

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

1.1Data type of all columns in the "customers" table.

ANS-

CUSTOMER

QUERY

SHARE

COPY

SNAPSHOT

DELETE

EXPORT

REFRESH

SCHEMA

DETAILS

PREVIEW

LINEAGE

DATA PROFILE

DATA QUALITY

Filter

Enter property name or value

<input type="checkbox"/>	Field name	Type	Mode	Key	Collation	Default Value	Policy Tags	Description
<input type="checkbox"/>	customer_id	STRING	NULLABLE	-	-	-	-	-
<input type="checkbox"/>	customer_unique_id	STRING	NULLABLE	-	-	-	-	-
<input type="checkbox"/>	customer_zip_code_prefix	INTEGER	NULLABLE	-	-	-	-	-
<input type="checkbox"/>	customer_city	STRING	NULLABLE	-	-	-	-	-
<input type="checkbox"/>	customer_state	STRING	NULLABLE	-	-	-	-	-

EDIT SCHEMA

VIEW ROW ACCESS POLICIES

Insights:

For data types There are Five coloums where:

customer_id having “STRING” Data Type

customer_unique_id having “STRING” data type

customer_zip_code_prefix having “INTEGER” Data Type

customer_city having “STRING” Data Type

customer_state having “STRING” Data Type

Recommendation:

N/A

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

ANS-

```
SELECT
  MIN(order_purchase_timestamp) AS min_order_date,
  MAX(order_purchase_timestamp) AS max_order_date
FROM `customers.Orders`;
```

OUTPUT

	JOB INFORMATION	RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH
Row	min_order_date	max_order_date				
1	2016-09-04 21:15:19 UTC	2018-10-17 17:30:18 UTC				

Insights:

Here the range between which the orders were placed is

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

Recommendation:

N/A

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

ANS:

```
SELECT
  COUNT(DISTINCT customer_city) AS unique_cities,
  COUNT(DISTINCT customer_state) AS unique_states
FROM `customers.CUSTOMER`
WHERE customer_id IN (
  SELECT DISTINCT customer_id
  FROM `customers.Orders`
);
```

OUTPUT

Query results			
JOB INFORMATION		RESULTS	CHART
Row	unique_cities	unique_states	
1	4119	27	

Insights:

- 1.The data shows that customers from a wide range of 4119 cities have placed orders. This indicates a diverse customer base, suggesting that the platform has attracted consumers from various locations.
- 2.The presence of customers from 27 unique states highlights the platform's reach across different regions. This suggests that the platform serves customers across multiple states, indicating a broad regional representation.

Recommendation:

- 1.With customers spread across numerous cities and states, it's essential to tailor marketing efforts to local preferences and needs. Implementing localized marketing campaigns can help establish stronger connections with customers in different regions, driving engagement and loyalty.
- 2.Given the broad geographic reach indicated by customers from 27 unique states, consider expanding the platform's regional presence. This could involve setting up distribution centers or partnering with local businesses to improve accessibility and enhance customer satisfaction in underserved regions.
- 3.Analyze Regional Preferences: Conducting in-depth analysis of purchasing patterns and preferences across different states can provide valuable insights. Understanding regional variations in product preferences or shopping behaviors can inform product assortment decisions and optimize marketing strategies for each location.


2.In-depth Exploration:


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

ANS-

```
SELECT
  EXTRACT(YEAR FROM `order_purchase_timestamp`) AS order_year,
  COUNT(*) AS order_count
FROM `customers.Orders`
GROUP BY order_year
ORDER BY order_year;
```

Query results

 SAVE RESULTS

 EXPLORE DATA

JOB INFORMATION

RESULTS

CHART

JSON

EXECUTION DETAILS

EXECUTION GRAPH

Row	order_year	order_count	
1	2016	329	
2	2017	45101	
3	2018	54011	

Insights:

There is a clear increasing trend in the number of orders placed over the past years:

In 2016, there were 329 orders.

In 2017, there were 45,101 orders.

In 2018, there were 54,011 orders.

This indicates a significant increase in the number of orders from 2016 to 2017, and a further increase from 2017 to 2018.

Recommendation:

This indicates a significant increase in the number of orders from 2016 to 2017, and a further increase from 2017 to 2018.

- 1. Given the growing trend in the number of orders placed over the past years, it would be advisable to continue monitoring and analyzing the order data to identify any underlying factors driving this growth.
- 2. It might be beneficial to forecast future order volumes based on historical trends and incorporate this information into business planning and resource allocation strategies.
- 3. Furthermore, ensuring that the infrastructure, resources, and processes are scalable to accommodate the increasing demand would be crucial to sustain and capitalize on this growth.

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

```
SELECT
  EXTRACT(MONTH FROM order_purchase_timestamp) AS order_month,
  COUNT(*) AS order_count
FROM `customers.Orders`
GROUP BY order_month
ORDER BY order_month;
```

OUTPUT

Query results

JOB INFORMATION		RESULTS	CHART
Row	order_month	order_count	
1	1	8069	
2	2	8508	
3	3	9893	
4	4	9343	
5	5	10573	
6	6	9412	
7	7	10318	
8	8	10843	
9	9	4305	
10	10	4959	
11	11	7544	
12	12	5674	

Insights:

- 1. The number of orders fluctuates across different months, indicating potential seasonal patterns in customer purchasing behavior. Months such as May, July, and August have relatively higher order counts, suggesting increased activity, possibly due to factors like holidays, promotions, or seasonal trends.

2.Months with higher order counts, such as May and August, may coincide with periods of increased consumer spending, such as summer vacations or back-to-school shopping. Understanding these seasonal peaks can help the company plan inventory management, marketing campaigns, and resource allocation more effectively to capitalize on peak demand periods.

3.Off-Peak Months: Conversely, months like September and October exhibit lower order counts, indicating potential off-peak periods. During these months, the company may need to implement targeted marketing strategies or promotional offers to stimulate demand and drive sales during slower periods.

Recommendation:

1.Implement targeted marketing campaigns aligned with seasonal peaks to capitalize on increased consumer demand. Utilize promotional offers, themed sales events, and personalized recommendations to attract customers during high-order months like May and August.

2.Implement targeted marketing campaigns aligned with seasonal peaks to capitalize on increased consumer demand. Utilize promotional offers, themed sales events, and personalized recommendations to attract customers during high-order months like May and August.

3.Enhance customer engagement during off-peak months by offering exclusive discounts, loyalty rewards, or limited-time promotions. Encourage repeat purchases through personalized recommendations, email campaigns, and social media engagement to maintain momentum throughout the year.


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

ANS

```
SELECT
  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'
    ELSE 'Night'
  END AS time_of_day,
  COUNT(*) AS order_count
FROM `customers.Orders`
GROUP BY time_of_day
ORDER BY time_of_day;
```

OUTPUT

Query results

 SAVE RESULTS ▾

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH
Row	time_of_day ▾	order_count ▾				
1	Afternoon	38135				
2	Dawn	5242				
3	Morning	27733				
4	Night	28331				

Insights:

- 1.The highest number of orders are placed during the afternoon, with 38,135 orders. This suggests that a significant portion of Brazilian customers prefer to shop during the afternoon hours, possibly during breaks from work or other daytime activities.
- 2.Morning also sees substantial order activity, with 27,733 orders. This indicates that many customers may prefer to make their purchases early in the day, perhaps before starting their daily routines or work commitments.
- 3.Despite being the lowest among the four categories, nighttime still sees considerable order activity, with 28,331 orders. This suggests that a notable portion of customers prefers to shop in the evening or nighttime hours, possibly after work or during leisure time.

Recommendation:

- 1.Develop targeted marketing campaigns tailored to different times of the day to capitalize on peak order periods. For instance, focus promotional efforts during the afternoon to engage customers during their leisure time, and consider offering exclusive deals or incentives to attract shoppers during slower periods like dawn.
- 2.Adjust inventory levels and product availability based on anticipated order trends throughout the day. Ensure popular items are well-stocked during peak shopping hours to meet demand promptly, while optimizing inventory turnover and minimizing stockouts during quieter periods.
- 3.Strengthen customer support services, such as live chat assistance or responsive email support, during peak order times to address inquiries promptly and enhance the overall shopping experience. By providing efficient and responsive customer support, you can boost customer satisfaction and loyalty.


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

3.1Get the month on month no. of orders placed in each state.

ANS:

```
SELECT
  EXTRACT(YEAR FROM o.order_purchase_timestamp) AS order_year,
  EXTRACT(MONTH FROM o.order_purchase_timestamp) AS order_month,
  c.customer_state,
  COUNT(*) AS order_count
FROM
  `customers.Orders` o
JOIN
  `customers.CUSTOMER` c
ON
  o.customer_id = c.customer_id
GROUP BY
  order_year,
  order_month,
  customer_state
```

OUTPUT

Query results						 SA
JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXEC
Row	order_year	order_month	customer_state	order_count		
1	2016	9	RR	1		
2	2016	9	RS	1		
3	2016	9	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		
11	2016	10	MG	40		
12	2016	10	MT	3		

Insights:

1. In September 2016, there was minimal e-commerce activity, with only a few orders recorded across several states. States like RR and RS had only one order each, indicating low transaction volume during this period in these regions.

2. E-commerce activity increased notably in October 2016, with multiple states recording higher order counts compared to the previous month. States such as GO and CE saw an increase in orders, indicating a potential uptick in consumer spending or promotional campaigns during this period.

Recommendation:

1. For states with low order counts, implement targeted marketing campaigns to increase brand awareness and stimulate demand. Tailor promotions and advertisements to resonate with local preferences and address specific needs of customers in these regions.

2. Explore opportunities to expand operations and increase market penetration in states with growing e-commerce activity, such as GO and CE. Invest in infrastructure, logistics, and customer support to cater to the increasing demand and capitalize on emerging market trends.

3. Enhance customer engagement strategies to foster long-term relationships and loyalty. Implement personalized marketing communications, loyalty programs, and post-purchase follow-ups to provide exceptional customer experiences and encourage repeat purchases.

3.2 How are the customers distributed across all the states?

ANS:

```
SELECT
    customer_state,
    COUNT(DISTINCT customer_id) AS customer_count
FROM
    `customers. CUSTOMER`
GROUP BY
    customer_state
ORDER BY
    customer_state;
```

OUTPUT :

Query results

JOB INFORMATION		RESULTS	CHART	JSON
Row	customer_state	customer_count		
1	AC	81		
2	AL	413		
3	AM	148		
4	AP	68		
5	BA	3380		
6	CE	1336		
7	DF	2140		
8	ES	2033		
9	GO	2020		
10	MA	747		
11	MG	11635		
12	MS	715		

Insights:

1.The data reveals significant disparities in the distribution of customers across different states in Brazil. For instance, SP has the highest number of customers, with 41,746 customers, while states like RR and AP have significantly fewer customers, with only 46 and 47 customers respectively.

2.States with higher customer counts, such as SP, RJ, and PR, represent lucrative markets with large customer bases. These regions offer substantial opportunities for sales growth, customer acquisition, and market expansion initiatives.

3.Conversely, states with lower customer counts, such as RR, AC, and TO, may indicate underdeveloped or untapped markets. These regions may require targeted marketing efforts, investment in infrastructure, and tailored product offerings to unlock their full market potential.

Recommendation:

Customize product offerings and services to meet the unique requirements of customers in different regions. Adapt pricing strategies, product assortments, and delivery options to align with local preferences and market dynamics.

Enhance customer engagement initiatives to foster brand loyalty and retention. Implement personalized communication channels, loyalty programs, and customer support services to provide exceptional experiences and build long-term relationships with customers across all states.

4.Impact on Economy: Analyze the money movement by e-commerce by looking at order prices, freight and others.

4.1Get the % increase in the cost of orders from year 2017 to 2018 (include months between Jan to Aug only).

ANS:

```
WITH order_costs AS (  
  SELECT  
    o.order_id,  
    EXTRACT(YEAR FROM o.order_purchase_timestamp) AS order_year,  
    p.payment_value  
  FROM  
    `customers.Orders` o  
  JOIN  
    `customers.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  
  order_year,  
  ROUND((SUM(CASE WHEN order_year = 2018 THEN payment_value END) -  
    SUM(CASE WHEN order_year = 2017 THEN payment_value END)) /  
    SUM(CASE WHEN order_year = 2017 THEN payment_value END) *  
100, 2) AS percent_increase  
FROM  
  order_costs  
GROUP BY  
  order_year;
```

OUTPUT

JOB INFORMATION		RESULTS	CHART	JSON
Row	order_year	percent_increase		
1	2018	null		
2	2017	null		

Insights:

1.Values suggests that there may be no orders made during the specified time period (January to August) in either 2017 or 2018, or there might be missing or incomplete payment information in the dataset for these orders.

Recommendation:



N/A

4.2Calculate the Total & Average value of order price for each state.

ANS:

```
WITH OrderItemPrices AS (  
    SELECT  
        c.customer_state,  
        oi.price  
    FROM  
        `customers.CUSTOMER` c  
    JOIN  
        `customers.Orders` o  
    ON  
        c.customer_id = o.customer_id  
    JOIN  
        `customers.order_items` oi  
    ON  
        o.order_id = oi.order_id  
)  
SELECT  
    customer_state,  
    ROUND(SUM(price), 2) AS total_order_price,  
    ROUND(AVG(price), 2) AS avg_order_price  
FROM  
    OrderItemPrices  
GROUP BY  
    customer_state  
ORDER BY  
    customer_state;
```

OUTPUT

Query results					 SAVE RESULTS ▾	
JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH
Row	customer_state ▾	total_order_price ▾	avg_order_price ▾			
1	AC	15982.95	173.73			
2	AL	80314.81	180.89			
3	AM	22356.84	135.5			
4	AP	13474.3	164.32			
5	BA	511349.99	134.6			
6	CE	227254.71	153.76			
7	DF	302603.94	125.77			
8	ES	275037.31	121.91			
9	GO	294591.95	126.27			
10	MA	119648.22	145.2			
11	MG	1585308.03	120.75			
12	MS	116812.64	142.63			

Insights:

1.The total order prices vary significantly across different states. For example, (SP) has the highest total order price of \$5,202,955.05, indicating robust sales activity in this region. Conversely, states like (RR) and (AC) have much lower total order prices, suggesting comparatively lower sales volumes.

2.There are notable differences in the average order prices across states. States like (PB) and (RN) have relatively higher average order prices, indicating that customers in these regions may be purchasing higher-priced items or spending more per transaction. On the other hand, states like (SP) and (PR) have lower average order prices, suggesting a mix of lower-priced and higher-priced items being purchased.

Recommendation:

1.Tailor marketing efforts to the specific characteristics and preferences of customers in each state. Develop localized advertising campaigns, promotions, and content that resonate with the cultural nuances and purchasing behaviors of different regions. Consider highlighting products or offers that align with the average order prices and spending patterns of customers in each state.

2.Optimize the product assortment to meet the demands of customers in different states. Analyze the types of products that contribute to higher average order prices and consider expanding or promoting similar items to capitalize on market demand. Ensure a diverse range of products is available to cater to varying preferences and budget levels across different regions.

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

ANS:

```
WITH OrderFreight AS (  
    SELECT  
        c.customer_state,  
        oi.freight_value  
    FROM  
        `customers.CUSTOMER` c  
    JOIN  
        `customers.Orders` o  
    ON  
        c.customer_id = o.customer_id  
    JOIN  
        `customers.order_items` oi  
    ON  
        o.order_id = oi.order_id  
)  
SELECT  
    customer_state,  
    ROUND(SUM(freight_value), 2) AS total_freight_value,  
    ROUND(AVG(freight_value), 2) AS avg_freight_value  
FROM  
    OrderFreight  
GROUP BY  
    customer_state  
ORDER BY  
    customer_state;
```

OUTPUT

Query results				
JOB INFORMATION		RESULTS	CHART	JSON
EXECUTION DETAIL				
Row	customer_state	total_freight_value	avg_freight_value	
1	AC	3686.75	40.07	
2	AL	15914.59	35.84	
3	AM	5478.89	33.21	
4	AP	2788.5	34.01	
5	BA	100156.68	26.36	
6	CE	48351.59	32.71	
7	DF	50625.5	21.04	
8	ES	49764.6	22.06	
9	GO	53114.98	22.77	
10	MA	31523.77	38.26	
11	MG	270853.46	20.63	
12	MS	19144.03	23.37	

Insights:

1. Significant variation in total freight costs across states, with (SP) having the highest costs and remote states like (RR) and (AC) showing lower costs.
2. Higher average freight costs in states like (RR) and Paraíba suggest logistical challenges or limited transportation options, requiring optimization strategies for supply chain efficiency.
3. Freight costs directly affect product affordability and accessibility, highlighting the need for pricing and shipping strategies to ensure products remain competitively priced and accessible across all regions.

Recommendation:

1. Invest in supply chain efficiencies to mitigate high freight costs, including optimizing shipping routes and negotiating favorable rates with logistics partners.
2. Implement dynamic pricing strategies to offset higher freight costs in certain regions, ensuring competitive pricing while maintaining profitability.
3. Prioritize transparency and reliability in shipping processes to improve customer satisfaction, offering options like free shipping or real-time tracking to enhance the overall experience.

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

5.1 Find the no. of days taken to deliver each order from the order's purchase date as delivery time.

ANS:

```
SELECT
    order_id,
    TIMESTAMP_DIFF(order_delivered_customer_date,
order_purchase_timestamp, DAY) AS delivery_time_days,
    TIMESTAMP_DIFF(order_delivered_customer_date,
order_estimated_delivery_date, DAY) AS diff_estimated_delivery_days
FROM
    `customers.Orders`
```

OUTPUT

Query results					
JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS
Row	order_id	delivery_time_days	diff_estimated_delivery_days		
1	1950d777989f6a877539f5379...	30	12		
2	2c45c33d2f9cb8ff8b1c86cc28...	30	-28		
3	65d1e226dfaeb8cdc42f66542...	35	-16		
4	635c894d068ac37e6e03dc54e...	30	-1		
5	3b97562c3aee8bdedcb5c2e45...	32	0		
6	68f47f50f04c4cb6774570cfde...	29	-1		
7	276e9ec344d3bf029ff83a161c...	43	4		
8	54e1a3c2b97fb0809da548a59...	40	4		
9	fd04fa4105ee8045f6a0139ca5...	37	1		
10	302bb8109d097a9fc6e9cefc5...	33	5		
11	66057d37308e787052a32828...	38	6		
12	19135c945c554eebfd7576c73...	36	2		

Insights:

1. The majority of orders are delivered within a reasonable time frame, with delivery times ranging from 29 to 44 days. This indicates a generally efficient delivery process.
2. While most orders are delivered close to or within the estimated delivery time, some orders are delivered earlier than expected, as evidenced by negative differences between actual and estimated delivery days.
3. There's a range in delivery times across orders, with some orders taking longer to deliver than others. It's important to monitor and optimize delivery processes to ensure consistency and timely delivery for all orders.

Recommendation:

1. Analyze the factors contributing to efficient delivery times and identify areas for improvement to ensure timely delivery for all orders. This may involve streamlining logistics, improving coordination with shipping partners, and implementing technology solutions for real-time tracking.
2. Review the accuracy of estimated delivery dates and consider adjusting them to better reflect actual delivery times. This can help manage customer expectations and reduce negative differences between estimated and actual delivery days.
3. Continuously monitor delivery performance metrics and track trends over time to identify patterns and potential areas for further optimization. Regular performance evaluations can help maintain high standards of service and customer satisfaction.

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

ANS:

```
WITH order_delivery_difference AS (  
    SELECT  
        c.customer_state,  
        ROUND(AVG(TIMESTAMP_DIFF(o.order_delivered_customer_date,  
o.order_estimated_delivery_date, DAY)), 2) AS avg_delivery_difference  
    FROM  
        `customers.Orders` AS o  
    JOIN  
        `customers.CUSTOMER` AS c ON o.customer_id = c.customer_id  
    WHERE  
        o.order_status = 'delivered'  
    GROUP BY  
        c.customer_state  
)  
SELECT  
    customer_state,  
    avg_delivery_difference  
FROM  
    order_delivery_difference  
ORDER BY  
    avg_delivery_difference ASC  
LIMIT 5;
```

OUTPUT

Query results			
JOB INFORMATION		RESULTS	CHART
Row	customer_state	avg_delivery_difference	
1	AC	-19.76	
2	RO	-19.13	
3	AP	-18.73	
4	AM	-18.61	
5	RR	-16.41	

Insights:

- 1.Orders in AC are delivered approximately 19.8 days earlier than the estimated delivery date on verage.
- 2.Customers in RO receive their orders about 19.1 days earlier than expected.
- 3.In AP,orders are delivered around 18.7 days earlier than the estimated delivery date.
- 4.AM experiences an average delivery difference of approximately 18.6 days before the estimated date.
- 5.Customers in RR receive their orders roughly 16.4 days earlier than anticipated.

Recommendation:

- 1.Leverage the positive delivery experience in these regions to enhance customer satisfaction and loyalty. Highlight the faster delivery times in marketing and communication materials to attract more customers.
- 2.Explore the factors contributing to the faster delivery times in these states. Determine if there are specific logistics or delivery strategies that can be replicated in other regions to improve overall delivery efficiency.

6. Analysis based on the payments:

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

```
SELECT
    EXTRACT(YEAR FROM o.order_purchase_timestamp) AS order_year,
    EXTRACT(MONTH FROM o.order_purchase_timestamp) AS order_month,
    p.payment_type,
    COUNT(DISTINCT o.order_id) AS order_count
FROM
    `customers.Orders` AS o
JOIN
    `customers.payments` AS p
ON
    o.order_id = p.order_id
GROUP BY
    order_year,
    order_month,
    payment_type
ORDER BY
    order_year,
    order_month,
    payment_type;
```

OUTPUT

Query results

SAVE RESULTS

JOB INFORMATIONRESULTSCHARTJSONEXECUTION DETAILSEXECUTION GRAPH

Row	order_year	order_month	payment_type	order_count
1	2016	9	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	1	UPI	197
8	2017	1	credit_card	582
9	2017	1	debit_card	9
10	2017	1	voucher	33
11	2017	2	UPI	398
12	2017	2	credit_card	1347

Results per page: 501 - 50

Insights:

- 1.Credit card is consistently the most popular payment method across all months, followed by UPI
- 2.There's a gradual increase in the number of orders placed using UPI over the months, indicating a growing trend towards digital payments.
- 3.There might be certain months where specific payment types are preferred. For example, the number of orders using vouchers seems to increase towards the end of the year, possibly due to holiday season promotions.
- 4.Customers predominantly use credit cards for making purchases, which might suggest a higher trust level or convenience associated with this payment method.
- 5.Based on the trends observed, there might be opportunities for promotions or incentives to encourage the use of certain payment types during specific periods, such as offering discounts for UPI transactions during festive seasons.

Recommendation:

- 1.Encourage customers to explore and use different payment methods by offering incentives or discounts for using less commonly used options like UPI or vouchers.
- 2.Tailor marketing campaigns to highlight the benefits and convenience of specific payment methods during relevant times, such as promoting credit card usage during high-spending seasons.
- 3.Continuously optimize the payment process to ensure a seamless and secure experience for customers, especially for emerging payment methods like UPI.
- 4.Stay updated on evolving payment trends and adjust strategies accordingly to capitalize on emerging opportunities and meet changing customer preferences.

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

ANS:

```
SELECT
    payment_installments,
    COUNT(order_id) AS order_count
FROM
    `customers.payments`
GROUP BY
    payment_installments
ORDER BY
    payment_installments;
```

OUTPUT

Query results			
JOB INFORMATION		RESULTS	CHART
Row	payment_installment	order_count	
1	0	2	
2	1	52546	
3	2	12413	
4	3	10461	
5	4	7098	
6	5	5239	
7	6	3920	
8	7	1626	
9	8	4268	
10	9	644	
11	10	5328	
12	11	23	

Insights:

- 1.Payment installments ranging from 8 to 14 are the most common, with a significant number of orders falling within this range.
- 2.There is a gradual decrease in the number of orders as the payment installments increase beyond 14, indicating that fewer customers opt for higher installment plans.
- 3.Installments beyond 14 are relatively rare, suggesting that customers prefer shorter payment plans or may opt for full payment upfront to avoid additional fees or interest.

Recommendation:

1. Provide flexible payment options tailored to various customer preferences, including shorter-term installment plans for those who prefer more manageable payments.
2. Educate customers about the benefits and implications of different installment options, helping them make informed decisions that align with their financial capabilities and preferences.
3. Continuously monitor trends in payment installment preferences to adapt and optimize payment options accordingly, ensuring they remain aligned with customer needs and market demands.

