_id
- order_id
- review_score
- review_comment_title
- review_comment_message
- review_creation_date
- review_answer_timestamp

geolocations
- geolocation_zip_code_prefix
- geolocation_lat
- geolocation_lng
- geolocation_city
- geolocation_state

customers
- customer_id
- customer_unique_id
- geolocation_zip_code_prefix
- geolocation_city
- geolocation_state

- The geolocation dataset does not make a relationship with other datasets, this is because the geolocation dataset has duplicate values in the geolocation_zip_code_prefix column.

- The reviews dataset does not make a relationship with other datasets, this is because the reviews dataset has duplicate values, null and the value format is not appropriate.

- If both tables are required, further processing will be carried out.

View or Download ERD here
The full query can be seen here

Annual Customer Activity Growth Analysis

years double precision	average_customer_active_per_month numeric	number_of_new_customer bigint	number_of_customer_repeat_order bigint	average_number_of_order_per_customer numeric	
1	2016	101	300	2	1
2	2017	3736	43468	544	1
3	2018	5964	51792	380	1

The full query can be seen here

Annual Customer Activity Growth Analysis

Every year the average customer is active every month and new customers are increasing
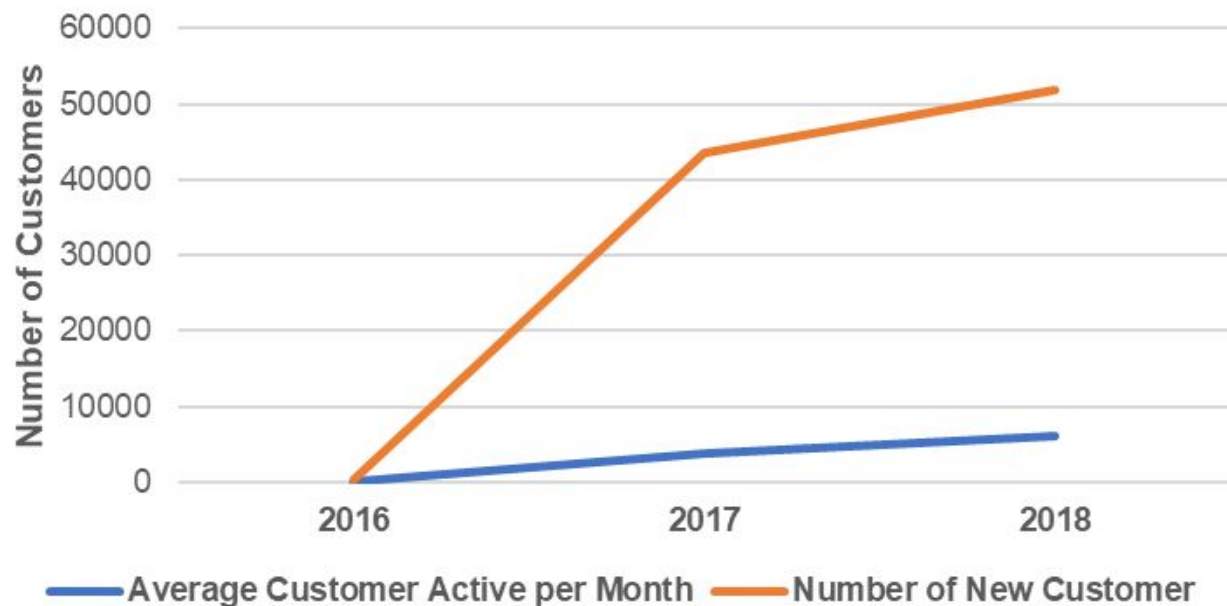
- In 2016, the data provided started in September. Therefore, the increase from 2016 to 2017 is quite far.

The full query can be seen here

Annual Customer Activity Growth Analysis

There was a decrease in repeat orders in 2017 - 2018

- Because the data difference is quite far, I only compare 2017 and 2018.

The full query can be seen here

Annual Product Category Quality Analysis

	years double precision	total_revenue double precision	number_of_order_canceled bigint	product_category_with_highest_total_revenue character varying (50)	total_revenue_per_product_category double precision	product_category_with_highest_canceled character varying (50)	number_of_canceled_per_product_category bigint
1	2016	48372	26	furniture_decor	7189	toys	3
2	2017	7058384	265	bed_bath_table	588817	sports_leisure	25
3	2018	8559783	334	health_beauty	877201	health_beauty	27

The full query can be seen here

Annual Product Category Quality Analysis
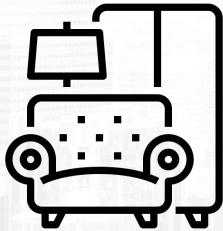
Total Revenue every year increases

- The total revenue continues to increase every year.

The full query can be seen here

Annual Product Category Quality Analysis

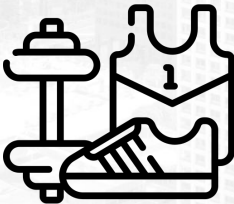|	**2016**	**2017**	**2018**
Top Product	Furniture Decor	Bed Bath Table	Health Beauty
Top Canceled	Toys	Sports Leisure	Health Beauty

- Every year, the favorite products purchased by customers change.

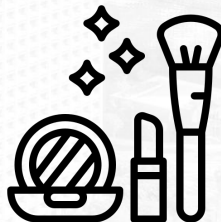- In 2018, Health Beauty's favorite product became the most favorite product as well as the most cancelled.

The full query can be seen here

Analysis of Annual Payment Type Usage

	payment_type character varying (50)	total_orders numeric	year_2016 numeric	year_2017 numeric	year_2018 numeric	growth_rate_2017_2018 numeric
1	debit_card	1510	2	413	1095	165.13
2	credit_card	75666	217	33891	41558	22.62
3	boleto	19472	54	9307	10111	8.64
4	voucher	5600	22	2950	2628	-10.92

The full query can be seen here

Analysis of Annual Payment Type Usage
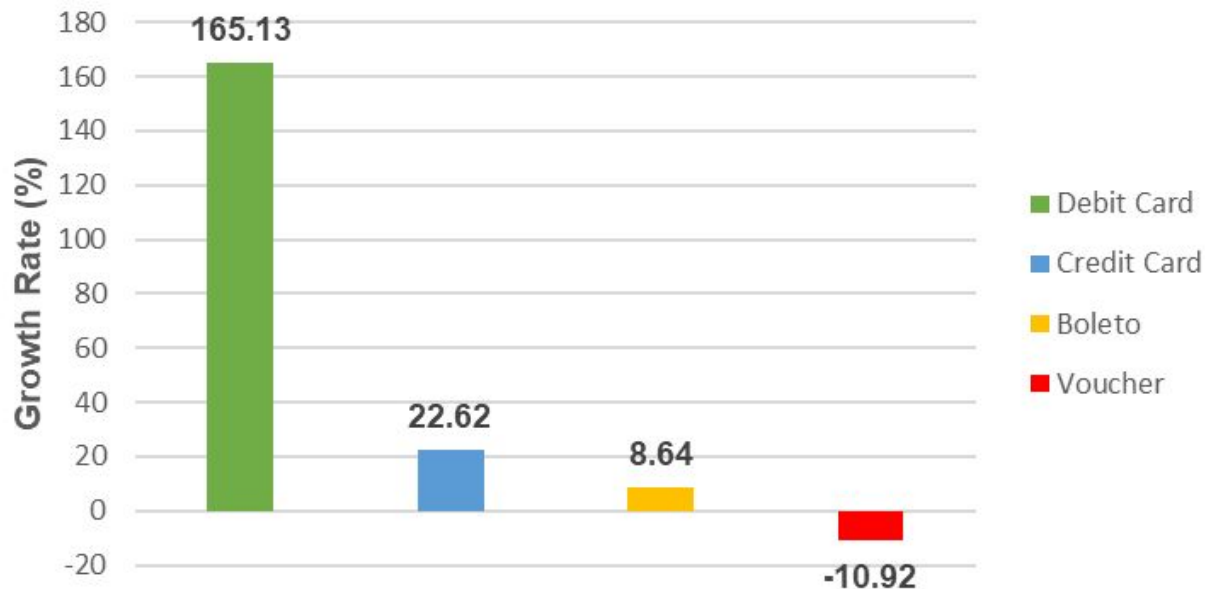
Number of Orders per Each Type of Payment
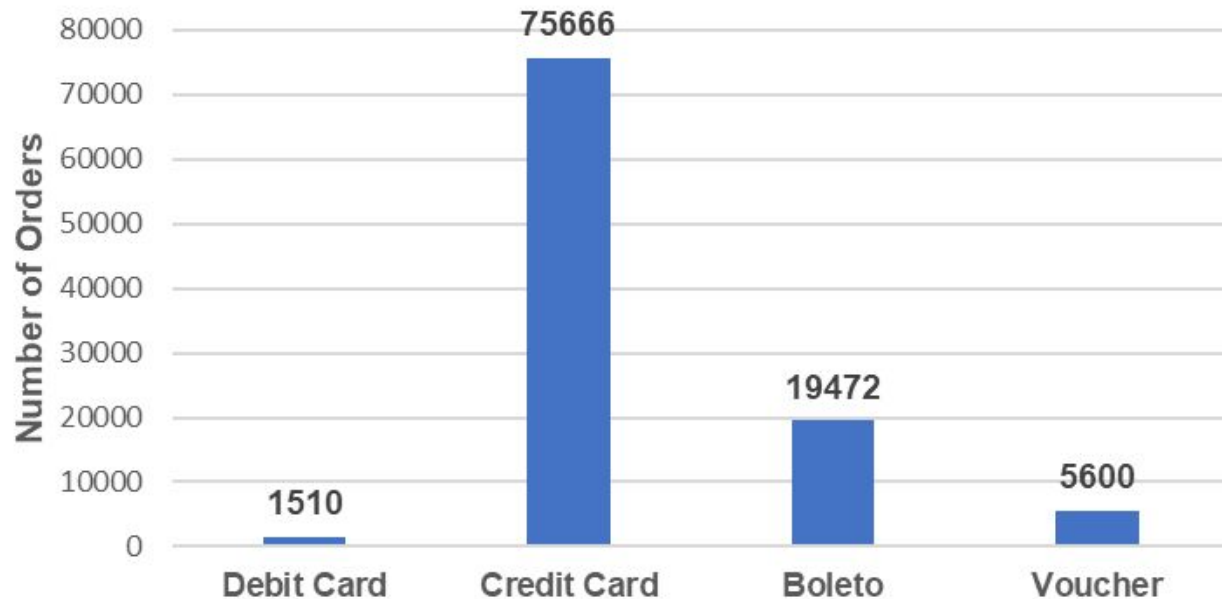
- Overall, the Credit Card payment method is the most widely used by customers.

- Meanwhile, the Debit Card payment method is the least used by customers.

The full query can be seen here

Analysis of Annual Payment Type Usage

Rakamin Academy

Number of Orders per Each Type of Payment (2017 - 2018)

Growth Rate (%)

- Debit Card: 165.13
- Credit Card: 22.62
- Boleto: 8.64
- Voucher: -10.92

- The growth in the use of each type of payment is calculated from 2017 – 2018. Due to the small number in 2016, the amount of growth will be very large in 2017.

- The growth in the use of Voucher payment types decreased by 10.92% in 2018.

The full query can be seen here

Conclusions

- Overall, the company's performance in 2016 – 2018 was quite good. This can be seen from the growth in the number of active customers every month, the number of new customers, and the increasing total income. However, on the other hand, the number of repeat orders decreased in 2017 – 2018.

- Every year, the favorite product category changes. In 2018, the favorite product category was health beauty. However, the product category is also the product category that is most canceled by customers. It is necessary to do further analysis of health beauty products in 2018.

- In 2016 – 2017, the Credit Card payment method is the favorite for customers to pay. Can collaborate with credit card type payment providers to get attractive promotional strategies.

- The use of the Voucher payment method decreased by 10.92% in 2018. Further analysis is needed to determine the cause of the decline.

Thank You

Created by:
Abdurrahman Syafiq Izhharuddin
abdurrahman.syafiqi@gmail.com
Linkedin Profile: abdsyfq