



Expect More. Pay Less.

This particular business focuses on the operations of E-commerce company Target in Brazil and provides insightful information about 100,000 orders placed between 2016 and 2018. The dataset offers a comprehensive view of various dimensions including the order status, price, payment and freight performance, customer location, product attributes, and customer reviews.

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### **Problem Statement:**

I am analyzing a given dataset, to gain insights into Target's operations in Brazil. The information can shed light on various aspects of the business, such as order processing, pricing strategies, payment and shipping efficiency, customer demographics, product characteristics, and customer satisfaction levels.

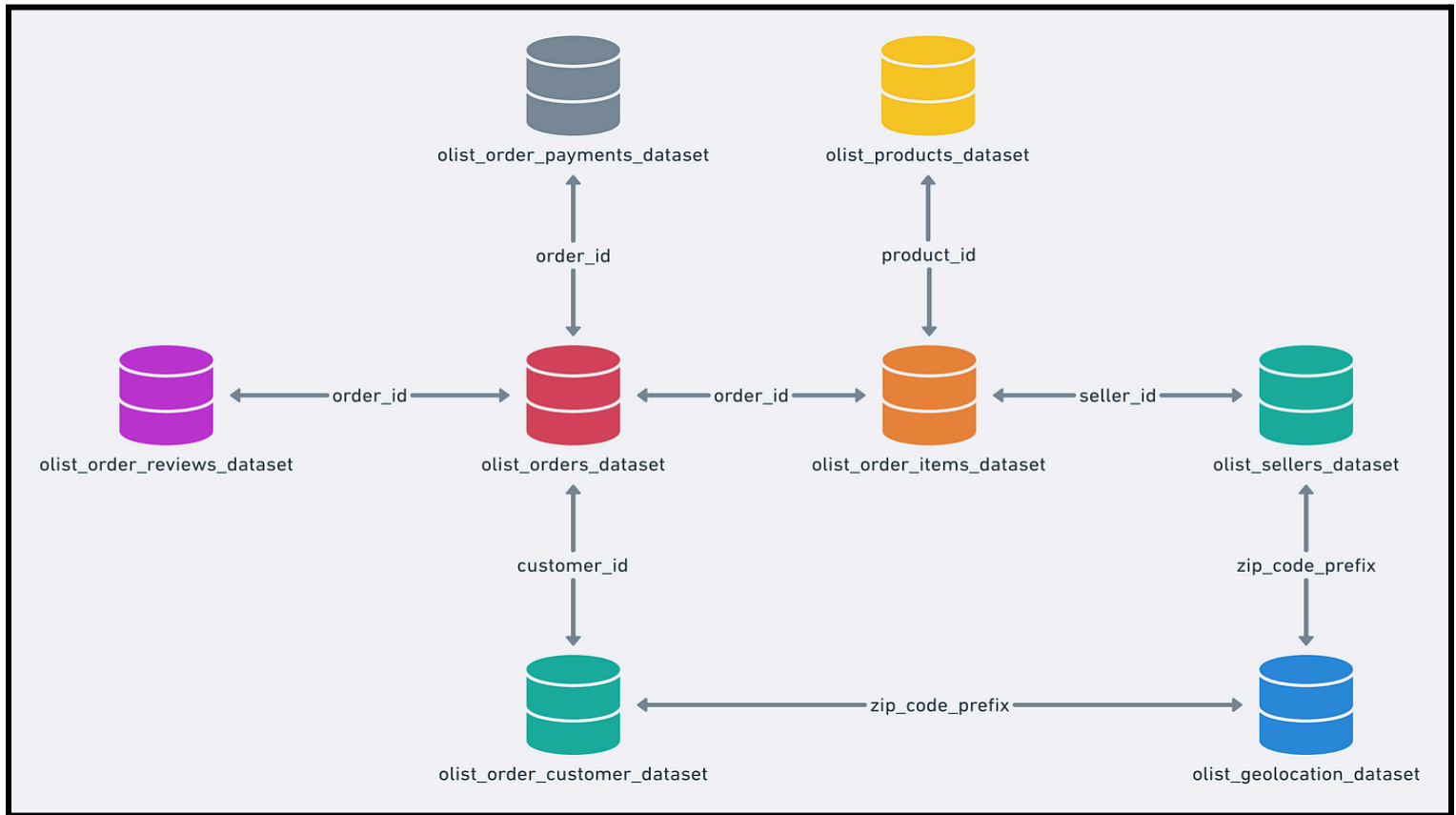
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### **Dataset:** [Target](#)

The data is available in 8 different csv files:

1. customers.csv
2. geolocation.csv
3. order\_items.csv
4. payments.csv
5. reviews.csv
6. orders.csv
7. products.csv
8. Sellers.csv

## Dataset schema:



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## How to get started?

- Download the CSV files. Upload them into BigQuery for analysis.
  - The project called "E-commerce" was created with a new dataset named "target"
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## What does 'good' look like?

- Import the dataset and do the usual exploratory analysis steps like checking the structure & characteristics of the dataset.
    - Data type of all columns in the "customers" table.
    - Get the time range between which the orders were placed.
    - Count the Cities & States of customers who ordered during the given period.
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## II. In-depth Exploration:

- A. Is there a growing trend in the no. of orders placed over the past years?
  - B. Can we see some kind of monthly seasonality in terms of the no. of orders being placed?
  - C. During what time of the day, do the Brazilian customers mostly place their orders?
    - 0-6 hrs: Dawn ● 7-12 hrs: Mornings ● 13-18 hrs: Afternoon ● 19-23 hrs: Night
- 

## III. Evolution of E-commerce orders in the Brazil region:

- A. Get the month-on-month no. of orders placed in each state.
  - B. No\_of\_orders in each state?
  - C. How are the customers distributed across all the states?
  - D. Find out how many customers have single vs repeat purchases.
  - E. On average, how many orders do we receive per day?
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## IV. Impact on the Economy: Analyze the money movement by e-commerce by looking at order prices, freight and others.

- A. Get the % increase in the cost of orders from the year 2017 to 2018 (include months between Jan to Aug only).
  - B. Calculate the Total & Average value of the order price for each state.
  - C. Calculate the Total & Average value of order freight for each state.
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## V. Analysis based on sales, freight and delivery time.

- A. Find the no. of days taken to deliver each order from the order's purchase date as delivery time.
    - $\text{time\_to\_deliver} = \text{order\_delivered\_customer\_date} - \text{order\_purchase\_timestamp}$
    - $\text{diff\_estimated\_delivery} = \text{order\_estimated\_delivery\_date} - \text{order\_delivered\_customer\_date}$
  - B. Find out the top 5 states with the highest & lowest average freight value.
  - C. Find out the top 5 states with the highest & lowest average delivery time.
  - D. Find out the top 5 states where the order delivery is really fast as compared to the estimated date of delivery.
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## VI. Analysis based on the payments:

- A. Find the month on month no. of orders placed using different payment types.
  - B. Find the no. of orders placed on the basis of the payment installments that have been paid.
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## VII: Analysis based on the Sales:

- A. What is the total revenue generated by Target, and how has it changed over time?
  - B. Which month had the largest revenue?
  - C. What product had the largest revenue?
  - D. What is the city with the largest revenue?
  - E. What's our average daily sales revenue?
  - F. What are the sales figures for each state?
- 

VIII: Best selling product

- A. Based on no\_of\_sales.
  - B. Which is the best-selling product in each state?
  - C. How much sales did it generate?
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IX: Customer Feedback

- A. What is the average rating by cust?
-

I. Import the dataset and do usual exploratory analysis steps like checking the structure & characteristics of the dataset.

A. Data type of all columns in the "customers" table.

```
select column_name, data_type
from `target.INFORMATION_SCHEMA.COLUMNS`
where table_name = 'customers'
order by column_name
```

column_name	data_type
customer_city	STRING
customer_id	STRING
customer_state	STRING
customer_unique_id	STRING
customer_zip_code_prefix	INT64

B. Get the time range between which the orders were placed.

```
select min(order_purchase_timestamp) as fist_order_datetime,
max(order_purchase_timestamp) as last_order_datetime
from `target.orders`
```

fist_order_datetime	last_order_datetime
2016-09-04 21:15:19 UTC	2018-10-17 17:30:18 UTC

Insight: Orders were placed between 4th September 2016 and 17th October 2018..

C. Count the Cities & States of customers who ordered during the given period.

```
select count(distinct c.customer_city)no_of_city, count(distinct
c.customer_state) as no_of_states
from `target.customers` c
inner join `target.orders` o
using(customer_id)
```

no_of_city	no_of_states
4119	27

Insight: Number of cities 4119 and number of states are 27.

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II. In-depth Exploration:

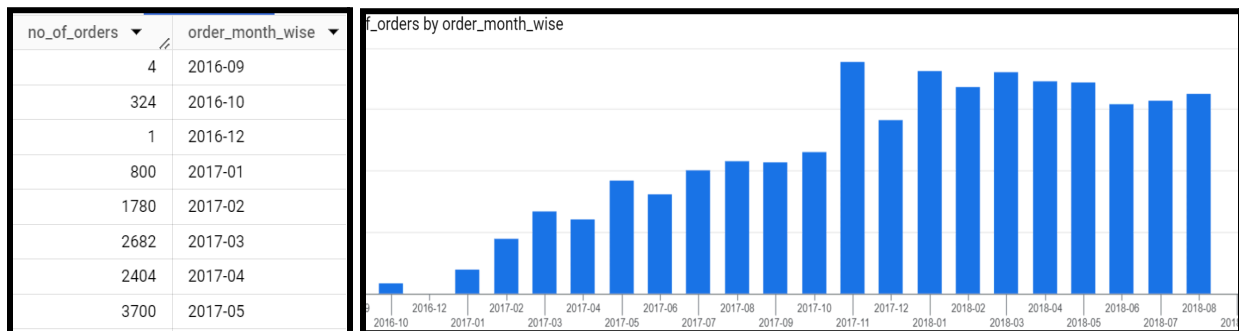
A. Is there a growing trend in the no. of orders placed over the past years?

```
select count(order_id) no_of_orders,
format_date('%Y-%m',order_purchase_timestamp) as order_month_wise
```

```

from `target.orders`
group by order_month_wise
order by order_month_wise

```



B. Can we see some kind of monthly seasonality in terms of the no. of orders being placed?

```

select count(order_id) no_of_orders,
format_date('%Y-%m',order_purchase_timestamp) as order_month_wise,
ntile(10) over(order by count(order_id) desc )as order_season
from `target.orders`
group by order_month_wise
order by order_season

```

no_of_orders	order_month_wise	order_season
7211	2018-03	1
7544	2017-11	1
7269	2018-01	1
6728	2018-02	2
6873	2018-05	2
6939	2018-04	2
6512	2018-08	3
6167	2018-06	3
6292	2018-07	3
4331	2017-08	4

Insight: Order\_season groups months with similar no. of orders like Order\_season = 1 means peak season with more than 7k orders, Order\_season = 10 means lean season.

C. During what time of the day, do the Brazilian customers mostly place their orders? (Dawn, Morning, Afternoon or Night)

- 0-6 hrs : Dawn
- 7-12 hrs : Mornings
- 13-18 hrs : Afternoon
- 19-23 hrs : Night

```
with cte as
(SELECT
count(order_id) no_of_orders,
EXTRACT(HOUR FROM order_purchase_timestamp) as hr
from `target.orders`
group by hr)
select sum(no_of_orders)total_orders,
case when hr between 0 and 6 then 'Dawn'
when hr between 7 and 12 then 'Morning'
when hr between 13 and 18 then 'Afternoon'
else 'Night'
end as time_interval_of_day
from cte
group by time_interval_of_day
order by time_interval_of_day
```

total_orders ▾	time_interval_of_day
38135	Afternoon
5242	Dawn
27733	Morning
28331	Night

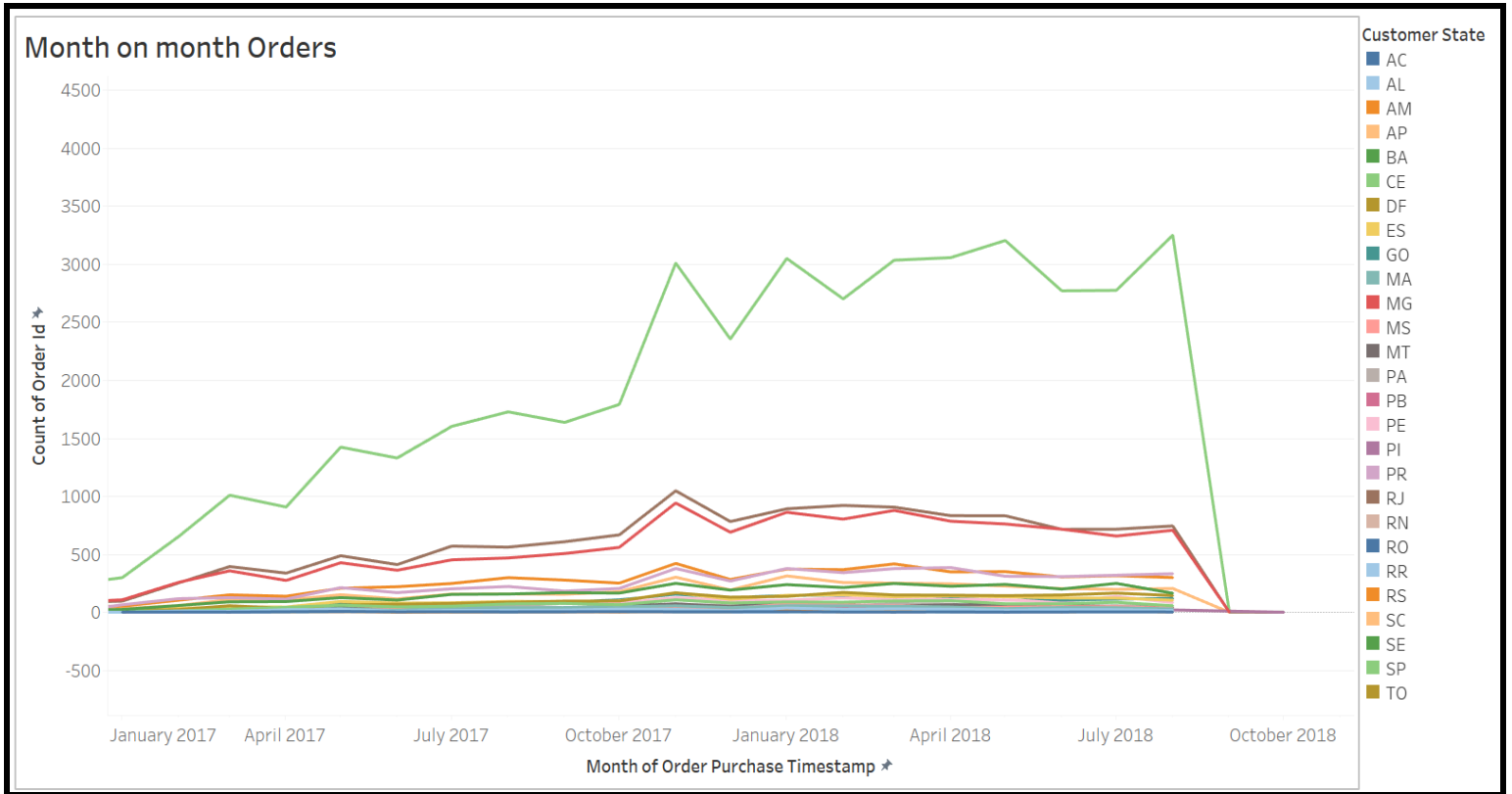
Insight: Afternoon received the highest orders of 38,000. Dawn being offtime with 5000 orders.

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III. Evolution of E-commerce orders in the Brazil region:

A. Get the month on month no. of orders placed in each state.

```
Select count(o.order_id) as no_of_orders,
format_date('%Y-%m', order_purchase_timestamp) as month_of_order,
c.customer_state
from `target.customers` as c
join `target.orders` as o on c.customer_id = o.customer_id
group by c.customer_state, month_of_order
order by c.customer_state, month_of_order
```



no_of_orders	month_of_order	customer_state
5	2017-03	AC
2	2017-04	AC
4	2017-05	AC
6	2017-06	AC
7	2017-07	AC
5	2017-08	AC
4	2017-09	AC
3	2017-10	AC
7	2017-11	AC
3	2017-12	AC

Insight: state SP had high growth with peak 3250 orders, & states MG,RJ had medium growth with peak 1048 & 948 orders.

B. No\_of\_orders in each state?

```
select count(oi.product_id)no_of_sales, c.customer_state
from `target.order_items` oi
join `target.orders` o
```

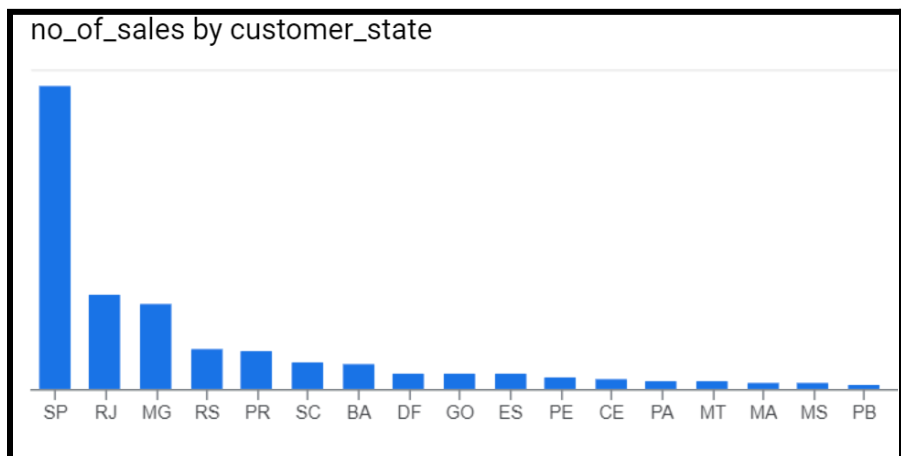


```

on oi.order_id = o.order_id
join `target.customers` c
on o.customer_id = c.customer_id
group by customer_state
order by no_of_sales desc

```

no_of_sales	customer_state
47449	SP
14579	RJ
13129	MG
6235	RS
5740	PR
4176	SC
3799	BA
2406	DF
2333	GO
2256	ES



Insight: Apprx 50% of order is from SP alone, RJ & MG contribute 14k & 13k orders. Top 10 states placed more than 90% orders.

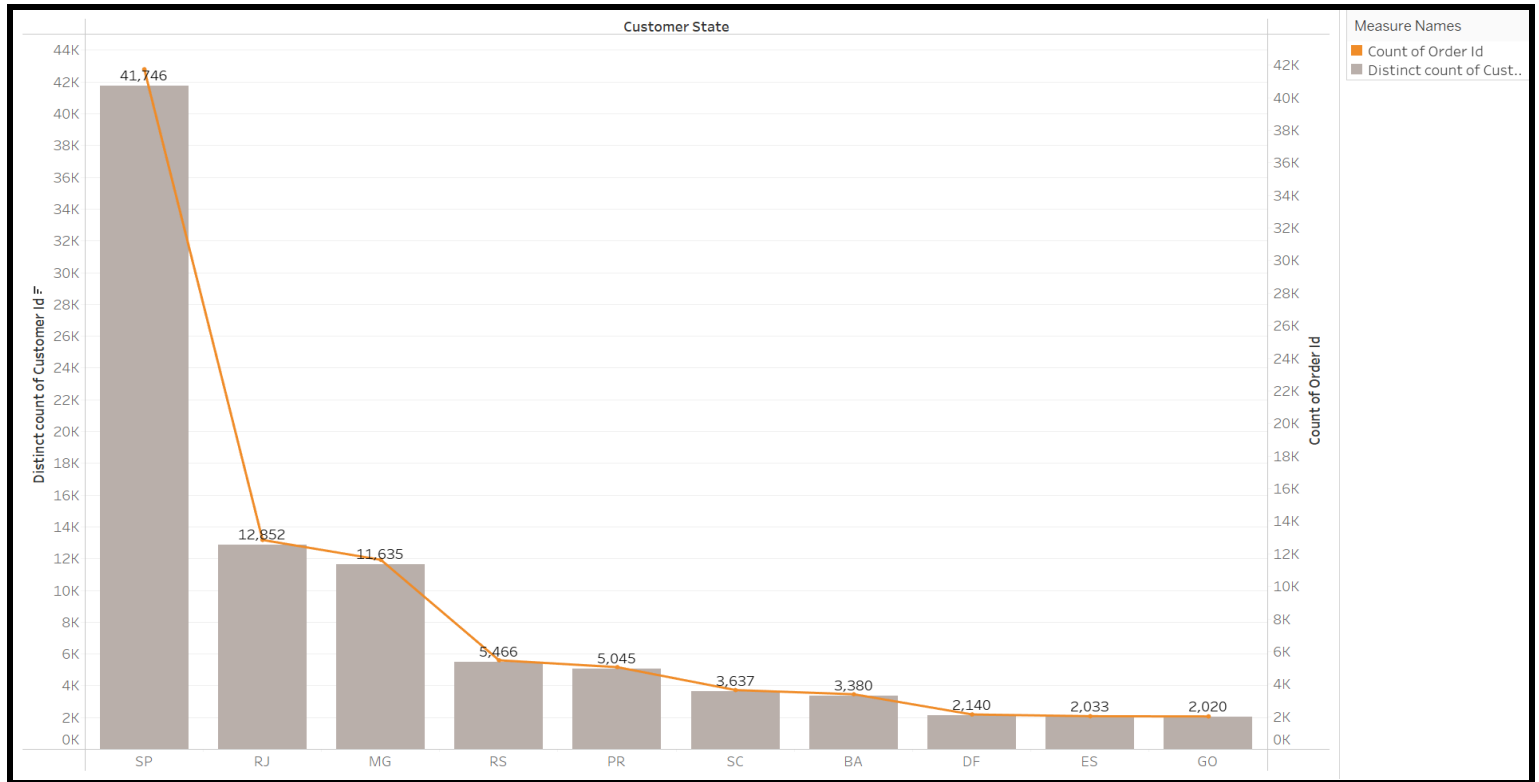
C. How are the customers distributed across all the states?

```

select count(distinct customer_id)no_of_customers, customer_state
from `target.customers`
group by customer_state order by no_of_customers desc;

```

no_of_customers	customer_state
41746	SP
12852	RJ
11635	MG
5466	RS
5045	PR
3637	SC
3380	BA
2140	DF
2033	ES
2020	GO



Insight: SP has highest customer base with 41700 customers, RJ&MG has above 10,000customers. Whereas RS,PR has 5000 customers each. Rest states have less than 3.5k customers.

D. Find out how many customers have single vs repeat purchases.

```
select c.customer_id, count(distinct order_id)no_of_purchases
from `target.customers` c
join `target.orders` o
on c.customer_id = o.customer_id
group by c.customer_id
having no_of_purchases > 1
```

There is no data to display.

Insight: There are 0 customers doing repeat customers.

E. On average, how many orders do we receive per day?

```
with cte as
(select      date_diff(date(max(order_purchase_timestamp))
,date(min(order_purchase_timestamp)),day)no_of_days,
count(order_id)no_of_purchases
from `target.orders` o)
select (no_of_purchases/no_of_days)order_per_day from cte
```

order_per_day
128.642949...

Insight: On a daily basis the target receives 128 orders on average.

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#### IV. Impact on Economy:

Analyze the money movement by e-commerce by looking at order prices, freight and others.

A. Get the % increase in the cost of orders from year 2017 to 2018 (include months between Jan to Aug only).

```
with cte as
(select sum(p.payment_value) as cost,
extract(year from o.order_purchase_timestamp) as year,
from `target.payments` p
join `target.orders` o
using (order_id)
where extract(year from o.order_purchase_timestamp) in (2017,2018)
and extract(month from o.order_purchase_timestamp) in (1,2,3,4,5,6,7,8)
group by year)
select
(((select cost from cte where year = 2018) - (select cost from cte where
year=2017))/((select cost from cte where year=2017)*100) as per_increase_cost
from cte
```

per_increase_cost
136.9768716466...

Insight: 136% increase in the cost of orders from year 2017 to 2018 (including months between Jan to Aug only)

B. Calculate Total & Average value of order price for each state

```
select customer_state,
round(sum(price),2) as Total_amount,
round(avg(price),2) as Average_amount
from `target.order_items` oi
join `target.orders`
using (order_id)
join `target.customers` c
```

using (customer\_id)  
group by customer\_state  
order by Total\_amount desc, Average\_amount desc, customer\_state

customer_state	Total_amount	Average_amount
SP	5202955.05	109.65
RJ	1824092.67	125.12
MG	1585308.03	120.75
RS	750304.02	120.34
PR	683083.76	119.0
SC	520553.34	124.65
BA	511349.99	134.6
DF	302603.94	125.77
GO	294591.95	126.27
ES	275037.31	121.91

Insight: States like SP, RJ, MG are top 3 in terms of total amount.

C. Calculate the Total & Average value of order freight for each state.

```
select customer_state,  
round(sum(freight_value),2) as Total_freight_value,  
round(avg(freight_value),2) as Average_freight_value  
from `target.order_items` oi  
join `target.orders`  
using (order_id)  
join `target.customers` c  
using (customer_id)  
group by customer_state  
order by Total_freight_value desc, customer_state
```

customer_state	Total_freight_value	Average_freight_valu
SP	718723.07	15.15
RJ	305589.31	20.96
MG	270853.46	20.63
RS	135522.74	21.74
PR	117851.68	20.53
BA	100156.68	26.36
SC	89660.26	21.47
PE	59449.66	32.92
GO	53114.98	22.77
DF	50625.5	21.04

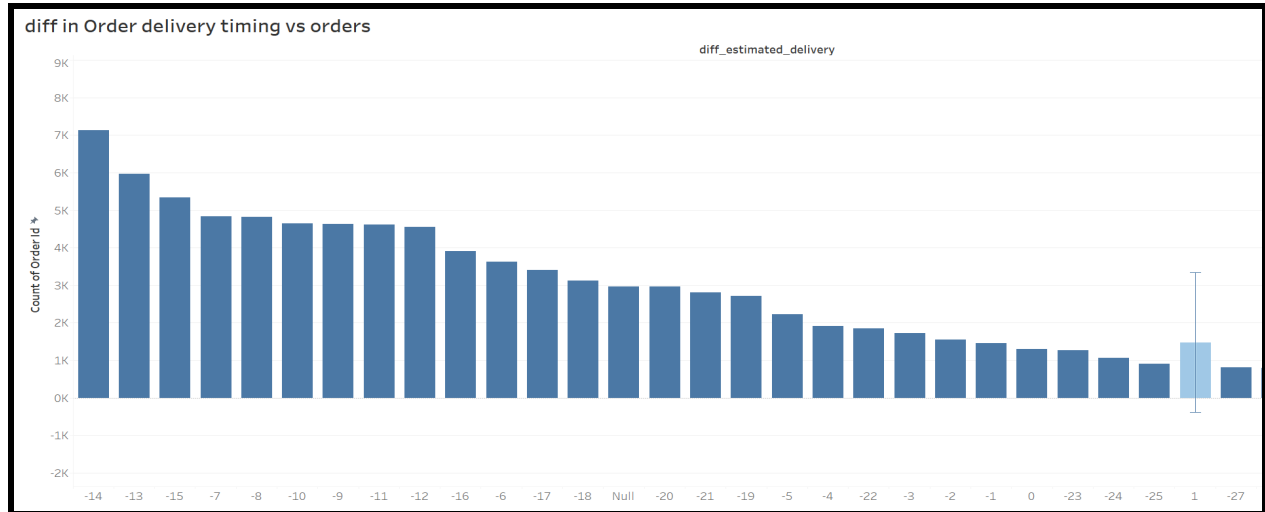
Insight: States like SP, RJ, MG are top 3 having 7 lac, 3lac & 2.7lac Total freight value respectively. Freight value is almost 5.5-7% of total order price.

V. Analysis based on sales, freight and delivery time.

A. Find the no. of days taken to deliver each order from the order's purchase date as delivery time. Also, calculate the difference (in days) between the estimated & actual delivery date of an order.

```
select order_id,
timestamp_diff(order_delivered_customer_date,order_purchase_timestamp,day) as
time_to_deliver,
timestamp_diff(order_estimated_delivery_date,order_delivered_customer_date,day) as
Diff_estimated_delivery from `target.orders`
```

order_id	time_to_deliver	diff_estimated_deliv
1950d777989f6a8...	30	-12
2c45c33d2f9cb8ff...	30	28
65d1e226dfaeb8c...	35	16
635c894d068ac37...	30	1
3b97562c3aee8bd...	32	0
68f47f50f04c4cb6...	29	1
276e9ec344d3bf0...	43	-4
54e1a3c2b97fb08...	40	-4
fd04fa4105ee8045...	37	-1
302bb8109d097a9...	33	-5



Insight: 6500 orders of 96400 orders have been delivered later than promised date. That was delayed by 30 days also. This will affect customer experience and affect customer retention. Affect brand PR. Around 3000 orders have been reached on time.

B. Find out the top 5 states with the highest & lowest average freight value.

For Top 5 highest freight value states

```
with cte as (Select customer_state, round(avg(freight_value),2) as avg_freight_value,
from `target.order_items` oi join `target.orders`
using (order_id) join `target.customers` c
using (customer_id)
group by customer_state)
select customer_state, avg_freight_value, state_wise_rank
From (select customer_state, avg_freight_value,
dense_rank() over(order by avg_freight_value desc) as state_wise_rank
from cte) where state_wise_rank < 6
order by state_wise_rank
```

customer_state	avg_freight_value	state_wise_rank
RR	42.98	1
PB	42.72	2
RO	41.07	3
AC	40.07	4
PI	39.15	5

For Top 5 lowest freight value states

```
with cte as (Select customer_state, round(avg(freight_value),2) as avg_freight_value,
from `target.order_items` oi
join `target.orders` using (order_id)
join `target.customers` c using (customer_id)
group by customer_state)
select customer_state, avg_freight_value, state_wise_rank
From (select customer_state, avg_freight_value,
dense_rank() over(order by avg_freight_value) as state_wise_rank
```

customer_state	avg_freight_value	state_wise_rank
SP	15.15	1
PR	20.53	2
MG	20.63	3
RJ	20.96	4
DF	21.04	5

```

from cte)
where state_wise_rank < 6
order by state_wise_rank

```

Insight: The states having lowest avg freight value are with high customer base vice versa with states having high freight value.

C. Find out the top 5 states with the highest & lowest average delivery time.

For Top 5 highest average delivery time states

```

with cte as
(select customer_state,
round(avg(timestamp_diff(order_delivered_customer_date, order_purchase_timestamp,
day)))avg_delivery_time
from `target.customers` c
join `target.orders` o
using(customer_id)
group by(customer_state))
(select customer_state,avg_delivery_time,state_rnk
from(select cte.customer_state,avg_delivery_time,
row_number() over(order by avg_delivery_time desc)state_rnk
from cte)
where state_rnk<=5
order by state_rnk)

```

customer_state	avg_delivery_time	state_rnk
RR	29.0	1
AP	27.0	2
AM	26.0	3
AL	24.0	4
PA	23.0	5

For Top 5 lowest average delivery time states

```

with cte as
(select customer_state,
round(avg(timestamp_diff(order_delivered_customer_date,
order_purchase_timestamp,
day)))avg_delivery_time
from `target.customers` c
join `target.orders` o
using(customer_id)
group by(customer_state))
(select customer_state,avg_delivery_time,state_rnk
from(select cte.customer_state,avg_delivery_time,
row_number() over(order by avg_delivery_time)state_rnk from cte)
where state_rnk<=5
order by state_rnk)

```

customer_state	avg_delivery_time	state_rnk
SP	8.0	1
PR	12.0	2
MG	12.0	3
DF	13.0	4
SC	14.0	5

Insight: Again here the same pattern may be lower delivery time states with high customer base mostly they might represent urban cities, on other hand higher delivery time states with less customers might represent tier 2/ tier 3 states.

D. Find out the top 5 states where the order delivery is really fast as compared to the estimated date of delivery.

```
select customer_state,
avg(timestamp_diff(order_estimated_delivery_date,order_delivered_customer_date,day)) avg_delivery_time
from `target.customers` c
join `target.orders` o
using(customer_id)
where o.order_status='delivered'
group by customer_state
order by avg_delivery_time desc
limit 5
```

customer_state	avg_delivery_time
AC	19.7625
RO	19.1316872427...
AP	18.7313432835...
AM	18.6068965517...
RR	16.4146341463...

Insight: Here the top5 states where the fastest delivery of orders happen. For instance in AC state the product reaches the customer 19 days earlier than the delivery date promised.

VI. Analysis based on the payments:

A. Find the month on month no. of orders placed using different payment types.

```
select count(order_id) as no_of_orders, payment_type,
format_date('%Y-%m',order_purchase_timestamp) as order_month_wise
from `target.payments`
join `target.orders`
using (order_id)
group by payment_type, order_month_wise
order by order_month_wise, no_of_orders desc
```

no_of_orders	payment_type	order_month_wise
3	credit_card	2016-09
254	credit_card	2016-10
63	UPI	2016-10
23	voucher	2016-10
2	debit_card	2016-10
1	credit_card	2016-12
583	credit_card	2017-01
197	UPI	2017-01
61	voucher	2017-01

Insight: Among top5 modes of payment credit card is widely used followed by UPI.

B. Find no. of orders placed on the basis of the payment installments that have been paid.

```
SELECT no_of_paid_installments, COUNT(order_id) AS no_of_orders
FROM (SELECT order_id, COUNT(DISTINCT payment_sequential) AS no_of_paid_installments
FROM `target.payments`
WHERE payment_value > 0
GROUP BY order_id) AS paid_installments
GROUP BY no_of_paid_installments;
```

no_of_paid_installments	no_of_orders
1	96476
3	303
2	2383
9	9
12	8
5	52
6	36
4	105

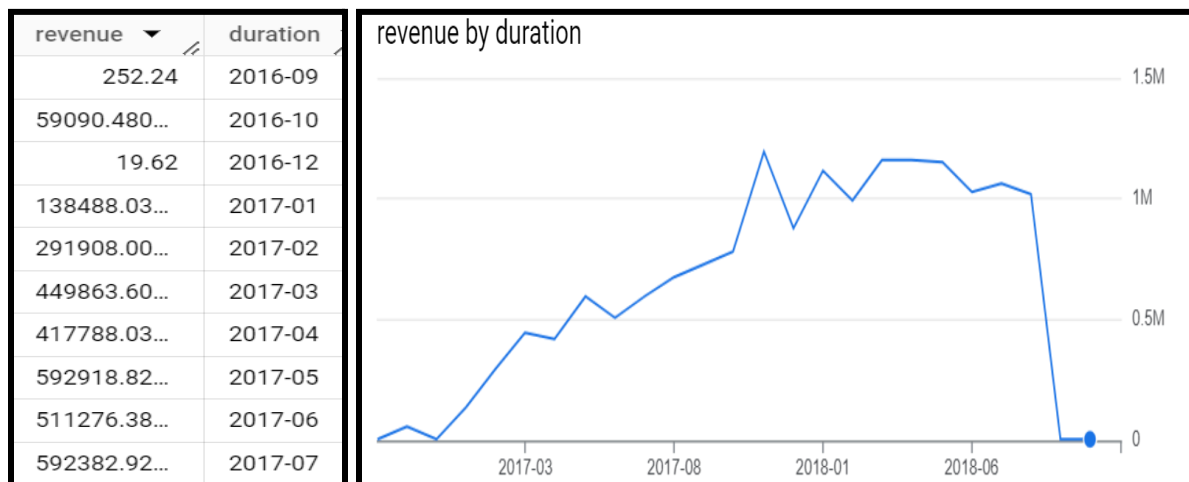


Insight: 97% of customers buy products with single installment(assuming it as cash n carry) & this tells us the feature is not used by customers. Better we make no. of installments range from 1 to 5. For effective utilization.

## VII: Analysis based on the Sales:

A. What is the total revenue generated by target, and how has it changed over time?

```
select sum(p.payment_value) as revenue,
format_date('%Y-%m', o.order_purchase_timestamp) as duration,
from `target.payments` p
join `target.orders` o
using (order_id)
group by duration
order by duration
```



Insight: There is a growing sales trend from early 2017 till 2018. In 2018 sales was stable with avg month revenue of 1\$million.

B. Which month had the largest revenue?

```
select sum(payment_value)cogs, order_month
from (select payment_value, format_datetime('%Y-%m',order_purchase_timestamp)order_month
from `target.payments` p
join `target.orders` o
on p.order_id = o.order_id)tb
```

revenue	order_month
1194882...	2017-11

```
group by order_month
order by cogs desc
limit 1
```

Insight: Highest revenue has been recorded during November 2017 (possibly due to Black Friday).

C. What product had the largest revenue?

```
select pr.product_id, sum(p.payment_value) revenue
from `target.orders` o
join `target.order_items` oi
on o.order_id = oi.order_id
join `target.products` pr
on oi.product_id = pr.product_id
join `target.payments` p
on o.order_id = p.order_id
group by pr.product_id
order by revenue desc
limit 1
```

product_id ▼	revenue ▼
5769ef0a239114ac3a854af00...	109312.64

Insight: Highest revenue generating product is 5769ef0a239114ac3a854af00df129e4 contributing 1,09,000\$.

D. What is the city with the largest revenue?

```
select c.customer_city, sum(payment_value) revenue
from `target.customers` c
join `target.orders` o on c.customer_id = o.customer_id
join `target.payments` p on o.order_id = p.order_id
group by c.customer_city
order by revenue desc limit 1
```

customer_city	revenue ▼
sao paulo	2203373.0...

Insight: The city Sao Paulo with the highest customer base contributes 22,03,373 to revenue.

E. What's our average daily sales revenue?

```
with cte as
(select date_diff(date(max(order_purchase_timestamp)), date(min(order_purchase_timestamp)), day) no_of_days,
sum(payment_value) total_sales
from `target.orders` o
join `target.payments` p
```

sales_per_day ▼
20710.05448900...

```
on o.order_id = p.order_id)
select (total_sales/no_of_days)sales_per_day from cte
```

Insight: 20,710\$ avg revenue generated daily.

F. What are the sales figures for each state?

```
select c.customer_state, sum(payment_value)revenue
from `target.customers` c
join `target.orders` o on c.customer_id = o.customer_id
join `target.payments` p on o.order_id = p.order_id
group by c.customer_state
order by revenue desc
```

customer_state	revenue
SP	5998226.9...
RJ	2144379.6...
MG	1872257.2...
RS	890898.53...
PR	811156.37...
SC	623086.42...
BA	616645.82...
DF	355141.08...
GO	350092.30...
ES	325967.55...

\$.

Insight: All top 10 states contribute above 3 Lakh  
But SP top1 alone make revenue of 60 Lakh.

VIII.Best selling product

A. Based on no\_of\_sales

```
select product_id, count(product_id)no_of_sales
from `target.order_items` oi
group by product_id
order by no_of_sales desc
```

product_id	no_of_sales
aca2eb7d00ea1a7b8ebd4e683...	527
99a4788cb24856965c36a24e3...	488
422879e10f46682990de24d77...	484
389d119b48cf3043d311335e4...	392
368c6c730842d78016ad8238...	388
53759a2ecddad2bb87a079a1f...	373
d1c427060a0f73f6b889a5c7c...	343
53b36df67ebb7c41585e8d54d...	323
154e7e31ebfa092203795c972...	281
3dd2a17168ec895c781a9191c...	274

B. Which is the best selling product in each state?

```
with cte as(select oi.product_id ,c.customer_state, count(*)total_sales
from `target.customers` c
join `target.orders` o
on c.customer_id = o.customer_id
join `target.order_items` oi
on o.order_id = oi.order_id
group by oi.product_id, c.customer_state),
```

```
ranked_sales as(select product_id ,customer_state, total_sales, rank() over(partition by customer_state order by
total_sales desc)sales_rank
from cte)
```

```
select product_id ,customer_state, total_sales
from ranked_sales
where sales_rank = 1
order by total_sales desc
```

customer_state	product_id	total_sales
SP	aca2eb7d00ea1a7b8ebd4e683...	265
RJ	d1c427060a0f73f6b889a5c7c...	102
MG	d1c427060a0f73f6b889a5c7c...	82
RS	422879e10f46682990de24d77...	42
PR	a62e25e09e05e6faf31d90c6ec...	28
SC	368c6c730842d78016ad8238...	27
BA	3dd2a17168ec895c781a9191c...	24
CE	bb50f2e236e5eea0100680137...	21
GO	9571759451b1d780ee7c15012...	20
DF	4c2394abfbac7ff59ec7a42091...	16

C. how much sales did it generate?

```
with cte as(select oi.product_id ,c.customer_state, sum(oi.price)total_sales
from `target.customers` c
join `target.orders` o
on c.customer_id = o.customer_id
join `target.order_items` oi
```

```

on o.order_id = oi.order_id
group by oi.product_id, c.customer_state),
ranked_sales as(select product_id ,customer_state, total_sales, rank() over(partition by customer_state order by
total_sales desc)sales_rank from cte)
select product_id ,customer_state, total_sales
from ranked_sales
where sales_rank = 1
order by total_sales desc

```

product_id	customer_state	total_sales
bb50f2e236e5eea0100680137...	SP	22280.0
d1c427060a0f73f6b889a5c7c...	RJ	14724.5...
588531f8ec37e7d5ff5b7b22ea...	MG	11496.0
19936fa4f614ee0590d3b77ac...	ES	7160.0
bb50f2e236e5eea0100680137...	CE	6880.0
489ae2aa008f021502940f251...	MS	6735.0
0433830caca22b01a0f477d31...	PR	5397.0
d6160fb7873f184099d9bc95e...	BA	5199.99
6cdd53843498f928905446678...	PE	4633.3
3db0b74faf0d26a6b25252865...	GO	4599.9

## VIII: Customer Feedback

A. What is the average rating by cust?

```

select review_score, count(review_score)review_count
from `target.order_reviews`
group by review_score

```

review_score	review_count
1	11424
2	3151
3	8179
4	19142
5	57328

Insight: 57% with 5 stars whereas 14% of customers rated 1 & 2 star might be because of delayed delivery timing. Or might be because of other bad experiences faced by customers.

## **Interesting Insights**

From the detailed analysis of the sales dataset from 2016 to 2018 of Target's e-commerce operations in Brazil, the following insights have been identified:

### **1. Revenue and Order Trends:**

- Target experienced consistent revenue growth, peaking in November 2018.
- The platform averaged 8,657 orders monthly, with significant peaks during sales events and promotions.

### **2. Customer and Seller Dynamics:**

- Target's customer base consists of 99,441 unique customers, with 0% making repeat purchases.
- The platform saw a consistent rise in the number of active sellers, leading to a larger variety of products and potentially increased sales.

### **3. Product and Sales Performance:**

- Highly rated products accounted for over 80% of orders, indicating the importance of product reviews in influencing purchase decisions.

### **4. Customer Satisfaction and Retention:**

- The average order cancellation rate is low at 0.63%, suggesting high customer satisfaction.(625 canceled orders)
- However, the customer retention rate is 0, indicating a need for strategies to convert first-time buyers into loyal customers.

### **5. Payment Methods and Shipping:**

- Credit cards were the most used payment method, contributing to 74.3% of total payments, followed by UPI at 19.16%.
- There is a negative correlation between review scores and average shipping days; quicker deliveries lead to higher review scores.

## **Summary**

The analysis of Target's e-commerce performance in Brazil reveals key areas for strategic improvements. While the platform show strong sales growth and customer satisfaction, there are opportunities to enhance profitability, customer retention, and operational efficiency. Key insights include:

1. **Strong Revenue Growth:** Platform saw consistent revenue increase, with significant sales peaks during promotional periods.
2. **High Customer Satisfaction:** Low cancellation rates and high review scores indicate that customers are generally satisfied with their purchases.
3. **Challenges in Customer Retention:** Despite high satisfaction, customer retention rates are low, suggesting a need for improved loyalty programs and customer engagement strategies.
5. **Operational Efficiency:** Quicker deliveries correlate with higher customer satisfaction, highlighting the importance of efficient logistics.

## **Recommendations**

Based on the insights, the following recommendations are proposed to further optimize e-commerce operations for Target in Brazil:

### **1. Maximize Sales Performance:**

- Implement cross-selling and upselling strategies, especially for high-AOV categories, to boost sales and profitability.
- Offer dynamic pricing for low-margin products, providing discounts during slow periods and increasing prices during peak seasons.

### **2. Improve Customer Retention:**

- Loyalty Programs: Introduce loyalty programs to reward repeat customers and encourage long-term engagement. Use positive customer feedback to attract new customers.
- Customer Engagement: Enhance customer service and provide personalized offers to improve the customer experience and encourage repeat purchases.

### **3. Enhance Operational Efficiency:**

- Logistics Optimization: Streamline the order process, reduce dispatch delays, and address transport bottlenecks. Expand regional warehouses to ensure quicker deliveries.
- Promised Date Management: Set realistic delivery dates to manage customer expectations and reduce late deliveries.

### **4. Optimize Product Listings:**

- Highlight highly-rated products and prioritize them in marketing efforts to leverage their popularity and drive sales.
- Increase the variety of products offered, especially in high-demand categories, to attract a broader customer base.

## 5. **Boost Marketing and Sales:**

- Seasonal Campaigns: Plan and execute marketing campaigns ahead of peak seasons to maximize sales during high-demand periods.
- Localized Promotions: Offer region-specific promotions to cater to local preferences and drive sales in underperforming areas.

## 6. **Improve Payment Flexibility:**

- Encourage the use of multiple payment methods, including installment options, to make purchases more accessible and appealing to a wider range of customers.

By implementing these recommendations, Target can enhance their e-commerce operations in Brazil, improve customer satisfaction and retention, and drive overall sales growth.

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Tableau visualization link: [Target visualization](#)

Medium story link : [Target SQL CaseStudy](#)

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