Target

TARGET STORE ANALYSIS PROJECT

PRESENTED BY

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OBJECTIVE

- Evaluate sales performance and trends at Target stores.
- Analyze customer demographics and behaviors.
- Assess competitive positioning in the retail market.
- Identify opportunities for operational improvement.
- Provide actionable insights for strategic decision-making.

CREATE TABLES TO IMPORT DATA FROM CSV FILES

```sql
CREATE TABLE geolocation
(
    geolocation_zip_code_prefix INT,
    geolocation_lat DOUBLE,
    geolocation_lng DOUBLE,
    geolocation_city TEXT,
    geolocation_state TEXT
);
```

```sql
CREATE TABLE order_items (
    order_id TEXT,
    order_item_id INT,
    product_id TEXT,
    seller_id TEXT,
    shipping_limit_date datetime,
    price DOUBLE,
    freight_value DOUBLE
);
```

```sql
CREATE TABLE payments (
    order_id TEXT,
    payment_sequential INT,
    payment_type TEXT,
    payment_installments INT,
    payment_value DOUBLE
);
```

```sql
CREATE TABLE customers (
    customer_id TEXT,
    customer_unique_id TEXT,
    customer_zip_code_prefix INT,
    customer_city TEXT,
    customer_state TEXT
);
```


```sql
CREATE TABLE sellers (
    seller_id TEXT,
    seller_zip_code_prefix TEXT NULL,
    seller_city TEXT NULL,
    seller_state TEXT NULL
);
```

```sql
CREATE TABLE products (
    product_id TEXT,
    product_category TEXT NULL,
    product_name_length int NULL,
    product_description_length int NULL,
    product_photos_qty int NULL,
    product_weight_g int NULL,
    product_length_cm int NULL,
    product_height_cm int NULL,
    product_width_cm int NULL
);
```

```sql
#drop table if exists orders;
CREATE TABLE orders (
    order_id TEXT,
    customer_id TEXT,
    order_status TEXT,
    order_purchase_timestamp datetime null,
    order_approved_at datetime null,
    order_delivered_carrier_date datetime null,
    order_delivered_customer_date datetime null,
    order_estimated_delivery_date datetime null
);
```

IMPORT DATA FROM CSV FILES

```
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/customers.csv'
INTO TABLE customers
FIELDS TERMINATED BY ','
LINES TERMINATED BY '\n'
IGNORE 1 LINES;

LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/geolocation.csv'
INTO TABLE geolocation
FIELDS TERMINATED BY ','
LINES TERMINATED BY '\n'
IGNORE 1 LINES;

LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/order_items.csv'
INTO TABLE order_items
FIELDS TERMINATED BY ','
LINES TERMINATED BY '\n'
IGNORE 1 LINES;
```

IMPORT DATA FROM CSV FILES

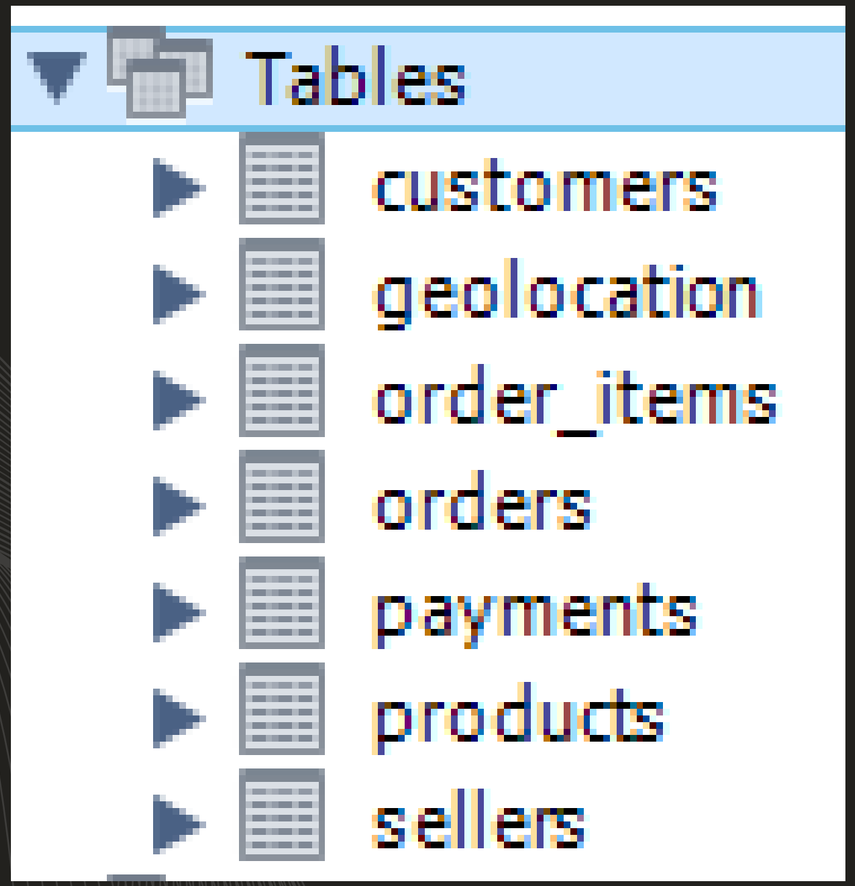
```
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/orders.csv'
INTO TABLE orders
FIELDS TERMINATED BY ','
LINES TERMINATED BY '\n'
IGNORE 1 LINES;

LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/payments.csv'
INTO TABLE payments
FIELDS TERMINATED BY ','
LINES TERMINATED BY '\n'
IGNORE 1 LINES;

LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/products.csv'
INTO TABLE products
FIELDS TERMINATED BY ','
LINES TERMINATED BY '\n'
IGNORE 1 LINES;

LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/sellers.csv'
INTO TABLE sellers
FIELDS TERMINATED BY ','
LINES TERMINATED BY '\n'
IGNORE 1 LINES;
```

TABLES


Tables
customers
geolocation
order_items
orders
payments
products
sellers

RETRIEVE ALL CUSTOMER INFORMATION ABOUT CUSTOMERS.

```
SELECT
    *
FROM
    customers;
```

customer_city	customer_state
franca	SP
sao bernardo do campo	SP
sao paulo	SP
mogi das cruzes	SP
campinas	SP

customer_id	customer_unique_id	customer_zip_code_prefix
06b8999e2fba1a1fbc88172c00ba8bc7	861eff4711a542e4b93843c6dd7febb0	14409
18955e83d337fd6b2def6b18a428ac77	290c77bc529b7ac935b93aa66c333dc3	9790
4e7b3e00288586ebd08712fdd0374a03	060e732b5b29e8181a18229c7b0b2b5e	1151
b2b6027bc5c5109e529d4dc6358b12c3	259dac757896d24d7702b9acbbff3f3c	8775
4f2d8ab171c80ec8364f7c12e35b23ad	345ecd01c38d18a9036ed96c73b8d066	13056

WHAT IS THE TOTAL REVENUE GENERETED?

```sql
SELECT
    ROUND(SUM(payment_value), 2) AS total_Revenue_in_$
FROM
    payments;
```

total_Revenue_in_$
16008872.12

CALCULATE TOTAL ORDERS PLACED.

```sql
SELECT
    COUNT(order_id) AS Total_orders
FROM
    orders;
```

Total_orders
96463

CALCULATE THE AVERAGE ORDER VALUE ACROSS ALL ORDERS.

```sql
SELECT
    ROUND(AVG(payment_value), 2) AS average_order_value
FROM
    payments p
        JOIN
    orders o ON p.order_id = o.order_id;
```

average_order_value
153.07

LIST THE NUMBER OF ORDERS PLACED FROM TOP 5 STATES.

```sql
SELECT
    c.customer_state, COUNT(o.order_id) AS no_of_orders
FROM
    customers c
        JOIN
    orders o ON c.customer_id = o.customer_id
GROUP BY customer_state
ORDER BY no_of_orders DESC
limit 5;
```

customer_state	no_of_orders
SP	40490
RJ	12351
MG	11352
RS	5343
PR	4923

IDENTIFY THE SELLERS LOCATED IN A SAO PAULO CITY.

```sql
SELECT
    seller_id, seller_city
FROM
    sellers
WHERE
    seller_city = 'sao paulo';
```

seller_id	seller_city
c0f3eea2e14555b6faeea3dd58c1b1c3	sao paulo
768a86e36ad6aae3d03ee3c6433d61df	sao paulo
8bd0f31cf0a614c658f6763bd02dea69	sao paulo
05a48cc8859962767935ab9087417fbb	sao paulo
f9ec7093df3a7b346b7bcf7864069ca3	sao paulo
f7496d659ca9fdaf323c0aae84176632	sao paulo
430315b7bb4b6e4b3c978f9dfa9b0558	sao paulo
e9e446d01bd10a97a8ffcfc4a3a20cb2	sao paulo
d9a84e1403de8da0c3aa531d6d108ba6	sao paulo

COUNT THE TOTAL NUMBER OF UNIQUE PRODUCTS LISTED.

```sql
SELECT DISTINCT
    COUNT(product_id) AS T_no_of_unique_products
FROM
    products;
```

T_no_of_unique_products
32340

DETERMINE TOP 5 PRODUCTS BY REVENUE.

```sql
SELECT
    p.product_id,
    ROUND(SUM(py.payment_value), 2) AS t_revenue_by_product
FROM
    payments py
        JOIN
    order_items oi ON py.order_id = oi.order_id
        JOIN
    products p ON p.product_id = oi.product_id
GROUP BY product_id
ORDER BY t_revenue_by_product DESC LIMIT 5;
```

product_id	t_revenue_by_produc
5769ef0a239114ac3a854af00df129e4	109312.64
bb50f2e236e5eea0100680137654686c	81887.42
422879e10f46682990de24d770e7f83d	79512.22
d1c427060a0f73f6b889a5c7c61f2ac4	70557.9
6cdd53843498f92890544667809f1595	64825.67

DETERMINE THE AVERAGE DELIVERY TIME FOR ORDERS

```
SELECT
    ROUND(AVG(TIMESTAMPDIFF(DAY,
                order_purchase_timestamp,
                order_delivered_customer_date)),
            2) AS avg_delivery_time_Days
FROM
    orders;
```

avg_delivery_time_Days
12.09

ANALYZE THE TOP 5 CUSTOMERS BASED ORDERS REPORT

```sql
SELECT
    c.customer_unique_id,
    COUNT(o.order_id) AS no_of_repeat_orders
FROM
    orders o
        JOIN
    customers c ON c.customer_id = o.customer_id
GROUP BY c.customer_unique_id
ORDER BY no_of_repeat_orders DESC
limit 5;
```

customer_unique_id	no_of_repeat_orders
8d50f5eadf50201ccdcedfb9e2ac8455	15
3e43e6105506432c953e165fb2acf44c	9
6469f99c1f9dfae7733b25662e7f1782	7
ca77025e7201e3b30c44b472ff346268	7
1b6c7548a2a1f9037c1fd3ddfed95f33	7

HOW MANY UNIQUE CUSTOMERS HAVE MADE PURCHASES IN EACH TOP 5 STATE?

```sql
CREATE INDEX idx_customer_zip_code_prefix ON customers(customer_zip_code_prefix);
CREATE INDEX idx_geolocation_zip_code_prefix ON geolocation(geolocation_zip_code_prefix);
SELECT
    geolocation_state,
    COUNT(DISTINCT c.customer_id) AS num_unique_customers
FROM
    customers c
        JOIN
    geolocation g ON g.geolocation_zip_code_prefix = c.customer_zip_code_prefix
GROUP BY geolocation_state
ORDER BY num_unique_customers DESC LIMIT 5 ;
```

geolocation_state	num_unique_customers
SP	41731
RJ	12839
MG	11624
RS	5473
PR	5034

WHICH PRODUCT CATEGORIES HAVE THE HIGHEST AVERAGE ORDER VALUES (INCLUDING BOTH PRODUCT PRICE AND FREIGHT COST)?

```sql
SELECT
    p.product_category,
    round(AVG(oi.price + oi.freight_value),2) AS avg_order_value
FROM
    products p
        JOIN
    order_items oi ON p.product_id = oi.product_id
        JOIN
    orders o ON oi.order_id = o.order_id
WHERE
    o.order_status = 'delivered'
GROUP BY p.product_category
ORDER BY avg_order_value DESC;
```

product_category	avg_order_value
PCs	1147.49
HOUSE PASTALS OVEN AND CAFE	674.6
ELECTRICES 2	511.73
Agro Industria e Comercio	369.92
musical instruments	310.58

CALCULATE RFM METRICS

```sql
WITH customer_rfm AS (
    SELECT
        customer_id,
        DATEDIFF(NOW(), MAX(order_purchase_timestamp)) AS recency,
        COUNT(DISTINCT o.order_id) AS frequency,
        SUM(p.payment_value) AS monetary
    FROM orders o
    JOIN payments p ON o.order_id = p.order_id
    WHERE o.order_status = 'delivered'  -- Consider only delivered orders
    GROUP BY customer_id
)
SELECT
    customer_id,
    recency,
    frequency,
    monetary,
    CASE
        WHEN recency >= 0 AND recency <= 30 THEN 'Active'
        WHEN recency > 30 AND recency <= 90 THEN 'Inactive'
        ELSE 'Lost'
    END AS customer_segment
FROM customer_rfm
ORDER BY monetary DESC, recency DESC, frequency DESC;
```

customer_id	recency	frequency	monetary	customer_segment
e6f959bf384d1d53b6d68826699bba12	2836	1	154.57	Lost
b8cf418e97ae795672d326288dfab7a7	2836	1	133.46	Lost
dc607dc98d6a11d5d04d9f2a70aa6c34	2836	1	92.27	Lost
6f989332712d3222b6571b1cf5b835ce	2836	1	53.73	Lost
355077684019f7f60a031656bd7262b8	2836	1	45.46	Lost
7812fcebfc5e8065d31e1bb5f0017dae	2836	1	40.95	Lost

CREATE FUNCTION TO CALCULATE AVERAGE PROCESSING TIME

```sql
drop function if exists avg_processing_time;
DELIMITER $$
CREATE FUNCTION avg_processing_time()
RETURNS DECIMAL(10, 2)
DETERMINISTIC
BEGIN
    DECLARE avg_time DECIMAL(10, 2);

    SELECT AVG(TIMESTAMPDIFF(DAY, order_approved_at, order_delivered_customer_date))
    INTO avg_time
    FROM orders
    WHERE order_status = 'delivered'
      AND order_approved_at IS NOT NULL
      AND order_delivered_customer_date IS NOT NULL;

    RETURN avg_time;
END$$

DELIMITER ;

select  avg_processing_time();
```

avg_processing_time()
11.64

KPIS

- Total Sales = 16008872.12$
- Total Orders Placed = 96463
- Total number of unique products = 32340
- Top 5 Products by Revenue
- Top 5 Customers by Revenue
- Top 5 States by Revenue
- Average Processing Time 11.64 Days

RECOMMENDATIONS

- Implement demand forecasting for optimized inventory management.
- Segment customers for targeted marketing and promotions.
- Streamline order processing to reduce average time to 11.64 days.
- Increase product variety with 32,340 unique items.
- Focus marketing on top 5 states by sales to maximize revenue.

Target

Thank You

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