Target Business Case Report:

Objective:

Analyzing the given dataset to extract valuable insights and provide actionable recommendations.

Context:

Target is a globally renowned brand and a prominent retailer in the United States. Target makes itself a preferred shopping destination by offering outstanding value, inspiration, innovation and an exceptional guest experience that no other retailer can deliver.

This particular business case focuses on the operations of 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.

By analyzing this extensive dataset, it becomes possible to gain valuable 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.

Data upload:

The data is available in 8 csv files:

1. customers.csv
2. sellers.csv
3. order_items.csv
4. geolocation.csv
5. payments.csv
6. reviews.csv
7. orders.csv
8. products.csv

All CSV files are uploaded to Google Cloud platform in dataset named Target_case

Column description for these csv files

The **customers.csv** contain following features:

Features	Description
customer_id	ID of the consumer who made the purchase
customer_unique_id	Unique ID of the consumer
customer_zip_code_prefix	Zip Code of consumer's location
customer_city	Name of the City from where order is made
customer_state	State Code from where order is made (Eg. são paulo - SP)

The **sellers.csv** contains following features:

Features	Description
seller_id	Unique ID of the seller registered
seller_zip_code_prefix	Zip Code of the seller's location
seller_city	Name of the City of the seller
seller_state	State Code (Eg. são paulo - SP)

The **order_items.csv** contain following features:

Features	Description
order_id	A Unique ID of order made by the consumers
order_item_id	A Unique ID given to each item ordered in the order
product_id	A Unique ID given to each product available on the site
seller_id	Unique ID of the seller registered in Target
shipping_limit_date	The date before which the ordered product must be shipped
Price	Actual price of the products ordered
freight_value	Price rate at which a product is delivered from one point to anoth

The **geolocations.csv** contain following features:

Features	Description
geolocation_zip_code_prefix	First 5 digits of Zip Code
geolocation_lat	Latitude
geolocation_lng	Longitude

geolocation_city	City
geolocation_state	State

The **payments.csv** contain following features:

Features	**Description**
order_id	A Unique ID of order made by the consumers
payment_sequential	Sequences of the payments made in case of EMI
payment_type	Mode of payment used (Eg. Credit Card)
payment_installments	Number of installments in case of EMI purchase
payment_value	Total amount paid for the purchase order

The **orders.csv** contain following features:

Features	**Description**
order_id	A Unique ID of order made by the consumers
customer_id	ID of the consumer who made the purchase
order_status	Status of the order made i.e. delivered, shipped, etc.
order_purchase_timestamp	Timestamp of the purchase
order_delivered_carrier_date	Delivery date at which carrier made the delivery
order_delivered_customer_date	Date at which customer got the product
order_estimated_delivery_date	Estimated delivery date of the products

The **reviews.csv** contain following features:

Features	**Description**
review_id	ID of the review given on the product ordered by the order id
order_id	A Unique ID of order made by the consumers
review_score	Review score given by the customer for each order on a scale o
review_comment_title	Title of the review
review_comment_message	Review comments posted by the consumer for each order
review_creation_date	Timestamp of the review when it is created
review_answer_timestamp	Timestamp of the review answered

The **products.csv** contain following features:

Features	**Description**
product_id	A Unique identifier for the proposed project.
product_category_name	Name of the product category
product_name_lenght	Length of the string which specifies the name given to the products ordered

product_description_lenght	Length of the description written for each product ordered on the site
product_photos_qty	Number of photos of each product ordered available on the shopping portal
product_weight_g	Weight of the products ordered in grams
product_length_cm	Length of the products ordered in centimeters
product_height_cm	Height of the products ordered in centimeters
product_width_cm	Width of the product ordered in centimeters

EDA:

Data type of all columns in the "customers" table:

```
select column_name, data_type
from `Target_case.`.INFORMATION_SCHEMA.COLUMNS
where table_name= 'customers';
```

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

The time range between which the orders were placed:

```
select min(order_purchase_timestamp) as mintime,
max(order_purchase_timestamp) as maxtime,
 from `Target_case.orders`;
```

Row	mintime	maxtime
1	2016-09-04 21:15:19 UTC	2018-10-17 17:30:18 UTC

Time range can be obtained from purchase time details of the orders. Hence the min() and max() functions can give the duration of the orders placed.

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

```
select count(distinct c.customer_state) as City_count,
count(distinct customer_city) as State_count
from  `Target_case.customers` c inner join `Target_case.orders` o
on c.customer_id = o.customer_id
```

Row	City_count	State_count
1	27	4119

Yearwise:

```
select extract (YEAR from o.order_estimated_delivery_date) as year,
count(distinct c.customer_city) as City_count,
count(distinct c.customer_state) as State_count
from `Target_case.customers`as c join `Target_case.orders` as o
on c.customer_id=o.customer_id
group by year
```

Row	year	City_count	State_count
1	2018	3393	27
2	2017	3163	27
3	2016	179	21

Monthwise:

```
select extract (MONTH from o.order_estimated_delivery_date) as month,
count(distinct c.customer_city) as City_count,
count(distinct c.customer_state) as State_count
from `Target_case.customers`as c join `Target_case.orders` as o
on c.customer_id=o.customer_id
group by month
```

Row	month	City_count	State_count
1	3	1767	27
2	1	1162	27
3	6	1441	27
4	4	1551	27
5	7	1596	27
6	5	1673	27
7	9	1336	27
8	2	1286	26
9	8	1894	27
10	11	1121	27
11	12	1372	27
12	10	1040	27

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

```
select extract (YEAR from order_estimated_delivery_date) as Year,
count(distinct order_id) as number_of_order
from `Target_case.orders`
group by Year
order by 2 desc;
```

Row	Year	number_of_order
1	2018	58798
2	2017	40317
3	2016	326

From results it is clear that that number of orders are increasing every year means it has growing trend by years.

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

```
select extract (MONTH from order_estimated_delivery_date) as month,
count(distinct order_id) as number_of_order
from `Target_case.orders`
group by month
order by 2 desc;
```

Row	month	number_of_order
1	8	13767
2	3	11580
3	5	11045
4	7	10541
5	4	9001
6	6	8299
7	12	7466
8	2	6620
9	9	6422
10	1	5610
11	11	4877
12	10	4213

- **It is clearly seen that in August(8th month)has maximum number of orders.**
- **March and May also has order more than 10K.**

```
select
concat(period,' -- is ',mth)as monthly_season,
Max_orders
from
(
select
concat(year,' - ',month)as period,
sum(no_of_orders)as Max_orders,
case
when month=1 then 'January'
when month=2 then 'Feburary'
when month=3 then 'March'
when month=4 then 'April'
```

```
when month=5 then 'May'
when month=6 then 'June'
when month=7 then 'July'
when month=8 then 'August'
when month=9 then 'September'
when month=10 then 'October'
when month=11 then 'November'
else 'December'
end as mth
from
(
select
extract(year from order_purchase_timestamp)as year,
extract(month from order_purchase_timestamp)as month,
count(*) as no_of_orders,
from `Target_case.orders`
where order_status <>'canceled'
group by order_purchase_timestamp,year,month
order by year,month
)
group by year,month
)
order by  2 desc;
```

Monthly_season	Max_orders
2017 - 11 -- is November	7507
2018 - 1 -- is January	7235
2018 - 3 -- is March	7185
2018 - 4 -- is April	6924
2018 - 5 -- is May	6849
2018 - 2 -- is Feburary	6655
2018 - 8 -- is August	6428
2018 - 7 -- is July	6251
2018 - 6 -- is June	6149
2017 - 12 -- is December	5662

2017 - 10 -- is October	4605
2017 - 8 -- is August	4304
2017 - 9 -- is September	4265
2017 - 7 -- is July	3998
2017 - 5 -- is May	3671
2017 - 6 -- is June	3229
2017 - 3 -- is March	2649
2017 - 4 -- is April	2386
2017 - 2 -- is Feburary	1763
2017 - 1 -- is January	797
2016 - 10 -- is October	300
2016 - 9 -- is September	2
2018 - 9 -- is September	1
2016 - 12 -- is December	1

- **Overall maximum orders on November 2017.**
- **Peak orders are in the mid of the year during month May,June,July .**

<u>During what time of the day, do the Brazilian customers mostly place their orders?</u> (Dawn, Morning, Afternoon or Night)

- **0-6 hrs : Dawn**

- **7-12 hrs : Mornings**
- **13-18 hrs : Afternoon**
- **19-23 hrs : Night**

```
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 Orders_placed
from `Target_case.orders`
group by TIME_OF_DAY
order by 2 desc;
```

Row	TIME_OF_DAY	Orders_placed
1	AFTERNOON	38135
2	NIGHT	28331
3	MORNING	27733
4	DAWN	5242

- **Orders count peak in the afternoon and are at their lowest point at dawn.**

Evolution of E-commerce orders in the Brazil region:

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

```
select
case
when month=1 then 'January'
when month=2 then 'Feburary'
when month=3 then 'March'
when month=4 then 'April'
when month=5 then 'May'
when month=6 then 'June'
```

```
when month=7 then 'July'
when month=8 then 'August'
when month=9 then 'September'
when month=10 then 'October'
when month=11 then 'November'
else 'December'
end as mth,
number_of_orders

from
(select extract (month from order_purchase_timestamp) as month ,
count(distinct order_id) as number_of_orders
from `Target_case.orders`
where order_status <> "canceled"
group by month
)
Order by 2 desc
```

Row	mth	number_of_orders
1	August	10732
2	May	10520
3	July	10249
4	March	9834
5	June	9378
6	April	9310
7	Feburary	8418
8	January	8032
9	November	7507
10	December	5663
11	October	4905
12	September	4268

- **Maximum orders are placed in August and least in September.**

STATE WISE MONTHLY ORDER

```
select yr_mnth,state,
min(monthly_orders) over(partition by yr_mnth)as Min_orders_recd,
max(monthly_orders) over(partition by yr_mnth) as Max_orders_recd,
round(avg(monthly_orders) over(partition by state order by yr_mnth),3) as
Avg_monthly_order,
monthly_orders as Total_ordersPerMonth,
sum(monthly_orders) over(partition by state)as Monthly_state_order
from
(
select customer_state as state,
format_timestamp("%Y-%m",order_purchase_timestamp) as yr_mnth,
count(*)as monthly_orders
from `Target_case.customers` c
join `Target_case.orders` o
on c.customer_id=o.customer_id
where order_status not in ('canceled','unavailable')
group by customer_state,yr_mnth
order by customer_state,yr_mnth
)
group by monthly_orders,yr_mnth,State
order by 2 asc;
```

yr_mnth	state	Min_orders_recd	Max_orders_recd	Avg_monthly_order	Total_ordersPerMonth	Monthly_state_order
2017-06	AC	1	1308	4	4	81
2017-11	AC	2	2949	4.455	5	81
2018-02	AC	2	2649	4.5	3	81
2018-04	AC	2	3043	4.313	4	81
2017-08	AC	3	1698	4.125	4	81
2018-05	AC	1	3182	4.176	2	81
2018-08	AC	2	3198	4.05	3	81
2017-01	AC	1	294	2	2	81
2018-07	AC	4	2744	4.105	4	81
2018-03	AC	2	3007	4.333	2	81
2017-02	AC	2	630	2.5	3	81
2017-05	AC	2	1396	4	8	81
2017-12	AC	4	2334	4.5	5	81
2017-04	AC	2	895	3	5	81

2018-06	AC	2	2759	4.111	3	81
2017-03	AC	2	991	2.333	2	81
2017-07	AC	1	1570	4.143	5	81
2018-01	AC	1	3016	4.615	6	81
2017-09	AC	1	1605	4.222	5	81
2017-10	AC	3	1754	4.4	6	81
2017-11	AL	2	2949	16.25	26	411
2017-08	AL	3	1698	13.444	18	411
2017-05	AL	2	1396	12.667	27	411
2018-01	AL	1	3016	17.429	37	411
2017-03	AL	2	991	6.5	10	411
2018-03	AL	2	3007	18.813	30	411
2016-10	AL	1	103	2	2	411
2018-02	AL	2	2649	18.067	27	411
2017-10	AL	3	1754	15.364	28	411
2018-07	AL	4	2744	19.75	23	411
2017-09	AL	1	1605	14.1	20	411
2017-04	AL	2	895	9.8	23	411
2018-08	AL	2	3198	19.571	16	411
2018-04	AL	2	3043	19.353	28	411
2017-12	AL	4	2334	15.923	12	411
2018-06	AL	2	2759	19.579	24	411
2017-02	AL	2	630	5.333	12	411
2017-07	AL	1	1570	12.875	17	411
2017-06	AL	1	1308	12.286	10	411
2017-01	AL	1	294	2	2	411
2018-05	AL	1	3182	19.333	19	411
2017-08	AM	3	1698	6.571	5	147
2017-03	AM	2	991	6.5	5	147

2018-08	AM	2	3198	7.737	4	147
2018-03	AM	2	3007	7.357	9	147
2018-01	AM	1	3016	7.167	12	147
2017-04	AM	2	895	8.667	13	147
2017-11	AM	2	2949	6.8	10	147
2017-12	AM	4	2334	6.727	6	147
2018-06	AM	2	2759	7.353	7	147
2017-07	AM	1	1570	6.833	5	147
2017-10	AM	3	1754	6.444	3	147
2017-09	AM	1	1605	6.875	9	147
2017-02	AM	2	630	8	8	147
2017-05	AM	2	1396	8.75	9	147
2018-02	AM	2	2649	7.231	8	147
2018-04	AM	2	3043	7.267	6	147
2017-06	AM	1	1308	7.2	1	147
2018-07	AM	4	2744	7.944	18	147
2018-05	AM	1	3182	7.375	9	147
2018-05	AP	1	3182	3.867	6	68
2018-04	AP	2	3043	3.714	5	68
2018-08	AP	2	3198	3.778	2	68
2017-08	AP	3	1698	2.667	3	68
2017-09	AP	1	1605	2.571	2	68
2018-07	AP	4	2744	3.882	6	68
2017-07	AP	1	1570	2.6	1	68
2017-11	AP	2	2949	2.778	4	68
2018-06	AP	2	2759	3.75	2	68
2017-05	AP	2	1396	3.333	5	68
2017-06	AP	1	1308	3	2	68
2017-10	AP	3	1754	2.625	3	68

2018-01	AP	1	3016	3.636	11	68
2018-02	AP	2	2649	3.5	2	68
2017-12	AP	4	2334	2.9	4	68
2017-02	AP	2	630	2	2	68
2018-03	AP	2	3007	3.615	5	68
2017-03	AP	2	991	2.5	3	68
2017-02	BA	2	630	29.333	59	3344
2016-10	BA	1	103	4	4	3344
2017-03	BA	2	991	44.25	89	3344
2017-01	BA	1	294	14.5	25	3344
2018-03	BA	2	3007	141.563	248	3344
2017-07	BA	1	1570	80.875	150	3344
2018-01	BA	1	3016	129	232	3344
2017-05	BA	2	1396	65.333	124	3344
2017-06	BA	1	1308	71	105	3344
2018-02	BA	2	2649	134.467	211	3344
2017-08	BA	3	1698	89.222	156	3344
2017-09	BA	1	1605	97.3	170	3344
2017-11	BA	2	2949	115.167	245	3344
2017-04	BA	2	895	53.6	91	3344
2018-06	BA	2	2759	154.263	201	3344
2018-08	BA	2	3198	159.238	164	3344
2018-04	BA	2	3043	146.471	225	3344
2018-07	BA	4	2744	159	249	3344
2018-05	BA	1	3182	151.667	240	3344
2017-12	BA	4	2334	121.077	192	3344
2017-10	BA	3	1754	103.364	164	3344
2018-03	CE	2	3007	58.438	98	1323
2017-02	CE	2	630	9.667	13	1323

2017-01	CE	1	294	8	9	1323
2018-01	CE	1	3016	53.571	89	1323
2017-09	CE	1	1605	40.8	77	1323
2017-03	CE	2	991	13.75	26	1323
2017-08	CE	3	1698	36.778	73	1323
2018-06	CE	2	2759	62.211	74	1323
2018-02	CE	2	2649	55.8	87	1323
2018-05	CE	1	3182	61.556	73	1323
2017-07	CE	1	1570	32.25	53	1323
2018-07	CE	4	2744	63.4	86	1323
2016-10	CE	1	103	7	7	1323
2018-04	CE	2	3043	60.882	100	1323
2018-08	CE	2	3198	63	55	1323
2017-06	CE	1	1308	29.286	45	1323
2017-04	CE	2	895	19.6	43	1323
2017-11	CE	2	2949	48.333	108	1323
2017-10	CE	3	1754	42.909	64	1323
2017-12	CE	4	2334	50.846	81	1323
2017-05	CE	2	1396	26.667	62	1323
2017-07	DF	1	1570	42.5	75	2121
2018-01	DF	1	3016	74.857	138	2121
2017-12	DF	4	2334	70	131	2121
2018-07	DF	4	2744	98.85	166	2121
2018-06	DF	2	2759	95.316	150	2121
2018-03	DF	2	3007	85.625	150	2121
2017-01	DF	1	294	9.5	13	2121
2017-11	DF	2	2949	64.917	161	2121
2016-10	DF	1	103	6	6	2121
2017-03	DF	2	991	24.25	55	2121

2018-08	DF	2	3198	101	144	2121
2018-05	DF	1	3182	92.278	144	2121
2018-04	DF	2	3043	89.235	147	2121
2018-02	DF	2	2649	81.333	172	2121
2017-10	DF	3	1754	56.182	96	2121
2017-09	DF	1	1605	52.2	96	2121
2017-08	DF	3	1698	47.333	86	2121
2017-06	DF	1	1308	37.857	70	2121
2017-05	DF	2	1396	32.5	63	2121
2017-04	DF	2	895	26.4	35	2121
2017-02	DF	2	630	14	23	2121
2017-10	ES	3	1754	62	100	2018
2018-01	ES	1	3016	79.143	145	2018
2018-06	ES	2	2759	94.263	124	2018
2017-08	ES	3	1698	54.333	95	2018
2017-12	ES	4	2334	74.077	111	2018
2017-06	ES	1	1308	44.571	79	2018
2017-04	ES	2	895	28.2	46	2018
2017-05	ES	2	1396	38.833	92	2018
2017-02	ES	2	630	15.667	32	2018
2018-07	ES	4	2744	95.7	123	2018
2016-10	ES	1	103	4	4	2018
2017-11	ES	2	2949	71	170	2018
2017-01	ES	1	294	7.5	11	2018
2017-09	ES	1	1605	58.2	93	2018
2017-03	ES	2	991	23.75	48	2018
2017-07	ES	1	1570	49.25	82	2018
2018-03	ES	2	3007	86.938	134	2018
2018-08	ES	2	3198	96.095	104	2018

2018-05	ES	1	3182	92.611	134	2018
2018-04	ES	2	3043	90.176	142	2018
2018-02	ES	2	2649	83.8	149	2018
2016-10	GO	1	103	8	8	1998
2017-01	GO	1	294	13	18	1998
2017-07	GO	1	1570	48	77	1998
2017-03	GO	2	991	25.25	50	1998
2018-03	GO	2	3007	86.875	146	1998
2018-08	GO	2	3198	95.143	117	1998
2018-06	GO	2	2759	93	105	1998
2018-07	GO	4	2744	94.05	114	1998
2018-05	GO	1	3182	92.333	138	1998
2018-02	GO	2	2649	82.933	149	1998
2018-01	GO	1	3016	78.214	145	1998
2017-12	GO	4	2334	73.077	127	1998
2017-11	GO	2	2949	68.583	156	1998
2017-10	GO	3	1754	60.636	106	1998
2017-09	GO	1	1605	56.1	87	1998
2017-08	GO	3	1698	52.667	90	1998
2017-06	GO	1	1308	43.857	79	1998
2017-04	GO	2	895	28.4	41	1998
2017-02	GO	2	630	17	25	1998
2017-05	GO	2	1396	38	86	1998
2018-04	GO	2	3043	89.647	134	1998
2017-03	MA	2	991	11	22	736
2016-10	MA	1	103	4	4	736
2017-06	MA	1	1308	17	17	736
2017-05	MA	2	1396	17	32	736
2017-08	MA	3	1698	21.778	38	736

2018-02	MA	2	2649	32.867	55	736
2017-10	MA	3	1754	26	48	736
2018-05	MA	1	3182	34.667	32	736
2018-07	MA	4	2744	35.3	40	736
2017-01	MA	1	294	5.5	7	736
2017-07	MA	1	1570	19.75	39	736
2018-03	MA	2	3007	34.125	53	736
2018-08	MA	2	3198	35.048	30	736
2018-06	MA	2	2759	35.053	42	736
2018-04	MA	2	3043	34.824	46	736
2018-01	MA	1	3016	31.286	56	736
2017-12	MA	4	2334	29.385	41	736
2017-11	MA	2	2949	28.417	55	736
2017-09	MA	1	1605	23.8	42	736
2017-04	MA	2	895	14	26	736
2017-02	MA	2	630	7.333	11	736
2018-07	MG	4	2744	539.65	649	11496
2018-06	MG	2	2759	533.895	714	11496
2017-10	MG	3	1754	341	549	11496
2018-05	MG	1	3182	523.889	757	11496
2017-05	MG	2	1396	239.667	420	11496
2018-04	MG	2	3043	510.176	786	11496
2018-02	MG	2	2649	467.467	795	11496
2017-02	MG	2	630	131.667	250	11496
2016-10	MG	1	103	39	39	11496
2017-08	MG	3	1698	300.333	463	11496
2017-01	MG	1	294	72.5	106	11496
2018-01	MG	1	3016	444.071	855	11496
2017-03	MG	2	991	186.25	350	11496

2017-07	MG	1	1570	280	443	11496
2017-12	MG	4	2334	412.462	681	11496
2017-09	MG	1	1605	320.2	499	11496
2018-03	MG	2	3007	492.938	875	11496
2017-06	MG	1	1308	256.714	359	11496
2017-04	MG	2	895	203.6	273	11496
2018-08	MG	2	3198	547.429	703	11496
2017-11	MG	2	2949	390.083	930	11496
2018-03	MS	2	3007	32.533	58	708
2017-04	MS	2	895	11.5	15	708
2017-07	MS	1	1570	17.857	25	708
2017-10	MS	3	1754	21.4	33	708
2017-05	MS	2	1396	14.6	27	708
2018-02	MS	2	2649	30.714	64	708
2018-01	MS	1	3016	28.154	70	708
2017-11	MS	2	2949	23.636	46	708
2017-01	MS	1	294	1	1	708
2018-06	MS	2	2759	34.667	49	708
2017-06	MS	1	1308	16.667	27	708
2017-12	MS	4	2334	24.667	36	708
2017-03	MS	2	991	10.333	19	708
2018-08	MS	2	3198	35.4	35	708
2017-09	MS	1	1605	20.111	32	708
2018-05	MS	1	3182	33.824	44	708
2018-07	MS	4	2744	35.421	49	708
2018-04	MS	2	3043	33.188	43	708
2017-02	MS	2	630	6	11	708
2017-08	MS	3	1698	18.625	24	708
2017-04	MT	2	895	14.6	27	902

2017-01	MT	1	294	6.5	11	902
2017-03	MT	2	991	11.5	16	902
2016-10	MT	1	103	2	2	902
2017-07	MT	1	1570	21.625	38	902
2017-02	MT	2	630	10	17	902
2018-07	MT	4	2744	43.1	47	902
2018-03	MT	2	3007	39.125	55	902
2018-08	MT	2	3198	42.952	40	902
2018-06	MT	2	2759	42.895	58	902
2018-05	MT	1	3182	42.056	66	902
2018-02	MT	2	2649	38.067	67	902
2018-04	MT	2	3043	40.647	65	902
2018-01	MT	1	3016	36	84	902
2017-12	MT	4	2334	32.308	50	902
2017-11	MT	2	2949	30.833	74	902
2017-10	MT	3	1754	26.909	50	902
2017-08	MT	3	1698	23.444	38	902
2017-06	MT	1	1308	19.286	25	902
2017-09	MT	1	1605	24.6	35	902
2017-05	MT	2	1396	18.333	37	902
2016-10	PA	1	103	4	4	969
2017-11	PA	2	2949	37.167	70	969
2018-01	PA	1	3016	40.929	69	969
2018-02	PA	2	2649	42.067	58	969
2018-06	PA	2	2759	45.737	54	969
2018-04	PA	2	3043	45.588	71	969
2018-05	PA	1	3182	45.278	40	969
2017-02	PA	2	630	13.667	25	969
2018-08	PA	2	3198	46.143	43	969

2017-10	PA	3	1754	34.182	53	969
2017-03	PA	2	991	19	35	969
2017-05	PA	2	1396	24.5	35	969
2017-06	PA	1	1308	26.429	38	969
2017-07	PA	1	1570	28	39	969
2017-08	PA	3	1698	31.333	58	969
2017-09	PA	1	1605	32.3	41	969
2018-07	PA	4	2744	46.3	57	969
2018-03	PA	2	3007	44	73	969
2017-12	PA	4	2334	38.769	58	969
2017-04	PA	2	895	22.4	36	969
2017-01	PA	1	294	8	12	969
2017-01	PB	1	294	1.5	2	531
2017-07	PB	1	1570	14.75	26	531
2018-08	PB	2	3198	25.286	29	531
2018-07	PB	4	2744	25.1	52	531
2018-06	PB	2	2759	23.684	28	531
2018-04	PB	2	3043	23.118	31	531
2018-02	PB	2	2649	21.533	35	531
2018-01	PB	1	3016	20.571	31	531
2017-11	PB	2	2949	18.333	29	531
2017-10	PB	3	1754	17.364	29	531
2017-09	PB	1	1605	16.2	28	531
2017-06	PB	1	1308	13.143	23	531
2017-04	PB	2	895	10.2	20	531
2017-02	PB	2	630	5	12	531
2017-05	PB	2	1396	11.5	18	531
2017-08	PB	3	1698	14.889	16	531
2017-12	PB	4	2334	19.769	37	531

2018-03	PB	2	3007	22.625	39	531
2018-05	PB	1	3182	23.444	29	531
2017-03	PB	2	991	7.75	16	531
2016-10	PB	1	103	1	1	531
2016-10	PE	1	103	7	7	1643
2018-06	PE	2	2759	74.789	94	1643
2018-05	PE	1	3182	73.722	106	1643
2017-03	PE	2	991	19.25	41	1643
2017-07	PE	1	1570	37.625	73	1643
2018-03	PE	2	3007	69.188	108	1643
2018-08	PE	2	3198	78.238	85	1643
2018-07	PE	4	2744	77.9	137	1643
2018-02	PE	2	2649	66.6	124	1643
2018-01	PE	1	3016	62.5	104	1643
2017-12	PE	4	2334	59.308	103	1643
2017-10	PE	3	1754	49.273	80	1643
2017-11	PE	2	2949	55.667	126	1643
2017-09	PE	1	1605	46.2	76	1643
2017-08	PE	3	1698	42.889	85	1643
2017-06	PE	1	1308	32.571	45	1643
2017-05	PE	2	1396	30.5	67	1643
2017-04	PE	2	895	23.2	39	1643
2017-02	PE	2	630	12	20	1643
2018-04	PE	2	3043	71.824	114	1643
2017-01	PE	1	294	8	9	1643
2018-03	PI	2	3007	21.25	34	490
2017-04	PI	2	895	9	13	490
2016-10	PI	1	103	1	1	490
2017-01	PI	1	294	4	7	490

2018-01	PI	1	3016	19.5	47	490
2018-02	PI	2	2649	20.4	33	490
2018-04	PI	2	3043	22.176	37	490
2018-08	PI	2	3198	23.333	21	490
2018-05	PI	1	3182	22.667	31	490
2018-06	PI	2	2759	23	29	490
2018-07	PI	4	2744	23.45	32	490
2017-02	PI	2	630	6.333	11	490
2017-03	PI	2	991	8	13	490
2017-12	PI	4	2334	17.385	23	490
2017-08	PI	3	1698	14	22	490
2017-05	PI	2	1396	11.667	25	490
2017-06	PI	1	1308	12	14	490
2017-07	PI	1	1570	13	20	490
2017-09	PI	1	1605	14.9	23	490
2017-10	PI	3	1754	15.636	23	490
2017-11	PI	2	2949	16.917	31	490
2017-04	PR	2	895	72.333	114	4983
2017-03	PR	2	991	64	125	4983
2017-01	PR	1	294	28	64	4983
2017-05	PR	2	1396	92.143	211	4983
2017-02	PR	2	630	48.75	111	4983
2017-06	PR	1	1308	101.875	170	4983
2018-05	PR	1	3182	212.211	311	4983
2018-07	PR	4	2744	221.619	316	4983
2018-04	PR	2	3043	206.722	385	4983
2018-03	PR	2	3007	196.235	375	4983
2018-01	PR	1	3016	174.933	374	4983
2017-12	PR	4	2334	160.714	264	4983

2017-09	PR	1	1605	128.364	179	4983
2017-08	PR	3	1698	123.3	221	4983
2017-07	PR	1	1570	112.444	197	4983
2016-12	PR	1	1	10	1	4983
2018-02	PR	2	2649	185.063	337	4983
2017-11	PR	2	2949	152.769	372	4983
2016-10	PR	1	103	19	19	4983
2017-10	PR	3	1754	134.5	202	4983
2018-08	PR	2	3198	226.5	329	4983
2018-06	PR	2	2759	216.9	306	4983
2016-10	RJ	1	103	43	43	12698
2017-01	RJ	1	294	69.5	96	12698
2017-03	RJ	2	991	191.75	386	12698
2017-07	RJ	1	1570	319	558	12698
2018-08	RJ	2	3198	604.667	737	12698
2018-03	RJ	2	3007	554.375	906	12698
2018-07	RJ	4	2744	598.05	713	12698
2018-06	RJ	2	2759	592	715	12698
2018-05	RJ	1	3182	585.167	829	12698
2018-04	RJ	2	3043	570.824	834	12698
2018-02	RJ	2	2649	530.933	904	12698
2017-12	RJ	4	2334	475.538	776	12698
2017-11	RJ	2	2949	450.5	1036	12698
2018-01	RJ	1	3016	504.286	878	12698
2017-10	RJ	3	1754	397.273	660	12698
2017-09	RJ	1	1605	371	604	12698
2017-08	RJ	3	1698	345.111	554	12698
2017-06	RJ	1	1308	284.857	408	12698
2017-05	RJ	2	1396	264.333	485	12698

2017-04	RJ	2	895	220.2	334	12698
2017-02	RJ	2	630	127	242	12698
2018-03	RN	2	3007	21.438	39	482
2017-12	RN	4	2334	18.154	30	482
2016-10	RN	1	103	4	4	482
2017-04	RN	2	895	8	10	482
2017-01	RN	1	294	4.5	5	482
2017-03	RN	2	991	7.5	13	482
2017-02	RN	2	630	5.667	8	482
2017-07	RN	1	1570	12	27	482
2018-08	RN	2	3198	22.952	20	482
2018-07	RN	4	2744	23.1	29	482
2018-06	RN	2	2759	22.789	36	482
2018-05	RN	1	3182	22.056	22	482
2018-04	RN	2	3043	22.059	32	482
2018-02	RN	2	2649	20.267	23	482
2018-01	RN	1	3016	20.071	45	482
2017-11	RN	2	2949	17.167	43	482
2017-10	RN	3	1754	14.818	23	482
2017-09	RN	1	1605	14	24	482
2017-08	RN	3	1698	12.889	20	482
2017-06	RN	1	1308	9.857	12	482
2017-05	RN	2	1396	9.5	17	482
2017-03	RO	2	991	9.667	16	246
2017-02	RO	2	630	6.5	10	246
2017-04	RO	2	895	9.25	8	246
2017-08	RO	3	1698	9.875	14	246
2018-04	RO	2	3043	12.125	11	246
2018-05	RO	1	3182	12.412	17	246

2018-03	RO	2	3007	12.2	13	246
2018-06	RO	2	2759	12.333	11	246
2018-02	RO	2	2649	12.143	13	246
2018-07	RO	4	2744	12.526	16	246
2018-01	RO	1	3016	12.077	20	246
2017-12	RO	4	2334	11.417	11	246
2017-11	RO	2	2949	11.455	17	246
2017-07	RO	1	1570	9.286	10	246
2017-06	RO	1	1308	9.167	10	246
2017-01	RO	1	294	3	3	246
2018-08	RO	2	3198	12.3	8	246
2017-10	RO	3	1754	10.9	14	246
2017-09	RO	1	1605	10.556	16	246
2017-05	RO	2	1396	9	8	246
2016-09	RR	1	1	1	1	45
2016-10	RR	1	103	1	1	45
2017-03	RR	2	991	1.5	2	45
2017-07	RR	1	1570	1.75	1	45
2018-05	RR	1	3182	2.188	1	45
2018-07	RR	4	2744	2.5	5	45
2018-06	RR	2	2759	2.353	5	45
2018-04	RR	2	3043	2.267	2	45
2018-03	RR	2	3007	2.286	6	45
2018-02	RR	2	2649	2	5	45
2018-01	RR	1	3016	1.75	1	45
2017-11	RR	2	2949	1.818	2	45
2017-10	RR	3	1754	1.8	3	45
2017-09	RR	1	1605	1.667	1	45
2017-06	RR	1	1308	1.857	3	45

2017-05	RR	2	1396	1.667	2	45
2017-04	RR	2	895	1.6	2	45
2017-02	RR	2	630	1.333	2	45
2016-10	RS	1	103	21	21	5417
2017-01	RS	1	294	37	53	5417
2017-03	RS	2	991	81.25	147	5417
2017-07	RS	1	1570	141.5	245	5417
2018-03	RS	2	3007	237.938	416	5417
2018-08	RS	2	3198	257.952	295	5417
2018-07	RS	4	2744	256.1	311	5417
2018-06	RS	2	2759	253.211	304	5417
2018-05	RS	1	3182	250.389	351	5417
2018-04	RS	2	3043	244.471	349	5417
2018-02	RS	2	2649	226.067	365	5417
2018-01	RS	1	3016	216.143	373	5417
2017-12	RS	4	2334	204.077	281	5417
2017-11	RS	2	2949	197.667	417	5417
2017-10	RS	3	1754	177.727	247	5417
2017-09	RS	1	1605	170.8	277	5417
2017-08	RS	3	1698	159	299	5417
2017-06	RS	1	1308	126.714	219	5417
2017-05	RS	2	1396	111.333	206	5417
2017-04	RS	2	895	92.4	137	5417
2017-02	RS	2	630	59.333	104	5417
2017-01	SC	1	294	20.5	31	3600
2018-08	SC	2	3198	171.429	203	3600
2016-10	SC	1	103	10	10	3600
2017-11	SC	2	2949	126	298	3600
2017-03	SC	2	991	51.25	106	3600

2017-07	SC	1	1570	91.125	156	3600
2018-03	SC	2	3007	157.625	251	3600
2017-04	SC	2	895	61.8	104	3600
2018-07	SC	4	2744	169.85	198	3600
2018-06	SC	2	2759	168.368	205	3600
2018-05	SC	1	3182	166.333	226	3600
2018-04	SC	2	3043	162.824	246	3600
2018-02	SC	2	2649	151.4	255	3600
2018-01	SC	1	3016	144	312	3600
2017-12	SC	4	2334	131.077	192	3600
2017-02	SC	2	630	33	58	3600
2017-10	SC	3	1754	110.364	174	3600
2017-09	SC	1	1605	104	154	3600
2017-08	SC	3	1698	98.444	157	3600
2017-06	SC	1	1308	81.857	115	3600
2017-05	SC	2	1396	76.333	149	3600
2016-10	SE	1	103	3	3	345
2017-01	SE	1	294	3.5	4	345
2017-03	SE	2	991	10.5	23	345
2017-07	SE	1	1570	11	13	345
2018-03	SE	2	3007	15.313	18	345
2018-08	SE	2	3198	16.429	23	345

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

```
select
customer_state,
count(customer_unique_id) AS No_of_unique_customers,
concat(round(count(customer_unique_id) * 100.0 / sum(count(*)) over(),2),"%") as
Unique_Customer_percentage,
from `Target_case.customers`
group by customer_state
order by 2 desc;
```

customer_state	No_of_unique_customers	Unique_Customer_percentage
SP	41746	41.98%
RJ	12852	12.92%
MG	11635	11.7%
RS	5466	5.5%
PR	5045	5.07%
SC	3637	3.66%
BA	3380	3.4%
DF	2140	2.15%
ES	2033	2.04%
GO	2020	2.03%
PE	1652	1.66%
CE	1336	1.34%
PA	975	0.98%
MT	907	0.91%
MA	747	0.75%
MS	715	0.72%
PB	536	0.54%
PI	495	0.5%
RN	485	0.49%
AL	413	0.42%
SE	350	0.35%

TO	280	0.28%
RO	253	0.25%
AM	148	0.15%
AC	81	0.08%
AP	68	0.07%
RR	46	0.05%

42% customer are from state “SP” and least are from states “AC”, “AP” and “RR”.

Total Customers Vs Unique customers:

```
select customer_state,
count(distinct customer_id)as no_of_customers,
count(distinct customer_unique_id)as no_of_unique_customers
from `Target_case.customers`
group by customer_state
order by 1
```

customer_state	no_of_customers	no_of_unique_customers
AC	81	77
AL	413	401
AM	148	143
AP	68	67
BA	3380	3277
CE	1336	1313
DF	2140	2075
ES	2033	1964
GO	2020	1952
MA	747	726
MG	11635	11259
MS	715	694
MT	907	876

PA	975	949
PB	536	519
PE	1652	1609
PI	495	482
PR	5045	4882
RJ	12852	12384
RN	485	474
RO	253	240
RR	46	45
RS	5466	5277
SC	3637	3534
SE	350	342
SP	41746	40302
TO	280	273

<u>Impact on Economy a</u>nalyze the money movement by e-commerce by looking at order prices, freight and others.

1. **Get the % increase in the cost of orders from year 2017 to 2018 (include months between Jan to Aug only).(You can use the "payment_value" column in the payments table to get the cost of orders.)**

```
with cte as (
select month,
round(sum(if(year=2018,amt,0)),2) as cost_2018,
round(sum(if(year=2017,amt,0)),2) as cost_2017
from
(
select
extract(year from order_purchase_timestamp)as year,
extract(month from order_purchase_timestamp)as mn,
format_timestamp("%b",order_purchase_timestamp) as month,
sum(p.payment_value)as amt
from `Target_case.payments` p
join `Target_case.orders` o
on p.order_id=o.order_id
where order_status not in ('canceled','unavailable')
group by mn,order_purchase_timestamp
order by mn
) as n
where n.mn < 9  and year <> 2016
group by mn,month
order by mn
)

select month, cost_2017,cost_2018,
concat(round((((cost_2018-cost_2017)/cost_2017)*100),2),'  %') as
percent_increased
from cte;
```

Row	month	cost_2017	cost_2018	percent_increased
1	Jan	137006.76	1102639.41	704.81 %
2	Feb	283621.94	979966.23	245.52 %
3	Mar	425656.4	1152736.74	170.81 %
4	Apr	405988.38	1156303.91	184.81 %
5	May	582926.16	1145748.63	96.55 %
6	Jun	499827.47	1020494.29	104.17 %
7	Jul	578858.58	1039880.16	79.64 %
8	Aug	662071.77	996896.15	50.57 %

- **Maximum increase in order price is 704.81% in month of January**

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

```
select c.customer_state,
concat(round(sum (p.payment_value),2),'R$') as Total_price,
concat(round(avg (p.payment_value),2),'R$') as Average_price

from `Target_case.customers`as c
inner join `Target_case.orders` as o
on c.customer_id= o.customer_id
inner join `Target_case.payments` as p
on o.order_id=p.order_id
group by c.customer_state
order by c.customer_state;
```

Row	customer_state	Total_price	Average_price
1	AC	19680.62R$	234.29R$
2	AL	96962.06R$	227.08R$
3	AM	27966.93R$	181.6R$
4	AP	16262.8R$	232.33R$
5	BA	616645.82R$	170.82R$
6	CE	279464.03R$	199.9R$
7	DF	355141.08R$	161.13R$
8	ES	325967.55R$	154.71R$

9	GO	350092.31R$	165.76R$
10	MA	152523.02R$	198.86R$
11	MG	1872257.26R$	154.71R$
12	MS	137534.84R$	186.87R$
13	MT	187029.29R$	195.23R$
14	PA	218295.85R$	215.92R$
15	PB	141545.72R$	248.33R$
16	PE	324850.44R$	187.99R$
17	PI	108523.97R$	207.11R$
18	PR	811156.38R$	154.15R$
19	RJ	2144379.69R$	158.53R$
20	RN	102718.13R$	196.78R$
21	RO	60866.2R$	233.2R$
22	RR	10064.62R$	218.8R$
23	RS	890898.54R$	157.18R$
24	SC	623086.43R$	165.98R$
25	SE	75246.25R$	208.44R$
26	SP	5998226.96R$	137.5R$
27	TO	61485.33R$	204.27R$

- **Highest total price is from AL (96962.06R$)**
- **Highest Average Price is from state PB(248.33R$).**
- **Lowest Total Price is from state RR(10064.62R$).**
- **Lowest Average Price is from state SP (137.5R$).**

```
# using order price

select customer_state ,
concat(round(sum(oi.price),2),'R$') as Total_amount,
```

```
concat(round(avg(oi.price),2),'R$') as Avg_amt
from `Target_case.customers` c
join `Target_case.orders` o
on c.customer_id=o.customer_id
join`Target_case.order_items`oi
on oi.order_id = o.order_id
group by customer_state
order by customer_state;
```

customer_state	Total_amount	Avg_amt
AC	15982.95R$	173.73R$
AL	80314.81R$	180.89R$
AM	22356.84R$	135.5R$
AP	13474.3R$	164.32R$
BA	511349.99R$	134.6R$
CE	227254.71R$	153.76R$
DF	302603.94R$	125.77R$
ES	275037.31R$	121.91R$
GO	294591.95R$	126.27R$
MA	119648.22R$	145.2R$
MG	1585308.03R$	120.75R$
MS	116812.64R$	142.63R$
MT	156453.53R$	148.3R$
PA	178947.81R$	165.69R$
PB	115268.08R$	191.48R$
PE	262788.03R$	145.51R$
PI	86914.08R$	160.36R$
PR	683083.76R$	119R$
RJ	1824092.67R$	125.12R$
RN	83034.98R$	156.97R$
RO	46140.64R$	165.97R$
RR	7829.43R$	150.57R$

RS	750304.02R$	120.34R$
SC	520553.34R$	124.65R$
SE	58920.85R$	153.04R$
SP	5202955.05R$	109.65R$
TO	49621.74R$	157.53R$

- **Highest total order price is from PI (86914.08R$)**
- **Highest Average order Price is from state PB(191.48$).**
- **Lowest Total Price is from state PB(115268.08R$).**
- **Lowest Average Price is from state SP (109.65R$).**

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

```
select customer_state ,
concat(round(sum(distinct freight_value),2),'  REAIs') as Total_freight_value,
concat(round(avg(freight_value),2),'  REAIs') as Avg_freight_value
from `Target_case.customers` c
join `Target_case.orders` o on c.customer_id=o.customer_id
join`Target_case.order_items` oi on oi.order_id = o.order_id
group by customer_state
order by customer_state;
```

customer_state	Total_freight_value	Avg_freight_value
AC	3078.18 REAIs	40.07 REAIs
AL	12031.87 REAIs	35.84 REAIs
AM	4065.5 REAIs	33.21 REAIs
AP	2282.73 REAIs	34.01 REAIs
BA	47819.59 REAIs	26.36 REAIs
CE	30658.4 REAIs	32.71 REAIs
DF	25772.03 REAIs	21.04 REAIs
ES	25575.68 REAIs	22.06 REAIs
GO	27620.61 REAIs	22.77 REAIs

MA	20819.56 REAIs	38.26 REAIs
MG	77356.18 REAIs	20.63 REAIs
MS	12485.4 REAIs	23.37 REAIs
MT	19356.09 REAIs	28.17 REAIs
PA	26922.12 REAIs	35.83 REAIs
PB	18009.12 REAIs	42.72 REAIs
PE	37098.74 REAIs	32.92 REAIs
PI	15451.52 REAIs	39.15 REAIs
PR	45156.2 REAIs	20.53 REAIs
RJ	86061.41 REAIs	20.96 REAIs
RN	13917.27 REAIs	35.65 REAIs
RO	8980.23 REAIs	41.07 REAIs
RR	1698.43 REAIs	42.98 REAIs
RS	51757.74 REAIs	21.74 REAIs
SC	39444.3 REAIs	21.47 REAIs
SE	10374.59 REAIs	36.65 REAIs
SP	115342.71 REAIs	15.15 REAIs
TO	8973.33 REAIs	37.25 REAIs

- **Highest total order freight is from MG (77356.1 R$)**
- **Highest Average order freight is from state RR(42.98$).**
- **Lowest Total Price is from state RO(8980.23R$).**
- **Lowest Average Price is from state SP (15.15R$).**

Analysis based on sales, freight and delivery time.

1. 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. Do this in a single query.

You can calculate the delivery time and the difference between the estimated & actual delivery date using the given formula:

- **time_to_deliver** = order_delivered_customer_date - order_purchase_timestamp
- **diff_estimated_delivery** = order_delivered_customer_date - order_estimated_delivery_date

```
select order_id,
datetime_diff(order_delivered_customer_date, order_purchase_timestamp,day) as time_to_deliver,
datetime_diff(order_delivered_customer_date ,order_estimated_delivery_date,day) as
diff_estimated_delivery
from `Target_case.orders`
order by 1;
```

order_id	time_to_deliver	diff_estimated_delivery
00010242fe8c5a6d1ba2dd792cb16214	7	-8
00018f77f2f0320c557190d7a144bdd3	16	-2
000229ec398224ef6ca0657da4fc703e	7	-13
00024acbcdf0a6daa1e931b038114c75	6	-5
00042b26cf59d7ce69dfabb4e55b4fd9	25	-15
00048cc3ae777c65dbb7d2a0634bc1ea	6	-14
00054e8431b9d7675808bcb819fb4a32	8	-16
000576fe39319847cbb9d288c5617fa6	5	-15
0005a1a1728c9d785b8e2b08b904576c	9	0
0005f50442cb953dcd1d21e1fb923495	2	-18
00061f2a7bc09da83e415a52dc8a4af1	4	-10
00063b381e2406b52ad429470734ebd5	10	0
0006ec9db01a64e59a68b2c340bf65a7	6	-21
0008288aa423d2a3f00fcb17cd7d8719	12	-7
0009792311464db532ff765bf7b182ae	7	-5
0009c9a17f916a706d71784483a5d643	5	-8
000aed2e25dbad2f9ddb70584c5a2ded	6	-3

000c3e6612759851cc3cbb4b83257986	7	-12
000e562887b1f2006d75e0be9558292e	18	-6
000e63d38ae8c00bbcb5a30573b99628	3	-8
000e906b789b55f64edcb1f84030f90d	17	2
000f25f4d72195062c040b12dce9a18a	15	-19
001021efaa8636c29475e7734483457d	9	-14
0010b2e5201cc5f1ae7e9c6cc8f5bd00	11	-3
0010dedd556712d7bb69a19cb7bbd37a		
00119ff934e539cf26f92b9ef0cdfed8	10	-14
0011d82c4b53e22e84023405fb467e57	10	-19
00125cb692d04887809806618a2a145f	15	-12
00130c0eee84a3d909e75bc08c5c3ca1	1	-6
0013503b13da1eac686219390b7d641b	14	-7
00137e170939bba5a3134e2386413108	17	-6
001427c0ec99cf8af737bd88e92fd444	18	-14
00143d0f86d6fbd9f9b38ab440ac16f5	11	-9
0014ae671de39511f7575066200733b7	16	-5
0015ebb40fb17286bea51d4607c4733c	18	-13
00169e31ef4b29deaae414f9a5e95929	7	-14
0016dfedd97fc2950e388d2971d718c7	23	-9
0017afd5076e074a48f1f1a4c7bac9c5	46	4
001862358bf858722e1e2ae000cfed8b	9	-14
0019c29108428acffd089c36103c9440	10	-25
001ab0a7578dd66cd4b0a71f5b6e1e41	21	-11
001ac194d4a326a6fa99b581e9a3d963	8	-4
001b76dd48a5b1eee3e87778daa40df8	11	-20
001c85b5f68d2be0cb0797afc9e8ce9a	27	8
001d8f0e34a38c37f7dba2a37d4eba8b	11	2
001daeb0eddc45b999bad0801ad9d273	21	-10

001dbc16dc51075e987543d23a0507c7	15	-34
001e7ba991be1b19605ca0316e7130f9	10	-14
001e7cf2ad6bef3ade12ebc56ceaf0f3	16	0
0020262c8a370bd5a174ea6a2a267321	4	-19
0020a222f55eb79a372d0efee3cca688	9	-12
002175704e8b209f61b9ad5cfd92b60e	10	-11
00229e4e43f7a7e0b9dd819ad43268d3	5	-20
0025081dcf9330f9a5052ae82c6ce396	9	-11
00254baeb6c932b0a8aeead91fbd02b5	21	-5
00259a44fcad3fc0474329e925d14fc3	7	-17
0025c5d1a8ca53a240ec2634bb4492ea	23	-2
002611a77fe03d076285fd4ca95db77c	23	-3
002691433f09002ac9ca0c4e8dbb8ead	4	-23
0026a368634b6e6f34f33b1499773a30	11	-23
00275bce676303c3bfd7292aefdfa223	9	-9
00276d5c3491fbf55305e26891040df9	31	-5
002834535f7a609a5c68266f173fa59e	18	-2
0028de0ca693a1bb26448916a81105cc	13	-13
002955b0acc63d04f6724a31967e82bd	8	-20
0029c5db35ef291ce99d1262012e7daa	5	-3
0029f17cf0e7640c5cb6825af681303f	8	-11
002af7fa9eb99d1456bceb6a13d6fc0b	21	-2
002b430ff89b3a24c31a1170acbbedea	8	-12
002b4e6fa42cd4a22cc86abc18fe9c05	8	-17
002c9def9c9b951b1bec6d50753c9891	3	-6
002d040018d12a3853c059f7f23ab5b1	7	-10
002f16b7bc4530031b7d90f791b12d8a	4	-18
002f19a65a2ddd70a090297872e6d64e		
002f98c0f7efd42638ed6100ca699b42	3	-28

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0030ff924c38549807645976adeef2c0	21	-3
00310b0c75bb13015ec4d82d341865a4		
00324b3eda39ba5ecce3945823e3594c	23	3
0032d07457ae9c806c79368d7d9ce96b	50	12
003324c70b19a16798817b2b3640e721	11	-7
00335b686d693c7d72deeb12f8e89227	56	32
00335f75ea6a4455b524a8dd177067f5	8	-24
00337fe25a3780b3424d9ad7c5a4b35e	1	-12
003423b755b562962a6225a8de40d12e	16	-14
00345f338696283410b7977d2e3efc89	10	-11
0035246a40f520710769010f752e7507	11	-8
0035c0b07126fe9c24a325216fb96064	13	-26
0035e6b7ade84b3f5b86bd49814793df	5	-14
0036757472ece3dde52fd4bfd929c90e	20	-10
0036887767dea4bd43b1a88cd0d9477a	10	-8
00378c6c981f234634c0b9d6128df6dd	24	0
003822434f91204da0a51fe4cf2aba18	5	-30
0039500db36d50d7d0bfaf23723550f3	14	-12
003a7f59d7e08a9c61d9e2881fe6459c	8	-1
003a94f778ef8cfd50247c8c1b582257	20	9
003cc6161d7a2593f2525cce0c330d32	3	0
003d0634280ff3d1d3a54459349a6899	10	-1
003d804eef0e1b856881cd18e0cc0d4c	54	23
003d9fc84ad902adf2265248b5ffe1a4	7	-8
003edccf16bc5ec447f592913b3df2b4	26	0
003f201cdd39cdd59b6447cff2195456	35	6
003f9bcc09427647c4b9d361a523545b	2	-13
00404fa7a687c8c44ca69d42695aae73	10	-5

0040a56893444cb56cba7cfe2225e34e	22	-6
004157daafa0bc8672e01f00e4f0c04f	12	-23
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0044c6f6d22dd280534344177c81b989	17	-7
0045e3085f083f0f38d24bb3f22e6593	19	0
0045f5225a96ef46630701167528fdcb	8	-15
0046176ff0dbc2a178b7885355dfbb71	5	-24
0046e1d57f4c07c8c92ab26be8c3dfc0	3	-11
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004b62108b876867938746ad3154167f	8	-5
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0057199db02d1a5ef41bacbf41f8f63b	19	-13
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00588f5f20fee630b83d4709e0a42715	12	-29
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005b49de51a4e006055e8487a50ad8e4	18	-6
005cad6157eadc7f1f09917607f1704a	17	-6
005d9a5423d47281ac463a968b3936fb	9	-20
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005f25968fc854ea16fb16f5bdbc87c7	16	-2
00602f25bffa1dcfb71e202fbf9824fb	26	-13
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00664284de7a3470d22931ed78615ee4	9	-13
0066a1fdaee16ad5022c5ef979d0b661	5	-29
0067c6030d65af0ff98790158ddb0020	9	-8
0068468c453d28c8ef3fd089e50a5847	19	-5
00685d31ae12e47470ba5c18ba74f22c	37	8
0068c109948b9a1dfb8530d1978acef3	16	-11
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006e05e81c068ddc38e48ebe189b922e	6	-20
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00789ce015e7e5791c7914f32bb4fad4	18	-2
0078a358a14592b887eb140ef515f5ab	15	-7
0079bca8e89bd52fdb87408e4f3fb94d	5	-9
007bbb40c95870c0f75a7855f2636c65	2	-10
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007ff0b0f79be782f633fc3b18cbe337	11	-15
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0081ab2c99dc85945c28926b77dc6960	4	-9
0081ce648af7d6a7bac2a93b6035d1e3	14	-8
0084209c576daad6ff4534902fcb4892	12	-8
0084e195fbd72ae51599af47f04afede	50	24
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008720830a8a30e39e6f22f81818a141	4	-6
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008990da719764fb392914d8ab53ad04	24	-13
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008fab5602c441d51f30b1464f5d4643	9	-19
0091a677651feaf5a08d7bb147681e14	4	-2
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0093cbf16a6afb7f0ab7cc821b6f9e92	14	-12
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0096668e5b0b8e9657a6f7209a4e58b4	68	60
009742b43f4530bc3db7f62332c50f4b	43	26
00975e709cd12c34d3bd44e4a7f7a876	2	-13
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0097f0545a302aafa32782f1734ff71c	16	0
009838529bb913846ab6670d22865381	12	-20
0098dbda25722a3f019fe252a0cd10b3	13	-8
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00998f38df3012359ef195ca75ebb329	7	-20
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009e11afa25aa95ae78e60a793995c9b	11	-37
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00a3f1ef430d3984dece2f39d6cbf431	19	0
00a4d94df1c9757661679b2f4bd6d311	11	-14
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00a690becda145533fa5a54daa7b6ad5	15	-13
00a77f9cc25b05b2004752593d7b8888	15	-6
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00a9536682ecb394a3794c1608200803	9	-8
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00aa423621f35a9ca6c6240f275b0640	11	-8
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00ab210695a17fe10e6b23616ae5bc97	7	-6
00ab3a43bda739029ffce95d3b2fb56c	4	0
00ab9fa91aafa3d881164b0da48999aa	12	-18
00ac05fe0fc047c54418098eb64e3aaa	12	-13
00ac2a1ec784f71feeb7ba1e5959750d	11	-19
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00b44ba3d7c4a5e9a9ebafef9150781d	1	-26
00b47ee856118583dbec7d1f9b18d847	13	-3
00b4846d477a7baf5d4e47970bc08c7e	8	-16
00b4a910f64f24dbcac04fe54088a443	7	-32
00b4c651133c06fb175123a492f1cac3	6	-4
00b5e1c770b1868ec1b6b726be3aa9b9	7	-14
00b676b01c289cc661c6f7732492771a	12	-8
00b6c055922e0ed2d88efdd252b2fb64	6	-8
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00b7174ea52bb811ebe2663add51afc0	5	-17
00b8d354b36820e9d6131fd5173c5581	12	-12
00b9e0f8f588d0406a3de447eb606970	25	2
00ba414462370af2d76195d12e0d5481	15	-16
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00bbc4179554524748f77763ddd62266	5	-8
00bc78808b22918a467b2fa4b8ef5d68	8	-12
00bca4adac549020c1273714d04d0208		
00bcee890eba57a9767c7b5ca12d3a1b	4	-24
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00bd50cdd31bd22e9081e6e2d5b3577b	7	-7
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00c763284c0056eed753352f5559ff0a	12	-20
00c81b6675ef9ecaaff5fc1d6720b96c	5	-14
00c826c901ab01b6f598a8f0c9b56b82	12	-15
00c842d0ae6462afc1d38fc055b02c75	13	-7
00c8be06a8029e300dabd52c7d4c6ad2	16	-9
00c8bfbb0a1224dcdb0180a544247159	4	-12
00c9474e0334f7a4ffc8c3a8bd21a51e	12	0
00c95282163553a982f38481f9488481	8	-19
00c9d0257381c7e9ec13b4505f25b2cf	9	-20
00c9d9e61ed13f5bf2f0344da1aa4775	9	-10
00c9f7d4b0e87781465e562dc109f6aa	9	-19
00cb18db3d9c03f8386e7fc70cad2504	7	-14
00cb9736c0b43d6c1e2fbb2b88e69f6a	18	-16
00ce92d57f4f9a112bdb8a2a283e5f97	7	-18
00ceda91cb2ded8570ca73e70571740a	10	-17
00cee8a4dbb042385cbbd84699e78b2e	5	-6
00cf2b04c59f0ecaf822bf3f334d5c3b	12	-6
00cf47526e0f7920b381b2baf4ecf1c7	6	-28
00cfabbe2a93b70beeec4894f86712a8	12	-12

00d03eb3425f41a599ae2f788e23c07f	50	11
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00d1289d5125017a90e528b5a7cee91f	96	74
00d15ff0236872686e4899ed1ce680ad	14	-8
00d1e381c0995f0bdb95909fe7434d0b	8	-10
00d2559e61b9a0744a0552c35c5ecccb	7	-9
00d29386638bbfd1331a2cd7ab91b5b5	8	-13
00d4439957b7fd3f8da4a33a965817fb	14	-7
00d50baf1bc56a3c59de1810a6b84b0d	35	5
00d5fac7792747fba4b528f23930bebd	8	-12
00d831d5c3ea03b7cd6f883ad799c7e4	4	-8
00d85bfe0e28c91b69d0fe1f29255a31	7	-13
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00d94e8901b75ee0d6ef1f87f947b666	21	-12
00d9ac423c9ad6781c0ed04e87666691	21	-9
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00dc6ad47477b3b62d3c0acbe98a82a4	19	-11
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00dfb074b5c910fbd08e04691c4b712f	6	-24
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00e1426d4c79f2e022570012c1ff57ed	13	-11
00e1bdb3f1388c8ed222597ee4fa01e7	8	-13
00e32e413e017e64ff93a9e800b8e1be	7	-15
00e365f4fc03d1098841af23d05c17a6	9	-11
00e4050fe32e786290a29c61141e979f	12	-24
00e5b655df1cc911466758210325c67c	11	-12

00e63486fad9d24645c9c84ed77c15fa	6	-20
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00e6bc6b166eb28b4502c1cad4457248	3	-24
00e7aeced1d61792368ec7bf8b967a90	21	-12
00e7ee1b050b8499577073aeb2a297a1	8	-10
00ea33f994bec0bbfda582074083ae12	7	-15
00ea690fe8c5eba029a3884243a02352	23	-7
00eb7b95af5ed25aaec66d4ff5295846	10	-23
00ec95a58b63378d4cc06d196cdefdf6	10	-15
00ed64bc080d87b4ab7f0c433bc5e98f	7	-14
00eead1d5a799277ef3d6b387b0bebef	3	-6
00eef7fe9e315a85d1a61a50cccb2494	13	-10
00ef7ed06a55243f3e6a9d373a89eb14	34	-17
00efb72d8e18533f736e86770705d094	9	-28
00f1a34f176151c4dcbd802c244e1072	5	-6
00f1bb0af030935db1745ee28367ea26	11	-8
00f1c7c1542f5f86c3091749d9e939d8	10	-19
00f1cc7439ccb8671133776d1829faf5	8	-2
00f251b943aba645652c7138e4716fee	7	-13
00f2a3509bd600bd1a06a48353788d93	4	-24
00f2c876aa08fbba04199823952e96c1	12	-20
00f324f6ec332cd73ef8be4888573662	17	-7
00f33ee62c15223679d3550e751c37cd	23	0
00f426c7214575822c3cb44ea59ef0f6	12	-18
00f57f2ccce2a2e3f393fe8f5e616e0d	7	-13
00f5fbdc777e8198c1ee008122e28ae3	11	-13
00f621226c6f4e938348f6f3a71fdc62	8	-17
00f6ac4816d12f49026b09f2aa77d15f	6	-13
00f6dbc6195397197ee147ee45607a2c	15	-7

00f7c5b41250e0126ced62d612ff4711	12	-21
00f86b368251d739f1896d41469b2b7a	10	-2
00f8fc0cb9d9b7813f1f54fbd75426f1	10	-11
00f98eaeddb9debc8df8cb27e08216d4	4	-6
00f9b0236a85fb8a06fbd9b9c53fddd8	11	-9
00f9b6769c6648ac08bf43081d1f2b07	13	-24
00faa6afcde74aaa630e1d2fda2bb0f7	9	-13
00fb055886536063afa0dbee07a0944f	8	-19
00fb278a99144cc1004b3ed1452ff5e1	5	-12
00fbcd8b120e5706c58b9d1a0026a7da	21	0
00fc308dd7f0937682698becaa9dcc45	7	-8
00fcf938cde49ae138942b632ed62393	19	-9
00fdb72e467da6f3b000b19b368a6cf6	7	-23
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010061e3aa0c6ed5e393dda0652bbee8	10	-2
01006620eb4732deec44be4b0d9e33cd	9	-13
010078e0913f48d014483bd856c01ca1	9	-15
01015fb6493ea5b9ba105c80b5452da1	27	7
0101aea69a09e1aa32caa6dbaba98503	21	-32
01029b44abe6e15c8df48b1b759ab437	7	-10
0103878b7ed86b6ec873cfae01379472	6	-8
01074135a88ffa5978eaadfc7f482f2b	18	-6
0108c64ec135e4a7a75e9b5102af9bfa	24	-3
0108fba93678555ad1cec9c267848187	2	-11
01094e169d4b14edaf6954eeddb83633	20	-8
010a35dc7fc3808a03d243d2fd8c6e35	5	-13
010ab3b1993057e91f825c672375a66d	10	-20

010b0f6bd323a9effd095a743e660f26	8	-4
010b143d83a59b355cd5a75c0f0fd785	18	-17
010c995323bc17d8156fbe2c37fed63e	5	-12
010d14f76a229c295260e4ca4744acc7	16	-10
010d15deea8cae96ae86ea8097917a17	12	-19
010d6db2f77220b394f147836c94f27b	9	-4
010e04b5f879320f29a9bd6ca41abc94	6	-9
010e7dda85fff564e8b7076ae3928efb	15	-5
010ef5b0279d7512e7343cb775e423c0	6	-13
010efe60bdadc9261d1902f3c1dda5f3	8	-31
010f223ddbec749e95ef3f5414f9c4ee	9	-16
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010ff1cfe12f3094577e72b7bcecdf98	7	-20
0110688c40ff035d672af3aac1f38f10	26	-1
011080783e02d05b26c8c158b3653a42	8	-20
011105c3b5b8693eda1bfb1f152cec2a	7	-23
011108c8a3d6eee6807f48a2e639439f	23	3
01115c06246220def210911556bdc0e5	19	0
011331376a4c6cc7a9e5bc165ec169d0	12	-11
011375f941b3695c3c3ee58bfe0d3655	13	-11
0113affd907a209209ab08413bb54226	21	-5
0113c9989fe6e5007795daec0633b405	4	-17
011405ae7b89def8ffb3468eb29c299d	4	-11
01144cadcf64b6427f0a6580a3033220	11	-25
0114835d7f0b3f674b70a989411e31c1	4	-8
01156b662f3f47b249b5a8881d205f08	13	-5
0115abf6b892040abfdd5bdfcb6b2c51	24	5
0115d160c5fbd758a139ff90821db60d	20	3
0115f8bb1dc16d3fac863ce1deb037b6	6	-13

011667ae100a333a3051c9a23e3f0283	8	-12
011724d1afbd91844302627f79a66800	5	-6
0119e98feb97441cb456c010c25b04ff	9	-20
011a43bc9bb525517251ebb3ebc99b69	4	-8
011a56023faf5bbb9af634e20a85f7bc	8	-13
011abf147a69ba486bae3a74b6cd1814	10	-13
011af0959ebf2b09a062867811dc63b5	3	-19
011b142c9e082a5c1d10e0a88cd9c8e8	22	-1
011b8dd4f8c36fd4fcf50643ce91d58a	27	-9
011bf86f1b7dacebda2c874333cf656b	12	-14
011c899816ea29773525bd3322dbb6aa	15	-8
011e6e76dd0cd56d26b5b0cb036e80a8	3	-7
011f9dff2545a2cf8ac1809faed3ec88	8	-13
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0120e3dd2696a3bbb68dc2860815f7f2	15	-30
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0121cfa7c946e6589f50d7012d3eb5eb	7	-19
012219b6d6d034eb359fc74730a080db	6	-11
012248555cb0bf51df99199cef81d562	16	-12
0122e81ff800460e44bb9c983ff2a2fd	12	-7
0123098b96f3d4014545642be53d891c	14	-7
01235dc626dcf13283207ba7f36a959a	13	-2
01237c761ffb72594a466ed514518af0	5	-14
0123a055aa66357326dd6db066592a7d	6	-10
0124e0c5bfae1979838a91e47df53f14	7	-10
0124f01177fc17cf20e1974621fd759a	9	-10
01255808a3d38a8dd69aa93265a4cb88	10	-17
012670c73246a753cbde0a215c2b9e8f	41	8
0128412231f9fe9d7e944eea5392fc6b	8	0

012973f4cb6743d00d7e2644ddc8804c	9	-30
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012b3f6ab7776a8ab3443a4ad7bef2e6	7	-19
012bea13f9a355c983efb59a3f23583a	20	-11
012d8cbea490e6102cee6a2088aaa785	14	-19
012dc9e42da722d22e32c618a2521bec	5	-6
012e93f8170eb75b2f2f650629d04517	5	-21
012ea594e035047289b3e7c3f8b90cef	5	-5
012eab2625c5f8aaac6f37f2c19ef62f	10	-12
012f255bd5034b8e7fb3c91566a91cc8	3	-20
012f29911fcd2f1209d937741a6bbc6f	5	-13
012f2c4ca09b101a73e18957c3294cd6	7	-15
013037c3f1773cc8fdbaf8ff54d8013b	6	-15
013056cfe49763c6f66bda03396c5ee3	16	-3
0130f0f71fb0e831d18e6a3b33a3a50c		
01311f2795d8463a11f9422173687696	13	-9
0132158c30672a8c52997a2492613ec2	1	-14
0132451f29a10b66a5cf1bacc85f9afe	9	-19
0132d77609dd6e1867515ec57d898c10	12	-14
0132f39e8ad9b42ad2d41c847f44c0ed	1	-11
0132fef017ccf586491ca3685de667df	1	-25
01336d091c57d8be1feca330c5f047bd	7	-20
0133a47b53fee66218790a8d7dcab993	11	-19
0135675503322d804abef7ec5ed4824b	8	-16
01358622f65717728b3b2ec2cf4e8812	2	-9
0136390286be8a34efdc801ed150568f	7	-16
0136bcc7370d7fdf44bd916a6dd583c6	16	1
01380d0df5b7dc8bd13f2266a57bd42c	3	-16
013a98b3a668bcef05b98898177f6923	5	-30

013aa6ba5077072401773f83f1ee6408	21	-4
013b811ba81339b7634ab5231c547e6a	8	-11
013bc5ce14f856d31efc8bebdc3a278f	7	-26
013bc77d3ca5fba084a241fdcb307393	54	21
013d92e415d1de7bf3b3b706f1b6d292	26	-9
013e9c654a339d80b53513da3c1ea437		
01405161cfdf60dd80df1f393a2796d5	10	-3
014176e9538672a32d2a9b73bf53a31f	18	-9
01422b2c3c27fa3bc464e72eaed9676b	9	-13
01428962dce3b65e5433eaeb16c0f48f	18	-13
0143924743f240e1fdcd6a8918fbe147	3	-9
014405982914c2cde2796ddcf0b8703d	4	-16
01442602b15d4127a84ca6ac1507ee2d	8	-14
01443cd06ea8bce82c554a46f307459f		
014872cb0c4fc7695c70484966baa65c	7	-25
0148d3df00cebda592d4e5f966e300cc		
01490a4bdacbafe6de009b317a0c8bf6	9	-20
0149c597dcc0963d7315f904495b631c	4	-10
014a0793ab3d930d6f3b206cee474af4	2	-35

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

```
select state ,avg_freight_value from
(
(
select concat('HIGH -   ',customer_state) as state,
max(freight_value) as High_freight_value,
concat(round(avg(freight_value),2),' R$') as avg_freight_value
from `Target_case.customers` c
join `Target_case.orders` o on c.customer_id=o.customer_id
join `Target_case.order_items` as p on o.order_id = p.order_id
group by customer_state
order by 3 desc
limit 5
)
union all
(
select concat('LOW -  ',customer_state) as state,
min(freight_value) as low_freight_value,
concat(round(avg(freight_value),2),' R$') as avg_freight_value
from `Target_case.customers` c
join `Target_case.orders` o on c.customer_id=o.customer_id
join `Target_case.order_items` as p on o.order_id = p.order_id
group by customer_state
order by 3 asc
limit 5
)
)as t;
```

Row	state	avg_freight_value
1	HIGH - RR	42.98 R$
2	HIGH - PB	42.72 R$
3	HIGH - RO	41.07 R$
4	HIGH - AC	40.07 R$
5	HIGH - PI	39.15 R$
6	LOW - SP	15.15 R$
7	LOW - PR	20.53 R$
8	LOW - MG	20.63 R$
9	LOW - RJ	20.96 R$
10	LOW - DF	21.04 R$

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

```
select state ,avg_delivery_time from
(
(
select concat('HIGH -   ',customer_state) as state,
concat(round(Avg(datetime_diff(order_delivered_customer_date,
order_purchase_timestamp,day)),0)," days") as avg_delivery_time
from `Target_case.orders` o
join `Target_case.customers` c
on c.customer_id=o.customer_id
group by customer_state
order by 2 desc
limit 5
)
union all
(
select concat('LOW - ',customer_state) as state,
concat(round(Avg(datetime_diff(order_delivered_customer_date,
order_purchase_timestamp,day)),0)," days") as avg_delivery_time
from `Target_case.orders` o
join `Target_case.customers` c
on c.customer_id=o.customer_id
group by customer_state
order by 2
limit 5
)
)as t;
```

Row	state	avg_delivery_time
1	HIGH - SP	8 days
2	HIGH - RR	29 days
3	HIGH - AP	27 days
4	HIGH - AM	26 days
5	HIGH - AL	24 days
6	LOW - MG	12 days
7	LOW - PR	12 days
8	LOW - DF	13 days
9	LOW - SC	14 days
10	LOW - RJ	15 days

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

(You can use the difference between the averages of actual & estimated delivery date to figure out how fast the delivery was for each state.)

```
select state as Top_5_States_as_delivery_time
from
(select customer_state as state,
sum(datetime_diff(order_delivered_customer_date ,order_estimated_delivery_date,day))
as diff_estimated_delivery
from `Target_case.orders` o
join `Target_case.customers` c
on c.customer_id=o.customer_id
group by customer_state
order by 2
limit 5
);
```

Row	top_5_States_as_delivery_time
1	SP
2	MG
3	RJ
4	RS
5	PR

Analysis based on the payments:

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

```
select
format_timestamp('%m-%Y', o.order_purchase_timestamp)as period,
count(case when payment_type='credit_card' then 1 end) as CREDIT_CARD,
count(case when payment_type='debit_card' then 1  end)as DEBIT_CARD,
count(case when payment_type='UPI' then 1 end) as UPI,
count(case when payment_type='voucher' then 1 end) as VOUCHER,
count(case when payment_type='not_defined' then 1 end)as NOT_DEFINED,
count(case when payment_type is null then 1 end)as NOT_KNOWN,
count(o.order_id)as total_orders
from `Target_case.payments` p
join `Target_case.orders` o
on p.order_id=o.order_id
where payment_type is not null and order_status not in ('canceled','unavailable')
group by period
order by period;
```

period	CREDIT_CARD	DEBIT_CARD	UPI	VOUCHER	NOT_DEFINED	NOT_KNOWN	total_orders
01-2017	574	9	193	60	0	0	836
01-2018	5457	109	1499	412	0	0	7477
02-2017	1309	13	383	116	0	0	1821
02-2018	5167	68	1311	300	0	0	6846
03-2017	1959	30	582	200	0	0	2771
03-2018	5658	77	1343	390	0	0	7468
04-2017	1828	26	488	201	0	0	2543
04-2018	5438	97	1286	368	0	0	7189
05-2017	2807	30	758	288	0	0	3883
05-2018	5465	50	1257	316	0	0	7088
06-2017	2428	27	702	236	0	0	3393
06-2018	4795	181	1097	324	0	0	6397
07-2017	3024	22	829	349	0	0	4224
07-2018	4714	240	1212	280	0	0	6446
08-2017	3244	34	920	275	0	0	4473
08-2018	4955	276	1132	243	0	0	6606
09-2016	1	0	0	0	0	0	1
09-2017	3243	43	885	279	0	0	4450
09-2018	0	0	0	1	0	0	1
10-2016	227	2	60	22	0	0	311
10-2017	3466	52	971	280	0	0	4769
11-2017	5812	67	1479	382	0	0	7740
12-2016	1	0	0	0	0	0	1
12-2017	4333	63	1152	291	0	0	5839

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

```
select payment_installments,
count(distinct order_id) as No_of_Orders
from `Target_case.payments`
where payment_installments <> 0
group by 1
order by 1;
```

payment_installments	No_of_Orders
1	49060
2	12389
3	10443
4	7088
5	5234
6	3916
7	1623
8	4253
9	644
10	5315
11	23
12	133
13	16
14	15
15	74
16	5
17	8
18	27
20	17
21	3
22	1
23	1
24	18