SCALER

2024

Business Case Study on Target E-commerce Data Using SQL

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SCALER DSML PROGRAM

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1. Exploratory Data Analysis

1.1 Data type of all columns in the 'customers' table

Query:

```
SELECT
column_name,
data_type
FROM `Target`.INFORMATION_SCHEMA.COLUMNS
WHERE table_name = 'customers'
```

Result:

Row	column_name	data_type
1	customer_id	STRING
2	customer_unique_id	STRING
3	customer_zip_code_prefix	INT64
4	customer_city	STRING
5	customer_state	STRING

1.2 Time range between which orders were placed

Query:

```
SELECT
MIN(order_purchase_timestamp) AS FirstOrderDatetime,
MAX(order_purchase_timestamp) AS LastOrderDatetime,
DATETIME_DIFF(MAX(order_purchase_timestamp),MIN(order_purchase_timestamp),DAY) AS
DifferenceInDays
FROM `Target.orders`
```

Result:

Row	FirstOrderDatetime	LastOrderDatetime	DifferenceInDays
1	2016-09-04 21:15:19 UTC	2018-10-17 17:30:18 UTC	772

1.3 Count of the Cities and States of customers who ordered during the given period

Query:

```
 (SELECT
 'Number of Cities with orders' AS Category,
 COUNT(DISTINCT g.geolocation_city) AS CountOfCities,
 COUNT(DISTINCT g.geolocation_state) AS CountOfStates
 FROM `Target.orders` o
 JOIN `Target.customers` c ON o.customer_id = c.customer_id
 JOIN `Target.geolocation` g ON c.customer_zip_code_prefix = g.geolocation_zip_code_prefix)
UNION ALL
 (SELECT
```

```
'Total number of cities' AS Category,
COUNT(DISTINCT g.geolocation_city) AS CountOfCities,
COUNT(DISTINCT g.geolocation_state) AS CountOfStates
FROM `Target.geolocation` g)
```

Result:

Row	Category	CountOfCities	CountOfStates
1	Number of cities/states with orders	5812	27
2	Total number of cities/states	8011	27

Insights and recommendations:

- The orders are placed from 5812 (approx. 73%) cities out of the total of 8011 states across Brazil. Which means the Target e-com is not receiving orders from the remaining 2199 cities (approx. 27%).
- Target should therefore focus on market research behind this untapped potential, mainly by studying the logistical challenges faced in these cities and finding localised solutions.

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2. In-depth Exploration

2.1 Is there a growing trend in the no. of orders placed?

Query:

```
SELECT
FORMAT_DATETIME('%Y-%m',order_purchase_timestamp) AS YearMonth,
COUNT(DISTINCT order_id) AS NumOfOrdersPlaced
FROM `Target.orders`
GROUP BY YearMonth
ORDER BY YearMonth
```

Result:

Row	YearMonth	NumOfOrdersPlaced
1	2016-09	4
2	2016-10	324
3	2016-12	1
4	2017-01	800
5	2017-02	1780
6	2017-03	2682
7	2017-04	2404
8	2017-05	3700
9	2017-06	3245
10	2017-07	4026

Insights and recommendations:

- The number of orders in 2016-09, 2016-10, 2018-09 and 2018-10 are significantly low, which can mean an operational problem or data recording issue.
- The number of orders keep increasing from 2017-01 and reach a peak of 7544 in 2017-11. Beyond this, the monthly number of orders shows slight fluctuations but an overall trend of a plateau till 2018-04, after which the orders again show a decreasing trend.

2.2 Monthly seasonality in terms of the no. of orders being placed

Query:

```
SELECT
EXTRACT(MONTH FROM order_purchase_timestamp) AS Month,
COUNT(CASE WHEN EXTRACT(YEAR FROM order_purchase_timestamp) = 2016 THEN order_id END) AS
OrdersIn2016,
COUNT(CASE WHEN EXTRACT(YEAR FROM order_purchase_timestamp) = 2017 THEN order_id END) AS
OrdersIn2017,
COUNT(CASE WHEN EXTRACT(YEAR FROM order_purchase_timestamp) = 2018 THEN order_id END) AS
OrdersIn2018
FROM `Target.orders`
GROUP BY Month
ORDER BY Month
```

Result:

Row	Month	OrdersIn2016	OrdersIn2017	OrdersIn2018
1	1	0	800	7269
2	2	0	1780	6728
3	3	0	2682	7211
4	4	0	2404	6939
5	5	0	3700	6873
6	6	0	3245	6167
7	7	0	4026	6292
8	8	0	4331	6512
9	9	4	4285	16
10	10	324	4631	4
11	11	0	7544	0
12	12	1	5673	0

Insights and recommendations:

- For number of orders in 2016, due to very less data, no seasonality can be identified.
- For orders in 2017, the number of orders are gradually increasing at the start of the year, which could be because of post-Christmas holiday slump.
- The orders in November 2017 were highest, indicating a possible seasonal surge around year-end.
- Target can develop marketing campaigns targeting high-order months (e.g., November) and strategies to boost lower-order months like April to June.

2.3 Time of the day to place orders (Dawn, Morning, Afternoon or Night)

Query:

```
WITH cte1 AS (
  SELECT
  order_id,
  CASE
    WHEN EXTRACT(HOUR FROM order_purchase_timestamp) BETWEEN 0 AND 6 THEN 'Dawn'
    WHEN EXTRACT(HOUR FROM order_purchase_timestamp) BETWEEN 7 AND 12 THEN 'Morning'
    WHEN EXTRACT(HOUR FROM order_purchase_timestamp) BETWEEN 13 AND 18 THEN 'Afternoon'
    WHEN EXTRACT(HOUR FROM order_purchase_timestamp) BETWEEN 19 AND 23 THEN 'Night'
  END AS IntervalOfTheDay
  FROM `Target.orders`
)
SELECT
IntervalOfTheDay,
COUNT(order_id) as NumberOfOrders
FROM cte1
GROUP BY IntervalOfTheDay
ORDER BY NumberOfOrders DESC
```

Result:

Row	IntervalOfTheDay	NumberOfOrders
1	Afternoon	38135
2	Night	28331
3	Morning	27733
4	Dawn	5242

Insights and recommendations:

- Afternoon and Night are the most popular time for placing orders. Shifting marketing focus to the afternoon and night hours such as afternoon flash sales or late-night discounts can help maximize customer engagement.

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3. Evolution of E-commerce orders in Brazil region

3.1 Month on month number of orders placed in each state

Query:

```
SELECT
FORMAT_DATETIME('%Y-%m',o.order_purchase_timestamp) as YearMonth,
c.customer_state as State,
COUNT(DISTINCT o.order_id) AS NumberOfOrders
FROM `Target.orders` o
JOIN `Target.customers` c ON o.customer_id = c.customer_id
GROUP BY YearMonth, State
ORDER BY YearMonth, State
```

Result:

Row	YearMonth	State	NumberOfOrders
1	2016-09	RR	1
2	2016-09	RS	1
3	2016-09	SP	2
4	2016-10	AL	2
5	2016-10	BA	4
6	2016-10	CE	8
7	2016-10	DF	6
8	2016-10	ES	4
9	2016-10	GO	9
10	2016-10	MA	4

Insights and recommendations:

- Brazil Target order data shows a diverse distribution, with states Sao Paulo (SP) (299 orders in 2017-01), Rio de Janeiro (RJ) (97 orders in 2017-01) and Parana (PR) (65 orders in 2017-01) highlighting their status as a leading market for Target's e-commerce in Brazil. Target should focus marketing and promotional efforts in these regions.
- For states with lower order volumes, Target should explore local marketing strategies, partnerships and discounts to generate demand.

3.2 Distribution of customers across all the states

Query:

```
SELECT
customer_state as State,
COUNT(DISTINCT customer_unique_id) AS NumberOfCustomers
FROM `Target.customers`
GROUP BY State
ORDER BY NumberOfCustomers DESC
```

Result:

Row	State	NumberOfCustomers
1	SP	40302
2	RJ	12384
3	MG	11259
4	RS	5277
5	PR	4882
6	SC	3534
7	BA	3277
8	DF	2075
9	ES	1964
10	GO	1952
11	PE	1609

Insights and recommendations:

- Majority of Target customers are located in states Sao Paulo (SP), Rio de Janeiro (RJ) and Minas Gerais (MG). These states are key economic hubs, suggesting that e-commerce activity is strongly aligned with population density and economic development. To maximize returns, Target should continue investing in customer acquisition and retention in these states.
- Target should boost engagement in states with low number of customers such as Roraima (RR), Amapa (AP) and Acre (AC). The strategies for this can include region-specific promotions or collaborating with local influencers.

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4. Impact on Economy: Analysing the money movement by e-commerce

4.1 Percent Increase in the cost of orders from 2017 to 2018 (Only January to August)

Query:

```
WITH cte1 as (
  SELECT
  EXTRACT(YEAR FROM o.order_purchase_timestamp) as Year,
  EXTRACT(MONTH FROM o.order_purchase_timestamp) as Month,
  p.payment_value
  FROM `Target.orders` o
  JOIN `Target.payments` p on o.order_id = p.order_id
  WHERE EXTRACT(YEAR FROM o.order_purchase_timestamp) IN (2017,2018)
  AND EXTRACT(MONTH FROM o.order_purchase_timestamp) BETWEEN 1 AND 8
)
SELECT
ROUND(SUM(CASE WHEN YEAR = 2017 THEN payment_value ELSE 0 END)) AS TotalCostIn2017,
ROUND(SUM(CASE WHEN YEAR = 2018 THEN payment_value ELSE 0 END)) AS TotalCostIn2018,
ROUND((SUM(CASE WHEN YEAR = 2018 THEN payment_value ELSE 0 END) - SUM(CASE WHEN YEAR =
2017 THEN payment_value ELSE 0 END))
      /SUM(CASE WHEN YEAR = 2017 THEN payment_value ELSE 0 END)*100,2) AS PercentIncrease
FROM cte1
```

Result:

Row	TotalCostIn2017	TotalCostIn2018	PercentIncrease
1	3669022.0	8694734.0	136.98

Insights and recommendations:

- The data shows a significant increase of almost 137% in the cost of orders from 2017 to 2018. Possible drivers for this surge could be higher average order values, increased pricing strategies or changes in customer purchasing behaviour such as opting for premium, high-end products.
- Target hence, should consider enhancing marketing efforts on higher-value or luxury items that contributed to the increased costs. Keeping an eye on inflation and consumer confidence is also vital.

4.2 State-wise Total and Average order price

Query (sorted by TotalOrderPrice):

```
SELECT
c.customer_state as State,
ROUND(SUM(oi.price)) AS TotalOrderPrice,
ROUND(AVG(oi.price)) AS AverageOrderPrice
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 State
ORDER BY TotalOrderPrice DESC;
```

Result:

Row	State	TotalOrderPrice	AverageOrderPrice
1	SP	5202955.0	110.0
2	RJ	1824093.0	125.0
3	MG	1585308.0	121.0
4	RS	750304.0	120.0
5	PR	683084.0	119.0
6	SC	520553.0	125.0
7	BA	511350.0	135.0
8	DF	302604.0	126.0
9	GO	294592.0	126.0
10	ES	275037.0	122.0

Query (sorted by AverageOrderPrice):

```
SELECT
c.customer_state as State,
ROUND(SUM(oi.price)) AS TotalOrderPrice,
ROUND(AVG(oi.price)) AS AverageOrderPrice
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 State
ORDER BY AverageOrderPrice DESC
```

Result:

Row	State	TotalOrderPrice	AverageOrderPrice
1	PB	115268.0	191.0
2	AL	80315.0	181.0
3	AC	15983.0	174.0
4	PA	178948.0	166.0
5	RO	46141.0	166.0
6	AP	13474.0	164.0
7	PI	86914.0	160.0
8	TO	49622.0	158.0
9	RN	83035.0	157.0
10	CE	227255.0	154.0

Insights and recommendations:

- Top-3 states with highest total order price: Sao Paulo (SP), Rio de Janeiro (RJ) and Minas Gerais (MG). The main focus for these states should be retention of existing customers, by focusing on marketing and advertising efforts.
- Top-3 states with highest average order price: Paraiba (PB), Alagoas (AL) and Acre (AC). However, these states have moderate total price of orders, suggesting that even though volume of orders is lesser, the customers here prefer premium products. Promotion of such products should be the priority in these states.

4.3 State-wise Total and Average order freight

Query (sorted by TotalFreightValue):

```
SELECT
c.customer_state as State,
ROUND(SUM(oi.freight_value)) AS TotalFreightValue,
ROUND(AVG(oi.freight_value)) AS AverageFreightValue
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 State
ORDER BY TotalFreightValue DESC;
```

Result:

Row	State	TotalFreightValue	AverageFreightValue
1	SP	718723.0	15.0
2	RJ	305589.0	21.0
3	MG	270853.0	21.0
4	RS	135523.0	22.0
5	PR	117852.0	21.0
6	BA	100157.0	26.0
7	SC	89660.0	21.0
8	PE	59450.0	33.0
9	GO	53115.0	23.0
10	DF	50625.0	21.0

Query (sorted by AverageFreightValue):

```
SELECT
c.customer_state as State,
ROUND(SUM(oi.freight_value)) AS TotalFreightValue,
ROUND(AVG(oi.freight_value)) AS AverageFreightValue
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 State
ORDER BY AverageFreightValue DESC;
```

Result:

Row	State	TotalFreightValue	AverageFreightValue
1	RR	2235.0	43.0
2	PB	25720.0	43.0
3	RO	11417.0	41.0
4	AC	3687.0	40.0
5	PI	21218.0	39.0
6	MA	31524.0	38.0
7	TO	11733.0	37.0
8	SE	14111.0	37.0
9	RN	18860.0	36.0
10	PA	38699.0	36.0

Insights and recommendations:

- Top-3 states with highest total freight value: Sao Paulo (SP), Rio de Janeiro (RJ) and Minas Gerais (MG). However, the average freight value for these states is relatively low. This could indicate a high volume of orders with low shipping costs per orders, likely due to proximity to major distribution centres. For such states, Target can introduce additional opportunities such as offering same day delivery at a small premium.
- Top-3 states with highest average freight value: Roraima (RR), Paraiba (PB) and Rondonia (RO). These states mainly include remote and less-accessible areas providing logistical challenges in shipping, leading to highest freight costs. High average freight costs can discourage customers in placing orders. Hence Target should optimize distribution centres in these states.

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5. Analysis based on sales, freight and delivery time

5.1 Delivery time and Difference between estimated and actual delivery date

Query 1:

```
SELECT
order_id,
DATETIME_DIFF(order_delivered_customer_date,order_purchase_timestamp,DAY) AS time_to_deliver,
DATETIME_DIFF(order_estimated_delivery_date,order_delivered_customer_date,DAY) AS
diff_estimated_delivery
FROM `Target.orders`
WHERE order_status = 'delivered'
ORDER BY order_id
```

Result:

Row	order_id	time_to_deliver	diff_estimated_delivery
1	00010242fe8c5a6d1ba2dd792...	7	8
2	00018f77f2f0320c557190d7a1...	16	2
3	000229ec398224ef6ca0657da...	7	13
4	00024acbcdf0a6daa1e931b03...	6	5
5	00042b26cf59d7ce69dfabb4e...	25	15
6	00048cc3ae777c65dbb7d2a06...	6	14
7	00054e8431b9d7675808bcb8...	8	16
8	000576fe39319847cbb9d288c...	5	15
9	0005a1a1728c9d785b8e2b08...	9	0
10	0005f50442cb953dcd1d21e1f...	2	18

Query 2:

```
WITH cte1 as (
  SELECT
  order_id,
  DATETIME_DIFF(order_delivered_customer_date,order_purchase_timestamp,DAY) AS time_to_deliver,
  DATETIME_DIFF(order_estimated_delivery_date,order_delivered_customer_date,DAY) AS
diff_estimated_delivery
  FROM `Target.orders`
  WHERE order_status = 'delivered' AND
DATETIME_DIFF(order_delivered_customer_date,order_purchase_timestamp,DAY) IS NOT NULL AND
DATETIME_DIFF(order_estimated_delivery_date,order_delivered_customer_date,DAY) IS NOT NULL
)
  (SELECT
  'time_to_deliver' AS Category,
  MIN(cte1.time_to_deliver) AS min,
  AVG(cte1.time_to_deliver) AS avg,
  MAX(cte1.time_to_deliver) AS max
  FROM cte1)
UNION ALL
  (SELECT
  'diff_estimated_delivery' AS Category,
  MIN(cte1.diff_estimated_delivery) AS min,
  AVG(cte1.diff_estimated_delivery) AS avg,
  MAX(cte1.diff_estimated_delivery) AS max
  from cte1)
```

Result:

Row	Category	min	avg	max
1	time_to_deliver	0	12.093...	209
2	diff_estimated_delivery	-188	10.957...	146

Insights and recommendations:

- Here, time_to_deliver is difference (in days) between the date of delivery to the customer and the date of order purchase.
- Diff_estimated_delivery is the difference (in days) between estimated date of delivery and actual date of delivery. A positive value indicates a faster than estimated delivery, whereas negative value indicates a delay.
- A minimum time_to_deliver of 0 days indicates same-day delivery service or pickup options.
- The time_to_deliver shows a drastic variation between 0 to 209 days with an average of 12 days. Also, the wide range in the difference between estimated and actual delivery dates indicates a need for more accurate delivery forecasting. Target should implement Machine Learning models to predict delivery times based on history, location and carrier performance, to improve customer satisfaction.

5.2 Highest-5 and Lowest-5 States with respect to Average Freight Value

Query:

```
WITH cte1 AS (
  (SELECT
  c.customer_state as State,
  ROUND(AVG(oi.freight_value),2) AS AverageFreightValue,
  'TOP5' AS Status
  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 State
  ORDER BY AverageFreightValue DESC
  LIMIT 5)
  UNION ALL
  (SELECT
  c.customer_state as State,
  ROUND(AVG(oi.freight_value),2) AS AverageFreightValue,
  'BOTTOM5' AS Status
  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 State
  ORDER BY AverageFreightValue
  LIMIT 5)
)
SELECT * FROM cte1
ORDER BY Status DESC, AverageFreightValue
```

Result:

Row	State	AverageFreightValue	Status
1	PI	39.15	TOP5
2	AC	40.07	TOP5
3	RO	41.07	TOP5
4	PB	42.72	TOP5
5	RR	42.98	TOP5
6	SP	15.15	BOTTOM5
7	PR	20.53	BOTTOM5
8	MG	20.63	BOTTOM5
9	RJ	20.96	BOTTOM5
10	DF	21.04	BOTTOM5

Insights and recommendations:

- The top-5 states with highest average freight costs indicate a presence in remote locations and underdeveloped logistics infrastructure, causing an increase in shipping costs. Target should consider setting up more regional distribution centres in these states. Target can also offer certain incentives such as free shipping over a certain order value to encourage more orders from these regions.
- The bottom-5 states with lowest average freight costs are the economically developed states in Brazil with better logistics networks, high order volumes with closer distribution hubs.

5.3 Highest-5 and Lowest-5 States with respect to Average Delivery time

Query:

```
WITH cte1 AS (
  (SELECT
  c.customer_state AS State,
  ROUND(AVG(DATETIME_DIFF(o.order_delivered_customer_date,o.order_purchase_timestamp,DAY)),2) AS
AverageDeliveryTimeDAYS,
  'TOP5' AS Status
  FROM `Target.orders` o
  JOIN `Target.customers` c ON o.customer_id = c.customer_id
  GROUP BY State
  ORDER BY AverageDeliveryTimeDAYS DESC
  LIMIT 5)
  UNION ALL
  (SELECT
  c.customer_state AS State,
  ROUND(AVG(DATETIME_DIFF(o.order_delivered_customer_date,o.order_purchase_timestamp,DAY)),2) AS
AverageDeliveryTimeDAYS,
  'BOTTOM5' AS Status
  FROM `Target.orders` o
  JOIN `Target.customers` c ON o.customer_id = c.customer_id
  GROUP BY State
  ORDER BY AverageDeliveryTimeDAYS
  LIMIT 5)
)
SELECT * FROM cte1
ORDER BY Status DESC, AverageDeliveryTimeDAYS
```

Result:

Row	State	AverageDeliveryTimeDAYS	Status
1	PA	23.32	TOP5
2	AL	24.04	TOP5
3	AM	25.99	TOP5
4	AP	26.73	TOP5
5	RR	28.98	TOP5
6	SP	8.3	BOTTOM5
7	PR	11.53	BOTTOM5
8	MG	11.54	BOTTOM5
9	DF	12.51	BOTTOM5
10	SC	14.48	BOTTOM5

Insights and recommendations:

- The top-5 states with highest average delivery times are located in geographically restrained Northern region of Brazil with difficult terrain leading to limited infrastructure, causing delays. Target should consider investing in improving logistics in these states.
- The bottom-5 states with lowest average delivery times are located in a relatively developed region of Brazil, with efficient transportation network.

5.4 Top-5 States with fastest order delivery than the estimated date of delivery

Query:

```
SELECT
c.customer_state AS State,
ROUND(AVG(DATETIME_DIFF(o.order_estimated_delivery_date,o.order_delivered_customer_date,DAY)),1)
AS AvgDiffEstimatedDeliveryDAYS
FROM `Target.orders` o
JOIN `Target.customers` c ON o.customer_id = c.customer_id
WHERE o.order_status = 'delivered'
GROUP BY State
ORDER BY AvgDiffEstimatedDeliveryDAYS DESC
LIMIT 5
```

Result:

Row	State	AvgDiffEstimatedDeliveryDAYS
1	AC	19.8
2	RO	19.1
3	AP	18.7
4	AM	18.6
5	RR	16.4

Insights and recommendations:

- Even though these states belong to the region with difficult terrain and difficult infrastructure, faster delivery than estimated date indicate that Target logistics in these states is effectively using the local courier services that can traverse the terrain efficiently.
- Target should try to study and replicate the delivery methodologies used by the logistics teams in these states, in other states which are facing delays in delivery.

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6. Analysis based on the payments

6.1 Month on month number of orders placed using different payment types

Query:

```
SELECT
FORMAT_DATETIME('%Y-%m',o.order_purchase_timestamp) AS YearMonth,
p.payment_type,
COUNT(DISTINCT o.order_id) AS CountOfOrders
FROM `Target.orders` o
JOIN `Target.payments` p ON o.order_id = p.order_id
GROUP BY YearMonth, payment_type
ORDER BY YearMonth, payment_type
```

Result:

Row	YearMonth	payment_type	CountOfOrders
1	2016-09	credit_card	3
2	2016-10	UPI	63
3	2016-10	credit_card	253
4	2016-10	debit_card	2
5	2016-10	voucher	11
6	2016-12	credit_card	1
7	2017-01	UPI	197
8	2017-01	credit_card	582
9	2017-01	debit_card	9
10	2017-01	voucher	33
11	2017-02	UPI	398
12	2017-02	credit_card	1347
13	2017-02	debit_card	13
14	2017-02	voucher	69

Insights and recommendations:

- Overall, credit cards seem to be the most popular choice as a payment method for Target e-commerce, followed by UPI transactions.
- UPI transactions seem to gain popularity, with just 63 in 2016-10, to 1509 by 2017-11.
- Voucher payments are significantly lower than all the other payment types.
- Target should focus on providing discounts and offers on transactions done using credit cards or UPI, to further boost their usage.

6.2 Number of orders placed on the basis of the number of payment instalments

Query:

```
SELECT
payment_installments,
COUNT(DISTINCT order_id) AS CountOfOrders
FROM `Target.payments`
GROUP BY payment_installments
ORDER BY payment_installments
```

Result:

Row	payment_installment	CountOfOrders
1	0	2
2	1	49060
3	2	12389
4	3	10443
5	4	7088
6	5	5234
7	6	3916
8	7	1623
9	8	4253
10	9	644
11	10	5315

Insights and recommendations:

- Customers seem to prefer payment in a single instalment i.e. to pay upfront for simple, quicker and relatively cheaper cost.
- The number of orders decreases significantly with increase in number of instalments, indicating that customers do not prefer complex payment plans which would increase the overall cost of the product.