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21 Analytics KPIs for eCommerce.

Understanding and Measuring Key Performance Indicators for Olist's eCommerce operations.

Adithia V
ADITHIA.AD73@GMAIL.COM

Analytics KPI -01: Percentage Distribution of Customers in Each State.

The Percentage Distribution of Customers in Each State (KPI) measures the proportion of customers residing in each state relative to the total customer base. It provides insights into the geographic distribution of customers within a dataset or business context, highlighting regions with higher and lower customer concentrations. This KPI is useful for understanding regional customer demographics, targeting marketing efforts effectively, and optimizing logistics and customer service strategies based on geographical demand.

```
2 •  SELECT
3        customer_state,
4        CONCAT(ROUND(COUNT(*) * 100.0 / (SELECT COUNT(*) FROM olist_customers_dataset), 2), ' %') AS percentage
5    FROM
6        olist_customers_dataset
7    GROUP BY
8        customer_state
9    order by
10       COUNT(*) desc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_state	percentage
SP	41.98 %
RJ	12.92 %
MG	11.70 %
RS	5.50 %
PR	5.07 %
SC	3.66 %
BA	3.40 %
DF	2.15 %
ES	2.04 %
GO	2.03 %
PE	1.66 %
CE	1.34 %
PA	0.98 %
MT	0.91 %
MA	0.75 %
MS	0.72 %
PB	0.54 %
PI	0.50 %
RN	0.49 %
AL	0.42 %

São Paulo (SP) has the highest percentage at nearly 42%, followed by Rio de Janeiro (RJ) and Minas Gerais (MG), while states like Roraima (RR) and Amapá (AP) have the lowest percentages, each below 0.1%.

This distribution highlights the significant concentration of customers in a few key states, particularly in the southeastern region of Brazil, with São Paulo leading by a large margin.

Analytics KPI - 02: Order Rate per date

Order Rate Per Date is a (KPI) used to measure the efficiency and effectiveness of order processing within a specific timeframe. This metric is critical for understanding customer demand patterns, operational performance, and overall business health.

```sql
SELECT
    DATE(order_purchase_timestamp) AS order_date,
    COUNT(order_id) AS order_count,
    CONCAT(ROUND(COUNT(order_id) * 100.0 / (SELECT COUNT(*) FROM olist_orders_dataset), 2), ' %') AS order_rate_percentage
FROM
    olist_orders_dataset
GROUP BY
    DATE(order_purchase_timestamp)
ORDER BY
    order_rate_percentage desc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

order_date	order_count	order_rate_percentage
2017-11-24	1176	1.18 %
2017-11-25	499	0.50 %
2017-11-27	403	0.41 %
2017-11-26	391	0.39 %
2017-11-28	380	0.38 %
2018-05-07	372	0.37 %
2018-05-14	364	0.37 %
2018-08-06	372	0.37 %
2018-08-07	370	0.37 %
2018-05-16	357	0.36 %
2018-05-15	352	0.35 %
2018-05-09	344	0.35 %
2017-12-04	337	0.34 %
2018-05-08	331	0.33 %

The highest number of orders was placed on 2017-11-24 with 1176 transactions, which accounted for 1.18% of the total orders in the dataset.

The top 5 order rates per date occurred between November 24, 2017, and November 28, 2017. This suggests that a significant event or promotion may have occurred during that time frame.

Analytics KPI - 03: Cancellation Rate.

Cancellation Rate is a (KPI) that measures the percentage of orders that were canceled compared to the total number of orders in a specific time frame.

```
70  SELECT
71      date(order_purchase_timestamp) as order_date,
72      CONCAT(COUNT(order_id) * 100.0 / (SELECT COUNT(*) FROM olist_orders_dataset), ' %') AS cancellation_rate
73  FROM
74      olist_orders_dataset
75  WHERE
76      order_status = 'canceled'
77  GROUP BY
78      order_date
79  order by
80      cancellation_rate desc;
81
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

order_date	cancellation_rate
2018-08-07	0.00905 %
2018-08-09	0.00603 %
2018-01-30	0.00603 %
2016-10-04	0.00503 %
2018-02-15	0.00503 %
2018-08-28	0.00503 %
2018-02-05	0.00503 %
2018-08-15	0.00503 %
2018-08-13	0.00503 %
2018-08-20	0.00402 %
2017-03-21	0.00402 %
2018-07-29	0.00402 %
2017-11-14	0.00402 %
2018-02-01	0.00402 %
2018-03-05	0.00402 %

The cancellation rates for most dates are very low, except for August 07, 2018 (0.00905%). The consistently low cancellation rates indicate effective order management and high levels of customer satisfaction.

Analytics KPI - 04: Delivery Rate.

Delivery Rate is a (KPI) measures the percentage of orders that are successfully delivered to customers within a specified time frame.

```
92 •  SELECT
93        date(order_purchase_timestamp) as order_date,
94        CONCAT(ROUND(COUNT(order_id) * 100.0 / (SELECT COUNT(*) FROM olist_orders_dataset), 2), ' %') AS delivery_rate
95    FROM
96        olist_orders_dataset
97    WHERE
98        order_status = 'delivered'
99    GROUP BY
100       order_date
101   order by
102       delivery_rate desc;
103
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

order_date	delivery_rate
2017-11-24	1.15 %
2017-11-25	0.49 %
2017-11-27	0.40 %
2017-11-26	0.38 %
2017-11-28	0.37 %
2018-05-07	0.37 %
2018-08-06	0.37 %
2018-05-14	0.36 %
2018-05-16	0.35 %
2018-05-15	0.35 %
2018-08-07	0.35 %
2018-05-09	0.34 %
2017-12-04	0.32 %
2017-11-29	0.32 %
2018-05-08	0.32 %

Between November 24, 2017, and November 28, 2017, when the number of orders per date was at its peak, the delivery rate was also at its peak.

Analytics KPI – 05: Average Delivery Time.

The Average Delivery Time (KPI) measures the average time it takes for orders to be delivered to customers after they are ordered. It is a critical metric for assessing operational efficiency and customer satisfaction in e-commerce and retail businesses.

```
124 •  SELECT date(order_purchase_timestamp) as order_date,
125        AVG(DATEDIFF(order_delivered_customer_date, order_purchase_timestamp)) AS average_delivery_time
126    FROM
127        olist_orders_dataset
128    WHERE
129        order_delivered_customer_date IS NOT NULL
130    group by
131    order_date
132    order by
133     average_delivery_time DESC;
134
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

order_date	average_delivery_time
2016-09-15	55.0000
2016-10-03	26.6250
2016-10-04	25.8148
2017-01-12	24.5000
2017-01-07	24.2500
2017-01-09	23.6000
2018-02-24	21.2447
2016-10-06	20.9024
2016-10-05	20.2286
2018-03-02	19.9771
2018-02-26	19.5241
2018-03-03	19.3902
2017-11-25	19.2895
2016-10-10	19.1765
2018-03-10	19.0703
2018-02-23	19.0302
2018-03-04	19.0219

The average delivery time on September 15, 2016(55), was significantly higher than the average delivery time for the second highest on October 03, 2016(27).

Among the top 10 dates with high average delivery time, the average delivery time for 4 dates falls within the first week of October 2016.

Analytics KPI – 06: Total Order Value based on order date.

The Total Order Value (KPI) measures the sum of monetary value generated from all orders processed within a specified time frame.

```
143 •  SELECT
144    date(order_purchase_timestamp) as order_date,
145    round(sum((price)),2) AS total_order_value
146    FROM
147    olist_order_items_dataset as tb1
148    left join olist_orders_dataset as tb2
149    on tb1.order_id=tb2.order_id
150    group by
151    order_date
152    order by
153    total_order_value desc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

order_date	total_order_value
2017-11-24	152653.74
2017-11-25	60923.48
2018-08-06	56427.39
2018-05-16	56283.73
2018-05-07	54167.48
2018-05-14	53842.38
2018-05-10	51458.67
2018-06-11	49669.7
2018-04-09	49308.73
2018-08-07	49178.98
2017-11-27	47923.66
2017-11-28	47886.55
2018-05-08	47800.69
2017-12-04	47348.52
2018-08-15	45574.04

The highest Total Order Value is 152,653.74 on November 24, 2017, and the lowest Total Order Value is 9,152.35 on August 22, 2017.

Analytics KPI – 07 Items Per Order.

The Items Per Order (KPI) measures the number of items a customer purchases per order. It is a useful metric for understanding customer buying behavior and can provide insights into sales strategies, product bundling, and inventory management.

```
76 •  SELECT
77        date(order_purchase_timestamp) as order_date, avg(item_count) AS avg_items_per_order
78    FROM
79        olist_orders_dataset as tb1
80    left join
81        (SELECT order_id, COUNT(order_item_id) AS item_count
82        From
83          olist_order_items_dataset
84        GROUP BY
85        order_id) tb2 on tb1.order_id=tb2.order_id
86    GROUP BY
87        order_date
88    ORDER BY
89    order_date asc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

order_date	avg_items_per_order
2016-09-04	2.0000
2016-09-05	1.0000
2016-09-13	NULL
2016-09-15	3.0000
2016-10-02	1.0000
2016-10-03	1.0000
2016-10-04	1.1500
2016-10-05	1.3333
2016-10-06	1.1837
2016-10-07	1.1556
2016-10-08	1.1250
2016-10-09	1.3077
2016-10-10	1.0811
2016-10-22	NULL
2016-12-23	1.0000
2017-01-05	1.0000
2017-01-06	1.0000
2017-01-07	1.2500
2017-01-08	1.0000
2017-01-09	1.2000
2017-01-10	1.0000
2017-01-11	1.0000
2017-01-12	1.1538
2017-01-13	1.0000
2017-01-14	1.0000
2017-01-15	1.5000

There is a general increasing trend in the average items per order from mid-September to mid-October.

The mean average items per order is approximately 1.50.

Analytics KPI – 08 Average Product Price per order.

The Average Product Price Per Order (KPI) measures the average price of products purchased in a single order. This KPI is valuable for understanding the average value of items customers are buying.

```
92 •  SELECT
93     tb2.order_id,
94     round(avg(price),2) AS average_product_price,date(order_purchase_timestamp) as order_date
95     FROM
96     olist_order_items_dataset as tb1
97     left join olist_orders_dataset as tb2
98     on tb1.order_id=tb2.order_id
99     group by
100    tb2.order_id
101    order by
102    order date asc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

order_id	average_product_price	order_date
0812eb902a67711a1cb742b3cdaa65ae	6735	2017-02-12
fefacc66af859508bf1a7934eab1e97f	6729	2018-07-25
f5136e38d1a14a4dbd87dff67da82701	6499	2017-05-24
a96610ab360d42a2e5335a3998b4718a	4799	2017-04-01
199af31afc78c699f0dbf71fb178d4d4	4690	2017-04-18
8dbc85d1447242f3b127dda390d56e19	4590	2018-06-22
426a9742b533fc6fed17d1fd6d143d7e	4399.87	2018-08-03
68101694e5c5dc7330c91e1bbc36214f	4099.99	2018-03-29
b239ca7cd485940b31882363b52e6674	4059	2018-07-29
86c4eab1571921a6a6e248ed312f5a5a	3999.9	2017-03-18
80dfedb6d17bf23539beeef3c768f4d7	3999	2017-04-18
9a3966c23190dbdbaabed08e8429c006	3980	2017-02-04
41b7766bb1df487d17fb9725b78ff509	3930	2018-05-14
9de73f3e6157169ad6c32b9f313c7dcb	3899	2018-06-05
d3f66901a6743e15f9311547cc623b91	3700	2018-03-21
e85c92ee6a3ba1ef47e41c23286314d9	3699.99	2017-02-10
a53e05ecd2ed1f46a2b8e1f5828be7c6	3690	2018-01-26
df85c824523500d4066a0dbdb5d95bed	3549	2017-02-21

The top 10 orders ranked by item count differ from the top 10 orders ranked by average price per order, which shows varying priorities in customer purchasing behavior and spending patterns.

In 2016, the average product price per order was the lowest compared to 2017 and 2018, indicating an increase in the average product price per order year by year.

Analytics KPI – 09 Highest Category Sales Value.

The highest category sales value (KPI) refers to the category that generates the most revenue or sales for a business. This KPI is crucial for understanding which segments of products are most successful in driving revenue. It helps businesses prioritize marketing efforts, inventory management, and overall business strategy.

```
189 •  SELECT
190    product_category_name, round(SUM(price)) AS total_sales
191    FROM
192    olist_order_items_dataset oi
193    JOIN
194    olist_products_dataset op ON oi.product_id = op.product_id
195    GROUP BY
196    product_category_name
197    ORDER BY
198    total_sales DESC;
199
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

product_category_name	total_sales
beleza_saude	1258681
relogios_presentes	1205006
cama_mesa_banho	1036989
esporte_lazer	988049
informatica_acessorios	911954
moveis_decoracao	729762
cool_stuff	635291
utilidades_domesticas	632249
automotivo	592720
ferramentas_jardim	485256
brinquedos	483947
bebes	411765
perfumaria	399125
telefonia	323668
moveis_escritorio	273961
papelaria	230943
pcs	222963
pet_shop	214315

Beleza e Saúde (Beauty and Health): This category has the highest sales value, indicating strong consumer demand in health and beauty products.
Relógios e Presentes (Watches and Gifts): Close behind the beauty category, suggesting popularity in accessories and gift items.
Cama, Mesa e Banho (Bed, Table, and Bath): Strong performance in household goods, essential for daily living.

Analytics KPI – 10 Average Freight Value Per Order.

The Average Freight Value Per Order (KPI) is a metric used to measure the average cost of shipping per order within an eCommerce business. It's calculated by dividing the total freight costs by the number of orders processed within a specific timeframe. This KPI is crucial for understanding shipping cost efficiency and its impact on overall profitability.

```
124 •  SELECT
125    date(order_purchase_timestamp) as order_date,
126    tb2.order_id,
127    AVG(freight_value) AS average_freight_value, avg(price) as avg_price
128    FROM
129    olist_order_items_dataset as tb1
130    left join olist_orders_dataset as tb2
131    on tb1.order_id=tb2.order_id
132    group by
133    tb2.order_id
134    order by
135    average_freight_value desc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

order_date	order_id	average_freight_value	avg_price
2018-04-16	a77e1550db865202c56b19ddc6dc4d53	409.68	979
2018-08-13	3fde74c28a3d5d618c00f26d51baafa0	375.28	2338.08
2018-07-30	076d1555fb53a89b0ef4d529e527a0f6	375.28	2338.08
2018-07-29	9f49bd16053df810384e793386312674	339.59	1149
2018-04-06	264a7e199467906c0727394df82d1a6a	338.3	1050
2018-07-13	c7a07ddd52bbe18b61da49a8d89853d3	322.1	1050
2018-05-16	0b6230647ed16f4b3e70282dc4b5b87f	321.88	1050
2018-05-07	0822bcde10bb5d023755a71bc8f7797f	321.46	990
2018-07-06	43bdbd9dc0931d72befdf4765af6c442	317.47	3089
2017-11-23	6ddfbf514959b49b6410c01ad93054bb	314.4	1045
2017-06-25	0e4672661531addf3fa0f55961e55242	314.02	990
2017-05-22	fe12e676fd493885d417a34bc3917411	312.41	760
2018-04-27	3dd5626c63f493f8b8f8788c2be24baa	306.06	2699
2018-07-02	cf4659487be50c0c317cff3564c4a840	299.16	175
2018-07-10	029c545413b10a6bd7540401f6eef0a3	294.76	1350
2018-03-15	973acb049a8228a556877e26fb30c06a	293.27	999.99

Highest average freight value for an order is 409.68.

There are popular orders with high average freight order values that have been ordered multiple times by customers, indicating their popularity. Reducing the freight value for these orders could increase overall profitability.

Analytics KPI – 11 Common Payment Type.

The Common Payment Type (KPI) typically refers to the most frequently used payment methods by customers in eCommerce transactions. Understanding the common payment types is crucial for optimizing checkout processes, ensuring customer convenience, and potentially reducing transaction costs.

```
224 •  SELECT
225        payment_type, COUNT(*) AS count
226    FROM
227        olist_order_payments_dataset
228    GROUP BY
229        payment_type
230    ORDER BY
231        count DESC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

payment_type	count
credit_card	76795
boleto	19784
voucher	5775
debit_card	1529
not_defined	3

Credit cards are the most used payment method, indicating a preference for convenience and possibly benefiting from installment payment options.

Boleto Bancário remains a significant payment method, especially in Brazil where it's popular due to its widespread acceptance and cash-based nature.

Analytics KPI – 12 Payment Value Per Order.

The Payment Value Per Order (KPI) measures the average amount of payment received per order in an eCommerce business. It provides insights into the average transaction value and helps assess the effectiveness of pricing strategies, product offerings, and customer purchasing behavior.

```sql
SELECT
    tb_1.order_id,
    SUM(tb_1.payment_value) AS total_payment_value,
    DATE(tb_2.order_purchase_timestamp) AS order_date
FROM
    olist_order_payments_dataset AS tb_1
INNER JOIN
    olist_orders_dataset AS tb_2
    ON tb_1.order_id = tb_2.order_id
GROUP BY
    tb_1.order_id
ORDER BY
    total_payment_value asc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

order_id	total_payment_value	order_date
c8c528189310eaa44a745b8d9d26908b	0	2018-08-28
00b1cb0320190ca0daa2c88b35206009	0	2018-08-28
4637ca194b6387e2d538dc89b124b0ee	0	2018-09-03
f1d5c2e6867fa93ceee9ef9b34a53cbf	9.59	2018-08-25
e8bbc1d69fee39eee4c72cb5c969e39d	10.07	2017-09-13
37193e64eb9a46b7f3197762f242b20a	10.89	2018-06-21
47d11383b93b217d96defbb2ef1a209b	11.56	2018-06-22
38bcb524e1c38c2c1b60600a80fc8999	11.62	2017-01-05
8bf12a5b441bd86a1edbccb6137c9b0b	11.63	2017-09-02
27eebc49f55d8e9b8192f11c2570d6f1	11.63	2017-10-29
c79bdf061e22288609201ec60deb42fb	12.22	2017-05-01
44a2fb6a4520b17de57affbab761dfcc	12.28	2017-05-27
97369eeb115806c27ee2054105eabe97	12.39	2018-05-31
767dd7bdeb5f5d8f1840145a3e898bc2	12.89	2018-05-23
7c2ee08449e6b8b55158e518778dbe83	12.89	2017-06-12

Four of the lowest total payment value orders were purchased within a 10-day period (2018-08-25 to 2018-09-03). There might have been seasonal sales, discounts, or promotions during that period, encouraging customers to make low-value purchases.

Analytics KPI – 13 Average Installment Payment Value.

The Average Installment Payment Value (KPI) measures the average value of installment payments made by customers per transaction. This metric is particularly useful in eCommerce businesses that offer installment payment options, allowing you to understand the typical installment payment size and manage credit risk effectively.

```
164 •  SELECT tb2.order_purchase_timestamp,customer_id ,tb2.order_id,tb4.product_category_name, AVG(payment_value / payment_installments) AS average_installment_value
165     FROM olist_order_payments_dataset as tb1
166     left join olist_orders_dataset as tb2 on tb1.order_id=tb2.order_id
167    left join  olist_order_items_dataset as tb3 on tb2.order_id=tb3.order_id
168    left join olist_products_dataset as tb4 on tb3.product_id=tb4.product_id
169    group by
170    tb2.order_id
171    order by
172    average_installment_value desc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

order_purchase_timestamp	customer_id	order_id	product_category_name	average_installment_value
2017-09-29 15:24:52	1617b1357756262bfa56ab541c47bc16	03caa2c082116e1d31e67e9ae3700499	telefonia_fixa	13664.08
2018-07-15 14:49:44	ec5b2ba62e574342386871631fafd3fc	736e1922ae60d0d6a89247b851902527	telefonia_fixa	7274.88
2018-07-25 18:10:17	f48d464a0baaea338cb25f816991ab1f	fefacc66af859508bf1a7934eab1e97f	pcs	6922.21
2017-05-24 18:14:34	3fd6777bbce08a352fddd04e4a7cc8f6	f5136e38d1a14a4dbd87dff67da82701	artes	6726.66
2017-11-24 11:03:35	05455dfa7cd02f13d132aa7a6a9729c6	2cc9089445046817a7539d90805e6e5a	agro_industria_e_comercio	6081.54
2018-05-31 22:57:07	cc803a2c412833101651d3f90ca7de24	d2f270487125ddc41fd134c4003ad1d7	relogios_presentes	4445.5
2018-07-29 08:39:48	e9b0d0eb3015ef1c9ce6cf5b9dcbee9f	b239ca7cd485940b31882363b52e6674	esporte_lazer	4163.51
2018-05-14 15:15:30	31e83c01fce824d0ff786fcd48dad009	41b7766bb1df487d17fb9725b78ff509	ferramentas_jardim	3979.55
2017-05-10 15:05:47	7d03bf20fa96e80468bbf678eebbcb3f	b15c7e972c74684414fb2e659fce916a	informatica_acessorios	3666.42
2017-02-21 18:35:38	39d6658037b1b5a07d0a24d423f0bd19	df85c824523500d4066a0dbdb5d95bed	pcs	3602.47
2018-07-06 11:07:02	3c7c62e8d38fb18a33a45db8021f2d69	43bdbd9dc0931d72befdf4765af6c442	industria_comercio_e_negocio	3406.47
2018-05-22 13:43:23	71901689c5f3e5adc27b1dd16b33f0b8	4412d97cb2093633afa85f11db46316c	informatica_acessorios	3195.73
2018-08-07 16:33:59	25dbbf0c477fd4ae0880aaffbb12e8b3	03310aa823a66056268a3bab36e827fb	NULL	3184.34
2018-08-17 20:06:36	040d94f8ba8ca26014bd6f7e8a6e0c0d	7813842ae95e8c497fc0233232ae815a	NULL	3184.34
2018-02-09 14:43:53	a95f4bbcf95262b073e4afa481b59ff8	31e50461be6957a749166e97af082d0a	construcao_ferramentas_segi	3155.82
2017-07-06 14:51:37	8dd4c93bfbebe2a77657d46ef959a7ac	52e6988a13f9dd7d567b0816dba52a03	informatica_acessorios	3041.73
2017-03-27 11:26:48	fd78e5e3abdc375368456fe738694c00	bd2fef198085db0b586b9c71aa2d35da	informatica_acessorios	3024.08

Highest average installment payment was $13,664, which was ordered on November 29,2017.

Top 2 average installment payment belong to Telefonia fixa (fixed-line telephony).

Most of the highest average installment payments were made by distinct customers, indicating unique customer behavior

Analytics KPI – 14 Distribution of Product Categories.

The Distribution of Product Categories KPI measures the sales performance across different product categories in an eCommerce business. It helps in understanding which categories contribute most to overall sales and can guide inventory management, marketing strategies, and business focus.

```
258 •  SELECT
259        product_category_name, COUNT(*) AS count
260    FROM
261        olist_products_dataset
262    GROUP BY
263        product_category_name
264    ORDER BY
265        count DESC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

product_category_name	count
cama_mesa_banho	3029
esporte_lazer	2867
moveis_decoracao	2657
beleza_saude	2444
utilidades_domesticas	2335
automotivo	1900
informatica_acessorios	1639
brinquedos	1411
relogios_presentes	1329
telefonia	1134
bebes	919
perfumaria	868
fashion_bolsas_e_aces...	849
papelaria	849
cool_stuff	789
ferramentas_jardim	753
pet_shop	719
	610
eletronicos	517
construcao_ferramenta...	400

Top 5 Popular Product Categories are Cama, Mesa e Banho (Bed, Table, and Bath): 3,029, Esporte e Lazer (Sports and Leisure): 2,867, Móveis e Decoração (Furniture and Decoration): 2,657, Beleza e Saúde (Beauty and Health): 2,444, Utilidades Domésticas (Household Utilities): 2,335

Analytics KPI – 15 Average Price of Products in Each Category.

The Average Price of Products in Each Category KPI in eCommerce refers to the mean price of products sold within specific product categories. It is a metric used to analyze pricing strategies, understand customer purchasing behavior, and assess market competitiveness within each category.

```
269 •  SELECT
270        product_category_name, round(AVG(price),2) AS average_price ,count(product_category_name) as count_product_category_ordered
271    FROM
272        olist_order_items_dataset tb1
273    JOIN
274        olist_products_dataset tb2 ON tb1.product_id = tb2.product_id
275    GROUP BY
276        product_category_name
277    order by
278        average_price desc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

product_category_name	average_price	count_product_category_ordered
pcs	1098.34	203
portateis_casa_forno_e_cafe	624.29	76
eletrodomesticos_2	476.12	238
agro_industria_e_comercio	342.12	212
instrumentos_musicais	281.62	680
eletroportateis	280.78	679
portateis_cozinha_e_preparadores_de_alimentos	264.57	15
telefonia_fixa	225.69	264
construcao_ferramentas_seguranca	208.99	194
relogios_presentes	201.14	5991
climatizacao	185.27	297
moveis_quarto	183.75	109
pc_gamer	171.77	9
cool_stuff	167.36	3796
moveis_cozinha_area_de_servico_jantar_e_jardim	164.87	281

PCS (Average Price: $1,098.34) and Portable Home Appliances and Coffee (Average Price: $624.29) have relatively high average prices.

Watches and Gifts (Relógios e Presentes) (Number of Orders: 5,991) stands out with a significantly high number of orders despite a moderate average price ($201.14). This indicates strong demand and popularity among customers, possibly due to seasonal trends or high gifting appeal.

Analytics KPI – 16 Highest Product Review Score.

The Highest Product Review Score (KPI) tracks the products with the highest average review score across all products sold on an eCommerce business. It typically involves calculating the average rating on a scale of 1 to 5 given by customers who have purchased and reviewed the product.

```
281  select ftb.product_id,max(ftb.review_score) as highest_review_score,
282  min(ftb.review_score) as minimum_review_score,avg(ftb.review_score) as avg_review_score
283  from(
284  SELECT tb1.order_id,tb2.order_item_id,tb2.product_id,tb1.review_score
285  FROM olist_order_reviews_dataset as tb1
286  left join olist_order_items_dataset as tb2
287  on tb1.order_id=tb2.order_id
288  left join olist_products_dataset as tb3
289  on tb2.product_id=tb3.product_id
290  ) as ftb
291  group by 1;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

product_id	highest_review_score	minimum_review_score	avg_review_score
bbaef2eadf31fe3ea6702077398be06c	5	1	3.8030
09c3a2ea33f044aebffecd6681e00133	5	1	3.8571
37d2e3656244fd840ebd0460360455cd	5	3	4.2000
2efbce46d36d9af306d4300db163b276	3	3	3.0000
11dc4053871ff53ff79fb1fc7e6b160f	5	3	4.4444
e9eebb8e8ba0fadb9020f8ba1c003b48	5	3	4.6000
656e0eca68dcecf6a31b8ececfabe3e8	5	1	3.9716
2d27434c710806b971a721da337a112a	5	1	2.9000
d696750e550fd0f733979dd7e5dff921	5	1	4.5263
33b67c1594a903b27b5163c0efb15a5d	5	5	5.0000
a93ad122024312ca432da7f7b32474b4	5	3	4.0000
ce87eb0f80420c505b53adef21bf93d6	5	4	4.7500
6722735e7b6ea43bbd86b1c9074c3057	4	4	4.0000
c6336fa91fbd87c359e44f5dca5a90ed	5	1	4.0109
93c902b021a9e594f658ab1b0351602a	5	1	3.8732
7c1bd920dbdf22470b68bde975dd3ccf	5	1	3.8766

Products with high review scores indicate customer satisfaction and build trust among potential buyers.

Analytics KPI – 17 Delivery Performance.

The Delivery Performance (KPI) measures the efficiency and reliability of the delivery process in an eCommerce business. It tracks key metrics related to order fulfillment and delivery times to ensure that customers receive their orders within the estimated timeframe.

```
298 •  SELECT
299        order_id, order_estimated_delivery_date,order_delivered_customer_date,
300        DATEDIFF(order_delivered_customer_date, order_estimated_delivery_date) AS delivery_performance
301    FROM
302        olist_orders_dataset
303    WHERE
304        order_delivered_customer_date IS NOT NULL
305    order by 4 desc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

order_id	order_estimated_delivery_date	order_delivered_customer_date	delivery_performance
1b3190b2dfa9d789e1f14c05b647a14a	2018-03-15 00:00:00	2018-09-19 23:24:07	188
ca07593549f1816d26a572e06dc1eab6	2017-03-22 00:00:00	2017-09-19 14:36:39	181
47b40429ed8cce3aee9199792275433f	2018-01-19 00:00:00	2018-07-13 20:51:31	175
2fe324febf907e3ea3f2aa9650869fa5	2017-04-05 00:00:00	2017-09-19 17:00:07	167
285ab9426d6982034523a855f55a885e	2017-04-06 00:00:00	2017-09-19 14:00:04	166
440d0d17af552815d15a9e41abe49359	2017-04-07 00:00:00	2017-09-19 15:12:50	165
c27815f7e3dd0b926b58552628481575	2017-04-10 00:00:00	2017-09-19 17:14:25	162
0f4519c5f1c541ddec9f21b3bddd533a	2017-04-11 00:00:00	2017-09-19 14:38:21	161
d24e8541128cea179a11a65176e0a96f	2017-06-26 00:00:00	2017-12-04 18:36:29	161
2d7561026d542c8dbd8f0daeadf67a43	2017-04-13 00:00:00	2017-09-19 14:38:18	159
2fb597c2f772eca01b1f5c561bf6cc7b	2017-04-17 00:00:00	2017-09-19 14:33:17	155
6e82dcfb5eada6283dba34f164e636f5	2017-06-14 00:00:00	2017-11-16 10:56:45	155
ed8e9faf1b75f43ee027103957135663	2017-12-19 00:00:00	2018-05-21 18:22:18	153
dfe5f68118c2576143240b8d78e5940a	2017-04-19 00:00:00	2017-09-19 18:13:19	153
2ba1366baecad3c3536f27546d129017	2017-03-29 00:00:00	2017-08-28 16:23:46	152
437222e3fd1b07396f1d9ba8c15fba59	2017-04-28 00:00:00	2017-09-19 16:28:58	144
6e6527028de694ccade37f5a15a6d84a	2017-12-18 00:00:00	2018-05-10 00:06:20	143
a452fba32eab28a4a62af18eed010c0b	2017-05-04 00:00:00	2017-09-19 13:47:09	138
3566eabb132f8d64741ae7b921bbd10e	2017-05-05 00:00:00	2017-09-19 15:07:09	137
525e11b26fdb7f41471d289897d0f6da	2017-05-08 00:00:00	2017-09-19 14:58:10	134
4fbc8d6f2f4db3e789d5a876fa349b56	2018-03-08 00:00:00	2018-07-20 23:37:50	134
df6d8b7768a047c2981bae0a24afbb01	2017-05-10 00:00:00	2017-09-19 15:08:19	132

The data reveals significant issues with delivery performance, as 66 orders took more than 80 days beyond their estimated delivery time to be delivered.

Above 180 Days: 3 orders,150 to 180 Days: 11 orders, 100 to 150 Days: 31 orders, 80 to 100 Days: 21 orders

Analytics KPI – 18 Relationship Between Product Categories and Payment Methods.

The Relationship Between Product Categories and Payment Methods (KPI) measures the correlation between different product categories and the payment methods used by customers. This helps to identify patterns and preferences in payment methods for various product categories, providing insights for optimizing payment options and marketing strategies.

```
310 •  SELECT
311        product_category_name, payment_type, COUNT(*) AS count
312    FROM
313        olist_order_items_dataset oi
314    JOIN
315        olist_products_dataset op ON oi.product_id = op.product_id
316    JOIN
317        olist_order_payments_dataset opay ON oi.order_id = opay.order_id
318    GROUP BY
319        product_category_name, payment_type;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

product_category_name	payment_type	count
perfumaria	credit_card	2706
moveis_decoracao	voucher	530
telefonia	credit_card	3400
fashion_bolsas_e_acessorios	boleto	422
cama_mesa_banho	credit_card	8959
automotivo	boleto	840
informatica_acessorios	voucher	340
moveis_decoracao	boleto	1735
utilidades_domesticas	credit_card	5411
perfumaria	debit_card	48
moveis_decoracao	credit_card	6379
bebes	credit_card	2426
brinquedos	credit_card	3294
moveis_escritorio	boleto	482
informatica_acessorios	credit_card	5436
cool_stuff	credit_card	2977
beleza_saude	credit_card	7566
informatica_acessorios	boleto	2158
pet_shop	credit_card	1526

Top Product Categories by Credit Card: cama_mesa_banho [bed_bath_table]: 8959 transactions, beleza_saude [health_beauty]: 7566 transactions, esporte_lazer [sports_leisure]: 6635 transactions, moveis_decoracao [furniture_decor]: 6379 transactions, informatica_acessorios [computers_accessories]: 5436 transactions

Top Product Categories by Boleto: informatica_acessorios [computers_accessories]: 2158 transactions, cama_mesa_banho [bed_bath_table]: 1875 transactions, beleza_saude [health_beauty]: 1860 transactions, esporte_lazer [sports_leisure]: 1772 transactions, moveis_decoracao [furniture_decor]: 1735 transactions

Top Product Categories by Voucher: cama_mesa_banho [bed_bath_table]: 847 transactions, esporte_lazer [sports_leisure]: 411 transactions, moveis_decoracao [furniture_decor]: 530 transactions, utilidades_domesticas [housewares]: 505 transactions, relogios_presentes [watches_gifts]: 255 transactions

Analytics KPI – 19 Correlation Between Review Scores and Product Prices.

The Correlation Between Review Scores and Product Prices (KPI) measures and analyze the relationship between product review scores and product prices, providing insights into how product pricing might influence customer satisfaction and perceived value.

```sql
select tb1.review_score, avg(tb1.price) as avg_price
from(
select tb2.product_id,max(tb2.review_score) as review_score,max(tb2.price) as price
from(
SELECT tb3.order_id,tb4.order_item_id,tb4.product_id,tb3.review_score,tb4.price
FROM olist_order_reviews_dataset as tb3
left join olist_order_items_dataset as tb4
on tb3.order_id=tb4.order_id
left join olist_products_dataset as tb5
on tb4.product_id=tb5.product_id
) as tb2
group by tb2.product_id
)as tb1
group by tb1.review_score;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

review_score	avg_price
5	145.2382022229799
3	133.40441325098053
4	149.85279037800987
1	168.7652729298194
2	155.09991869918647

A possible inverse relationship between review scores and product prices, with lower scores corresponding to higher average prices.

Analytics KPI – 20 Top-Selling Product Categories.

The Top-Selling Product Categories (KPI) measures and ranks the performance of product categories based on sales volume or revenue. This KPI provides insights into which categories are generating the most sales, helping businesses identify popular product segments and make informed inventory and marketing decisions.

```
17 •  SELECT
18        product_category_name, round(SUM(price),2) AS total_sales
19    FROM
20        olist_order_items_dataset tb1
21    INNER JOIN
22        olist_products_dataset tb2 ON tb1.product_id = tb2.product_id
23    GROUP BY
24        product_category_name
25    ORDER BY
26        total sales DESC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

product_category_name	total_sales
beleza_saude	1258681.34
relogios_presentes	1205005.68
cama_mesa_banho	1036988.68
esporte_lazer	988048.97
informatica_acessorios	911954.32
moveis_decoracao	729762.49
cool_stuff	635290.85
utilidades_domesticas	632248.66
automotivo	592720.11
ferramentas_jardim	485256.46
brinquedos	483946.6
bebes	411764.89
perfumaria	399124.87
telefonia	323667.53
moveis_escritorio	273960.7
papelaria	230943.23
pcs	222963.13

The top-selling product categories, led by Beleza e Saúde (Beauty and Health) with $1,258,681.34 in sales revenue, followed closely by Relógios e Presentes (Watches and Gifts) at $1,205,005.68, and Cama, Mesa e Banho (Bed, Table, and Bath) with $1,036,988.68, demonstrate strong market demand and popularity based on their sales figures.

Analytics KPI – 21 The Unique Customers.

The Unique Customers (KPI) measures the number of individual customers who have made at least one purchase within a specified period. This metric helps eCommerce businesses understand their customer base size and gauge their reach and market penetration.

```
248
249 •  SELECT COUNT(DISTINCT customer_unique_id) AS unique_customers_count
250    FROM olist_customers_dataset;
251
252
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

unique_customers_count
96096

A total of 96,096 distinct customers have placed orders within the eCommerce platform.