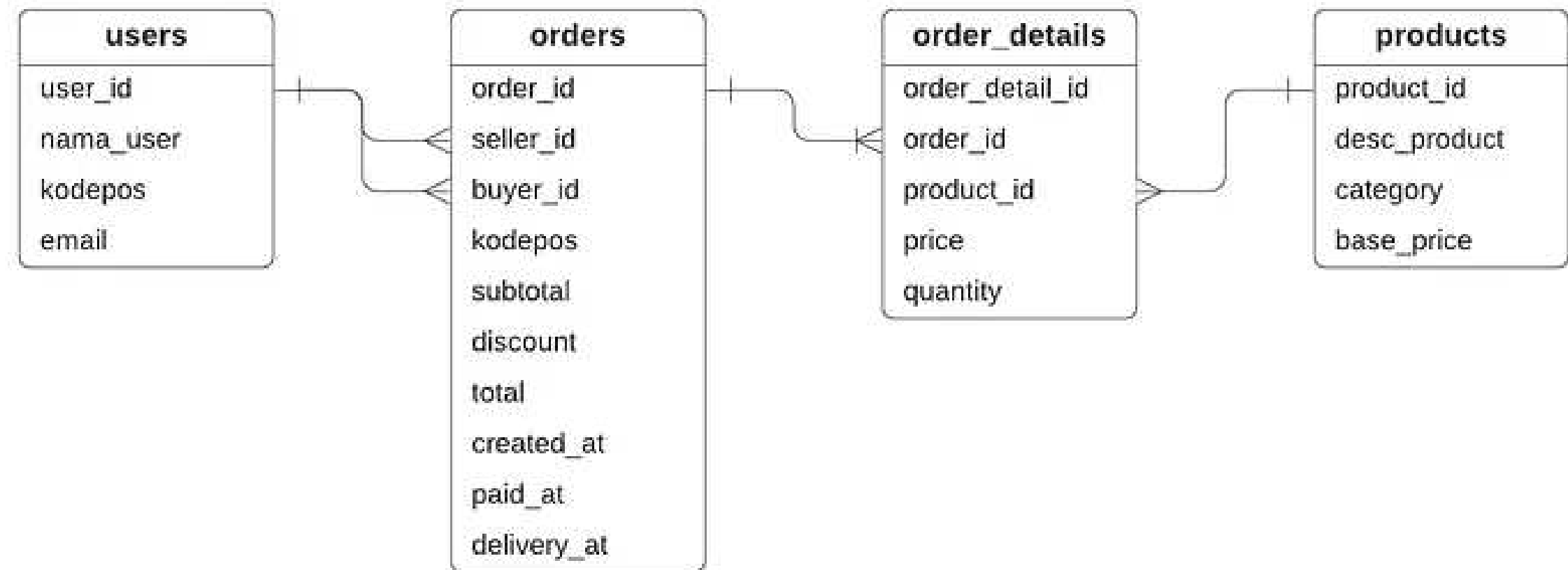# Report

E-COMMERCE ANALYTICS

By Fitria Dwi Wulandari

about
BUSINESS

DQLab Store is an e-commerce platform where buyers and sellers interact. Users can purchase goods from other users who are selling, and each user has the flexibility to act as both a buyer and a seller. As a BI Analyst at DQLab Store, you are tasked with providing business insights on e-commerce performance from 2019 to 2020.

about
DATA

users	orders	order_details	products
user_id	order_id	order_detail_id	product_id
nama_user	seller_id	order_id	desc_product
kodepos	buyer_id	product_id	category
email	kodepos	price	base_price
	subtotal	quantity	
	discount		
	total		
	created_at		
	paid_at		
	delivery_at		

- The **products** table includes comprehensive data about the products sold by sellers. This table likely contains information, such as product IDs, names, descriptions, prices, categories, and possibly seller information.

- The **orders** table stores transactional data for purchases made by buyers from sellers. It typically includes details like order IDs, buyer IDs, seller IDs, timestamps, and overall transaction amounts.

- The **order_details** table contains more detailed information about each purchase transaction. It includes specifics, such as the product IDs purchased, quantities, and individual prices.

- The **users** table contains profile information about each user on the platform

business
QUESTIONS

01   Transaction Status

02   User Activity

03   Seller Domain Email

question 1

Transaction Status

- At the DQLab store, there are 5,046 unpaid transactions, indicating a notable number of customers who do not complete their purchases.

- 4,744 transactions are paid for but not sent, suggesting potential issues with fulfillment or inventory management that impact customer satisfaction and retention.

unpaid
5046

paid_not_sent
4744

```sql
-- #1 the number of unpaid transactions

SELECT
    COUNT(1) AS unpaid
FROM
    orders
WHERE
    paid_at = 'NA'
;


-- #2 the number of transactions that
have been paid but not sent

SELECT
    COUNT(1) AS paid_not_sent
FROM
    orders
WHERE
    paid_at != 'NA' AND delivery_at = 'NA'
;
```

question 1

Transaction Status

- There are 9,790 transactions that have not been shipped, including both paid and unpaid transactions.

- There are 9,634 orders that need to be shipped on the same day as the payment date.

not_sent_yet
9790

same_day_order
9634

```sql
-- #3 the number of transactions that were
not sent, whether paid or not

SELECT
    COUNT(1) AS not_sent_yet
FROM
    orders
WHERE
    delivery_at = 'NA' AND
    (paid_at != 'NA' OR paid_at = 'NA')
;


-- #4 the number of transactions sent on
the same day as the payment date

SELECT
    COUNT(1) AS same_day_order
FROM
    orders
WHERE
    paid_at = delivery_at
;
```

question 2

User Activities

The total number of users in the DQLab store is 17,936, consisting of 17,877 users who have transacted as buyers and 69 users who have transacted as sellers.

all_user
17936

as_buyer
17877

as_seller
69

```sql
-- #1 total all users

SELECT
    COUNT(DISTINCT user_id) AS all_user
FROM
    users
;


-- #2 the number of users who have transacted as buyers

SELECT
    COUNT(DISTINCT buyer_id) AS as_buyer
FROM
    orders
;


-- #3 the number of users who have transacted as a seller

SELECT
    COUNT(DISTINCT seller_id) AS as_seller
FROM
    orders
;
```

question 2

User Activities

There are 69 users who have transacted both as buyers and as sellers.

buyer_seller
69

```
-- #4 the number of users who have transacted
as buyers and sellers

SELECT
    COUNT(DISTINCT seller_id) AS buyer_seller
FROM
    orders
WHERE
    seller_id IN (
        SELECT
            buyer_id
        FROM
            orders
        )
;
```

question 2

User Activities

There are 59 users who have never transacted either as buyers or sellers.

not_buyer_seller
59

```sql
-- #5 the number of users who have never
transacted as buyers or sellers

SELECT
    COUNT(DISTINCT user_id) AS not_buyer_seller
FROM
    users
WHERE
    user_id NOT IN (
        SELECT
            buyer_id
        FROM
            orders
        UNION
        SELECT
            seller_id
        FROM
            orders
        )
;
```

question 3

Seller Domain Email

email_domain	cnt_seller
gmail.com	32
hotmail.com	28
yahoo.com	10
pt.net.id	6
perum.edu	6
cv.web.id	4
ud.edu	4
ud.id	4
ud.net.id	4
cv.mil	4
pt.mil.id	2
pd.ac.id	2

```sql
SELECT
    DISTINCT SUBSTR(email, instr(email, '@') + 1) AS email_domain,
    COUNT(user_id) AS cnt_seller
FROM
    users
WHERE
    user_id IN (
        SELECT
            seller_id
        FROM
            orders )
GROUP BY 1
ORDER BY 2 DESC
;
```

- There is diversity in the email domains used by sellers. Among sellers, Gmail.com is the most common email domain, occurring 32 times, followed by Hotmail.com, which occurs 28 times.

- Domains like perum.edu, cv.web.id, ud.edu, and ud.id suggest the presence of sellers associated with educational institutions, government entities, and businesses using specific domain types.

question 4

Monthly Transaction Trends by Year

```sql
SELECT
    DATE_FORMAT(created_at, '%Y-%m') AS month,
    COUNT(1) AS cnt_transaction
FROM
    orders
GROUP BY 1
ORDER BY 1
;
```

month	cnt_transaction
2019-01	117
2019-02	354
2019-03	668
2019-04	984
2019-05	1462
2019-06	1913
2019-07	2667
2019-08	3274
2019-09	4327
2019-10	5577
2019-11	7162
2019-12	10131
2020-01	5062
2020-02	5872
2020-03	7323
2020-04	7955
2020-05	10026

The company has seen an annual increase in monthly transactions, and notably, in 2020, the company began with a significantly higher number of transactions than the previous year.

question 5

Payment Processing Time

On average, transactions are paid within 7 days each month. It was found that payment times by buyers ranged from 1 day to a maximum of 14 days.

```sql
SELECT
    EXTRACT(YEAR_MONTH FROM created_at) AS year_month,
    COUNT(1) AS num_order,
    AVG(DATEDIFF(paid_at, created_at)) AS avg_payment_length,
    MIN(DATEDIFF(paid_at, created_at)) AS min_payment_length,
    MAX(DATEDIFF(paid_at, created_at)) AS max_payment_length
FROM
    orders
WHERE
    paid_at IS NOT NULL
GROUP BY 1
ORDER BY 1
;
```

only 3 rows are shown as an example

year_month	num_order	avg_payment_length	min_payment_length	max_payment_length
201901	117	7.0467	1	14
201902	354	7.5399	1	14
201903	668	7.4602	1	14

question 6

Major Transactions in December 2019

There are three highest transactions in December 2019,
each exceeding 29 million in value.

buyer_name	transaction_value	transaction_date
dr. Yulia Waskita	29930000	2019-12-28 00:00:00
Syahrini Tarihoran	29631000	2019-12-05 00:00:00
Tgk. Hamima Sihombing, M.Kom.	29351400	2019-12-25 00:00:00

```sql
SELECT
    nama_user AS buyer_name,
    total AS transaction_value,
    created_at AS transaction_date
FROM
    orders
INNER JOIN
    users
ON buyer_id = user_id
WHERE
    created_at >= '2019-12-01' AND
    created_at < '2020-01-01' AND
    total >= 20000000
ORDER BY 2 DESC
LIMIT  5
;
```

question 7

Top 5 Products of December 2019

The product "QUEEN CAFE BRACELET LEATHER" has the highest sales in December 2019, with 2000+ items sold. This indicates significant popularity and demand for this particular product during that month.

total_qty	product_name
2387	QUEEN CEFA BRACELET LEATHER
1423	SHEW SKIRTS BREE
1296	ANNA FAITH LEGGING GLOSY
1184	Cdr Vitamin C 10'S
1155	Close Up PAsta Gigi White Attraction Natural Glow 100G

```sql
SELECT
    SUM(quantity) AS total_qty,
    desc_product AS product_name
FROM
    order_details od
JOIN
    products p
ON od.product_id = p.product_id
JOIN
    orders o
ON od.order_id = o.order_id
WHERE
    created_at BETWEEN '2019-12-01' AND '2019-12-31'
GROUP BY 2
ORDER BY 1 DESC
LIMIT 5
;
```

question 8

Users with the Highest Average Transaction Value in January 2020

Condition: Users are required to complete a minimum of two transactions during January 2020.

Yulia Padmasari holds the record for the highest average transaction value in January 2020, amounting to 11 million.

buyer_id	user_name	cnt_transaction	avg_amount_spent
11140	R.A. Yulia Padmasari, S.I.Kom	2	11719500
7905	Empluk Rahimah	2	10440000
12935	Kamila Andriani	2	8556500
12916	Yoga Tampubolon	2	7747000
17282	Omar Habibi	2	6797500

```sql
SELECT
    buyer_id,
    nama_user AS user_name,
    COUNT(1) AS cnt_transaction,
    AVG(total) AS avg_amount_spent
FROM
    orders AS o
LEFT JOIN
    users AS u
ON o.buyer_id = u.user_id
WHERE
    created_at >= '2020-01-01' AND
    created_at < '2020-02-01'
GROUP BY 1, 2
HAVING
    COUNT(1) >= 2
ORDER BY 4 DESC
LIMIT 5
;
```

question 9

Top-Selling Product Categories of 2020

- The "Kebersihan Diri" category emerged as the best-selling product category in 2020.

- This category significantly outperformed other categories, indicating strong consumer demand for personal hygiene products during that period.

category	qty_sold	total_sales
Kebersihan Diri	944018	1333153000
Fresh Food	298372	793756000
Makanan Instan	280481	67868000
Bahan Makanan	218151	120563000
Minuman Ringan	212103	63017000

```sql
SELECT
    category,
    SUM(quantity) AS qty_sold,
    SUM(price) AS total_sales
FROM
    orders
INNER JOIN
    order_details USING(order_id)
INNER JOIN
    products USING(product_id)
WHERE
    created_at >= '2020-01-01' AND
    delivery_at IS NOT NULL
GROUP BY 1
ORDER BY 2 DESC
LIMIT 5
;
```

business QUESTIONS

10 Top Buyers

11 Frequent Buyers

12 High-Value Buyers

13 Dropshippers

14 Offline Resellers

15 Buyer-Seller Dynamic

question 10

Top Buyers

Jaka Hastuti achieved the top-performing buyer status by spending a total of 68 million on the company's platform, showcasing his significant contribution and dedication in using the company's platform to acquire the products he desired.

buyer_id	user_name	amount_spent
60	Jaka Hastuti	68956000
122	R. M. Banara Hastuti, S.Pd	62564000
72	Harsanto Melani M.Ak	54333000
14411	Jaga Puspasari	54102250
11140	R. A. Yulia Padmasari, S.I.Kom	52743200

```sql
SELECT
    buyer_id,
    nama_user AS user_name,
    SUM(total) AS amount_spent
FROM
    orders o
JOIN
    users u
ON o.buyer_id = u.user_id
GROUP BY 1, 2
ORDER BY 3 DESC
LIMIT 5
;
```

question 11

Frequent Buyers

Gandi Rahmawati and Banara Hastuti became the users with the highest frequency of purchasing products on the company's platform, with 16 transactions recorded. This showcases their consistent engagement and loyalty to utilizing the company's services.

buyer_id	user_name	cnt_transaction
22	Gandi Rahmawati	16
122	R. M. Banara Hastuti, SP.Pd	16
136	Among Nugroho	14
27	Bahuwirya Haryanto	14
20	Dr. Adika Kusmawati, S.Pt	14

```sql
SELECT
    buyer_id,
    nama_user AS user_name,
    COUNT(order_id) AS cnt_transaction
FROM
    orders o
JOIN
    users u
ON o.buyer_id = u.user_id
WHERE
    discount = 0
GROUP BY 1, 2
ORDER BY 3 DESC, 2
LIMIT 5
;
```

question 12

High-Value Buyers

Condition: Buyers who have made more than 5 transactions, with each transaction exceeding 2,000,000.

Based on the given conditions, two customers have been identified as high-value buyers.

buyer_name	cnt_transaction	amount_spent	min_spent
R. Tirta Nasyidah	6	25117800	2308800
Martani Laksmiwati	6	24858000	2144000

```sql
SELECT
    nama_user AS buyer_name,
    COUNT(1) AS cnt_transaction,
    SUM(total) AS amount_spent,
    MIN(total) AS min_spent
FROM
    orders
INNER JOIN
    users
ON buyer_id = user_id
GROUP BY 1
HAVING
    COUNT(1) > 5 AND
    MIN(total) > 2000000
ORDER BY 3 DESC
;
```

question 13

Dropshippers

Dropshippers are buyers who purchase goods and have them shipped directly to other recipients. They are identified by their frequent transactions involving diverse shipping addresses.

Condition: Users with 10 or more transactions, where the sending address differs for each transaction.

Based on the given conditions, two users have been identified as dropshippers.

```sql
SELECT
    nama_user AS buyer_name,
    COUNT(1) AS cnt_transaction,
    COUNT(DISTINCT orders.kodepos) AS cnt_postalcode,
    SUM(total) AS total_order_value,
    AVG(total) AS avg_order_value
FROM
    orders
INNER JOIN
    users
ON buyer_id = user_id
GROUP BY user_id, nama_user
HAVING
    COUNT(1) >= 10 AND
    COUNT(1) = COUNT(DISTINCT orders.kodepos)
ORDER BY 2 DESC
;
```

buyer_name	cnt_transaction	cnt_postalcode	total_order_value	avg_order_value
Anastasia Gunarto	10	10	7899000	789900
R. M. Setya Wakita	10	10	30595000	3059500

question 14

Offline Resellers

Condition: Users who make 8 or more transactions where the transaction shipping address matches the main shipping address, with an average total quantity per transaction exceeding 10.

Based on the given conditions, there are 25 sellers identified to be offline resellers.

only 3 rows are shown as an example

buyer_name	cnt_order	total_order_value	avg_order_value	avg_qty_per_order
Gandi Rahmawati	12	36822000	3068500.0000	65.1667
Tgk. Cengkal Hutasoit, M.Ak	8	33943000	4242875.0000	91.7500
Prima Usamah	8	24576000	3072000.0000	67.2500

```sql
SELECT
    nama_user AS buyer_name,
    COUNT(1) AS cnt_order,
    SUM(total) AS total_order_value,
    AVG(total) AS avg_order_value,
    AVG(total_qty) AS avg_qty_per_order
FROM
    orders
INNER JOIN
    users
ON buyer_id = user_id
INNER JOIN (
    SELECT
        order_id,
        SUM(quantity) AS total_qty
    FROM
        order_details
    GROUP BY 1
) AS summary USING(order_id)
WHERE
    orders.kodepos = users.kodepos
GROUP BY user_id, nama_user
HAVING
    COUNT(1) >= 8 AND AVG(total_qty) > 10
ORDER BY 3 DESC;
```

question 15

Buyer-Seller Dynamic

Condition: Sellers who have engaged in transactions as buyers at least 7 times.

Based on the given conditions, there are 5 users who have engaged as both sellers and buyers on the company platform.

user_name	cnt_buy	cnt_sell
Bahuwirya Haryanto	8	1032
Dr. Adika Kusmawati, S.Pt	7	1098
Gandi Rahmawati	8	1078
Jaka Hastuti	7	1094
R. M. Prayogo Damanik, S.Pt	8	1044

```sql
SELECT
    nama_user AS user_name,
    cnt_buy,
    cnt_sell
FROM
    users
INNER JOIN (
    SELECT
        buyer_id,
        COUNT(1) AS cnt_buy
    FROM
        orders
    GROUP BY 1
) AS as_buyer
ON buyer_id = user_id
INNER JOIN (
    SELECT
        seller_id,
        COUNT(1) AS cnt_sell
    FROM
        orders
    GROUP BY 1
) AS as_seller
ON seller_id = user_id
WHERE cnt_buy >= 7
ORDER BY 1;
```

conclusion

The store encounters challenges with unpaid transactions and delays in fulfilling orders after payment

Recommendation:

- **Payment Process Optimization**: The store should optimize the payment process to minimize unpaid transactions, potentially by diversifying payment methods and enhancing the checkout experience.

- **Fulfillment Improvement**: Implement measures to reduce the number of paid orders that are not sent out promptly. This could involve better inventory management, logistics optimization, or proactive customer communication about order status.

A remarkable 99.67% of all users at the DQLab store have engaged in transactions, highlighting strong

user engagement within the platform

Recommendation:

- Continued focus on enhancing user experience and expanding transaction opportunities could further capitalize on the high engagement levels observed among DQLab store users.

conclusion

The company has experienced annual growth in monthly transactions, with a notable surge in 2020

starting from a significantly higher baseline than the previous year

Recommendation:

- **Strategic Initiatives for Sustained Expansion**: Building on the momentum observed in 2020, the company should strategize to sustain and further amplify transaction growth through targeted marketing initiatives, enhanced customer retention strategies, and continuous improvement of product offerings and user experience.

In 2020, products from the personal hygiene category emerged as the best-selling category

Recommendation:

- **Maximizing Personal Hygiene Product Sales**: To capitalize on the strong consumer interest observed in personal hygiene products, the company should consider expanding its product offerings within this category, optimizing inventory management, and leveraging targeted marketing strategies to maintain and potentially amplify sales in this lucrative segment.

thank you

If you have any questions, reach me out through

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