**CASE 4: PAYMENT ANALYSIS**

**Question 1:**

When making payments, in which region do users with a higher number of installments mostly live? Please interpret this output.

**Query**:

SELECT payment\_installments,

COUNT (DISTINCT o.customer\_id) AS total\_customer,

customer\_city

FROM payments AS p

JOIN orders AS o ON p.order\_id=o.order\_id

JOIN customers AS c ON c.customer\_id=o.customer\_id

GROUP BY 1,3

ORDER BY 1 DESC;

|  |  |  |
| --- | --- | --- |
| **Payment Installments** | **Total Customer** | **Customer Cities** |
| 24 | 1 | assai |
| 24 | 1 | bage |
| 24 | 1 | barra mansa |
| 24 | 1 | brasilia |
| 24 | 1 | campina grande |
| 24 | 1 | dores de campos |
| 24 | 1 | guaruja |
| 24 | 1 | iguatu |
| 24 | 1 | jaguariuna |

**Comment:** Since the number of customers in the most installment-based cities is only 1, we can examine the shipping costs of these customers and set installment limitations based on the order numbers. Alternatively, sales can be made to certain cities close to these areas. Additionally, instead of using credit cards, which allow for many installments, we can organize campaigns to increase the use of voucher (coupon) and debit card payment methods.

**Question 2:**

Calculate the number of successful orders and the total successful payment amount based on the payment type. Sort them from the most used payment type to the least used.

**Query:**

SELECT payment\_type,

o.order\_status,

COUNT (DISTINCT o.order\_id) AS total\_order,

ROUND (SUM (p.payment\_value)) AS total\_payment

FROM payments AS p

JOIN orders AS o ON p.order\_id=o.order\_id

WHERE o.order\_status != 'canceled' AND o.order\_status != 'unavailable'

GROUP BY 1,2

ORDER BY 4 DESC;

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Payment Type** | **Order Status** | | **Total Order** | | **Total Payment** |
| credit\_card | delivered | 74304 | | 12101095 | |
| boleto | delivered | 19191 | | 2769933 | |
| voucher | delivered | 3679 | | 343013 | |
| debit\_card | delivered | 1485 | | 208421 | |
| credit\_card | shipped | 848 | | 146196 | |
| credit\_card | invoiced | 239 | | 51094 | |
| credit\_card | processing | 222 | | 50904 | |
| boleto | shipped | 209 | | 24228 | |
| boleto | processing | 70 | | 17136 | |
| boleto | invoiced | 67 | | 15331 | |
| voucher | shipped | 44 | | 4130 | |
| debit\_card | shipped | 22 | | 2661 | |
| voucher | invoiced | 11 | | 1727 | |
| voucher | processing | 11 | | 1005 | |
| debit\_card | invoiced | 6 | | 986 | |
| credit\_card | created | 3 | | 513 | |
| debit\_card | processing | 2 | | 350 | |
| credit\_card | approved | 2 | | 241 | |
| boleto | created | 2 | | 175 | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Payment Type** |  | **Total Order** |  | **Total Payment** |  |
| credit\_card |  | 75618 |  | 12350043 |  |
| boleto |  | 19539 |  | 2826803 |  |
| voucher |  | 3745 |  | 349875 |  |
| debit\_card |  | 1515 |  | 212418 |  |

**Comment:** The most preferred payment type is credit card while the least payment type is debit card. We can organize campaigns and loyalty programs to increase the use of the least preferred payment types.

**Question 3:**

Analyze the orders paid in a single installment and through installments by category. In which categories is installment payment most commonly used?

**Query:**

SELECT product\_category\_name,

COUNT (DISTINCT CASE WHEN payment\_installments = 1 THEN oi.order\_id END) AS single\_payment\_orders,

COUNT (DISTINCT CASE WHEN payment\_installments > 1 THEN oi.order\_id END) AS installment\_payment\_orders,

COUNT (DISTINCT oi.order\_id) AS total\_orders,

ROUND (COUNT (DISTINCT CASE WHEN payment\_installments > 1 THEN oi.order\_id END) \* 100.0 / COUNT(DISTINCT oi.order\_id),2) AS installment\_percentage

FROM order\_items AS oi

JOIN products AS p ON p.product\_id = oi.product\_id

JOIN payments AS pa ON pa.order\_id = oi.order\_id

WHERE product\_category\_name IS NOT NULL

GROUP BY 1

ORDER BY 3 DESC;

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **TOP 10 ORDERS’ INSTALLMENT PERCENTAGE** | | | | | |
| **Product category name** | **Single pay orders** | **Installment pay\_orders** | | **Total orders** | **Installment**  **percentage** |
| cama\_mesa\_banho | 3535 | 5965 | 9417 | | 63.34 |
| beleza\_saude | 3880 | 5006 | 8835 | | 56.66 |
| esporte\_lazer | 4299 | 3480 | 7720 | | 45.08 |
| informatica\_acessorio | 4177 | 2562 | 6689 | | 38.30 |
| moveis\_decoracao | 3152 | 3353 | 6449 | | 51.99 |
| utilidades\_domesticas | 2732 | 3197 | 5884 | | 54.33 |
| relogios\_presentes | 1890 | 3794 | 5624 | | 67.46 |
| telefonia | 2552 | 1680 | 4199 | | 40.01 |
| automotivo | 2041 | 1882 | 3897 | | 48.29 |
| brinquedos | 1902 | 2008 | 3886 | | 51.67 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **BOTTOM 10 ORDERS' INSTALLMENT PERCENTAGE** | | | | | | | |
| **Product category name** | **Single pay orders** | | **Installment pay orders** | **Total orders** | **Installment**  **percentage** | | |
| seguros\_e\_servicos | | 2 0 2 | | |  |  | 0 |
| fashion\_roupa\_infanto | | 6 2 8 | | |  |  | 25.00 |
| pc\_gamer | | 5 4 8 | | |  |  | 50.00 |
| cds\_dvds\_musicais | | 7 5 12 | | |  |  | 41.67 |
| la\_cuisine | | 4 10 13 | | |  |  | 76.92 |
| portateis\_cozinha | | 10 4 14 | | |  |  | 28.57 |
| artes\_e\_artesanato | | 18 5 23 | | |  |  | 21.74 |
| casa\_conforto\_2 | | 18 6 24 | | |  |  | 25.00 |
| fashion\_esporte | | 13 14 27 | | |  |  | 51.85 |
| fraldas\_higiene | | 15 12 27 | | |  |  | 44.44 |

**Comment:**  In the Top 10 table, the lowest installment rate is for electronic goods, which suggests that there might be a limit on installments for these products. On the other hand, the highest installment rate is for gift watches, indicating that there may be a greater need for installments on higher-priced items.

In the Bottom 10 table, the most noticeable high rate is in the kitchen products category. Since the order numbers are low in this category, there might be a limit on installments for it.