Credit Card Transaction

Ad-Hoc Insight

NEELESH CHATURVEDI

1- Write a query to print top 5 cities with highest spends and their percentage contribution of total credit card spends.

```
with cte1 as (
SELECT
   city, SUM(amount) AS highest_spend
 FROM
   credit_card_transcations
GROUP BY city
ORDER BY highest_spend DESC
LIMIT 5),

cte2 as (
SELECT
   SUM(amount) AS total_spend
FROM
   credit_card_transcations)

SELECT
   *, (highest_spend / total_spend * 100) AS pct_contribution
FROM
   cte1
      JOIN
   cte2;
```

city	highest_spend	total_spend	pct_contribution
Greater Mumbai	576751476	4074833373	14.1540
Bengaluru	572326739	4074833373	14.0454
Ahmedabad	567794310	4074833373	13.9342
Delhi	556929212	4074833373	13.6675
Kolkata	115466943	4074833373	2.8337

2- Write a query to print highest spend month and amount spent in that month for each card type.

```
with cte1 as (
SELECT
card_type,
   year(transaction_date) as Year,
   MONTHNAME(transaction_date) AS Month,
   SUM(amount) spend
FROM
   credit_card_transcations
GROUP BY card_type, Year, Month
ORDER BY spend DESC , month)

select
        card_type, Year, Month, spend
from (
                select *,
                rank() over(PARTITION BY card_type order by spend DESC) as rn
                from cte1
        ) a
WHERE
   rn = 1;
```

card_type	Year	Month	spend
Gold	2015	January	55455064
Platinum	2014	August	57936507
Signature	2013	December	58799522
Silver	2015	March	59723549

3- Write a query to print the transaction details(all columns from the table) for each card type when it reaches a cumulative of 1000000 total spends(We should have 4 rows in the o/p one for each card type).

```
WITH cumulated AS (
   SELECT *,
        SUM(amount) OVER(PARTITION BY card_type ORDER BY transaction_date, transaction_id) AS cum_sum
   FROM credit_card_transcations
),
filtered AS (
   SELECT *,
        RANK() OVER(PARTITION BY card_type ORDER BY cum_sum ASC) AS rn
   FROM cumulated
   WHERE cum_sum >= 1000000
)
SELECT *
FROM filtered
WHERE rn = 1;
```

transaction_id	city	transaction_date	card_type	exp_type	gender	amount	cum_sum	rn
1522	Delhi	2013-10-04	Gold	Food	M	281924	1272624	1
191	Ahmedabad	2013-10-05	Platinum	Bills	F	612572	1537482	1
73	Delhi	2013-10-04	Signature	Bills	F	550782	1285819	1
7565	Bengaluru	2013-10-04	Silver	Food	F	205179	1115582	1

4- Write a query to find city which had lowest percentage spend for gold card type.

```
with cte1 as (
                    SELECT
                       city, SUM(amount) AS total_amount
                    FROM
                       credit_card_transcations
                    GROUP BY city),
                    cte2 as(
SELECT
            city, SUM(amount) AS gold_amount
           FROM
              credit_card_transcations
           WHERE
              card_type = 'GOLD'
           GROUP BY city  )
SELECT
   cte1.city,
   gold_amount,
   total_amount,
   (gold_amount / total_amount) * 100 AS gold_pct
FROM
   cte1
      JOIN
   cte2 ON cte1.city = cte2.city
ORDER BY gold_pct ASC LIMIT 1;
```

city	gold_amount	total_amount	gold_pct
Dhamtari	1416	425241	0.3330

5- Write a query to print 3 columns: city, highest_expense_type , lowest_expense_type (example format : Delhi , bills, Fuel)

```
with cte1 as (
SELECT
   city, exp_type, SUM(amount) AS total_spend
FROM
   credit_card_transcations
GROUP BY city , exp_type),
cte2 as (
            select *,
            rank() over(partition by city order by total_spend desc) rn_high,
            rank() over(partition by city order by total_spend) rn_low
from cte1)
SELECT
   city,
   MAX(CASE
      WHEN rn_high = 1 THEN exp_type
   END) AS highest_expense_type,
   MAX(CASE
      WHEN rn_low = 1 THEN exp_type
   END) AS lowest_expense_type
FROM
   cte2
WHERE
   rn_high = 1 OR rn_low = 1
GROUP BY city;
```

city	highest_expense_type	lowest_expense_type
Achalpur	Grocery	Entertainment
Adilabad	Bills	Food
Adityapur	Food	Grocery
Adoni	Bills	Entertainment
Adoor	Fuel	Bills
Afzalpur	Fuel	Food
Agartala	Grocery	Food
Agra	Bills	Grocery
Ahmedabad	Bills	Grocery
Ahmednagar	Fuel	Grocery
Aizawl	Food	Grocery
Ajmer	Entertainment	Fuel
Akola	Bills	Fuel

6- Write a query to find percentage contribution of spends by females for each expense type.

```
with cte1 as (
        select exp_type, sum(amount) as total_amount
        from credit_card_transcations
        group by exp_type
        ),
cte2 as  (
                select sum(amount) as female_contribution, exp_type
                from credit_card_transcations
                where gender = "F"
                group by exp_type        )

        select cte1.exp_type, total_amount, female_contribution,
        round(((female_contribution/total_amount ) * 100),2) as female_contri_pct
 from cte1 join cte2
on cte1.exp_type = cte2.exp_type;
```

exp_type	total_amount	female_contribution	female_contri_pct
Bills	907072473	580035469	63.95
Food	824724009	452817279	54.91
Entertainment	726437536	358663333	49.37
Grocery	718207923	365646998	50.91
Fuel	789135821	392282421	49.71
Travel	109255611	55865530	51.13

7- Which card and expense type combination saw highest month over month growth in Jan-2014.

```
WITH cte AS (
  SELECT
    card_type,
    exp_type,
    YEAR(transaction_date) AS yt,
    MONTH(transaction_date) AS mt,
    SUM(amount) AS total_spend
  FROM credit_card_transcations
  GROUP BY
    card_type,
    exp_type,
    YEAR(transaction_date),
    MONTH(transaction_date)
),
cte_with_lag AS (
  SELECT
    *,
    LAG(total_spend, 1) OVER (PARTITION BY card_type, exp_type ORDER BY yt, mt) AS prev_mont_spend
  FROM cte
)
SELECT *,
      (total_spend - prev_mont_spend) AS mom_growth
FROM cte_with_lag
WHERE prev_mont_spend
```

card_type	exp_type	yt	mt	total_spend	prev_mont_spend	mom_growth
Gold	Bills	2013	11	8998116	13479079	-4480963
Gold	Bills	2013	12	10289023	8998116	1290907
Gold	Bills	2014	1	11137964	10289023	848941
Gold	Bills	2014	2	9476516	11137964	-1661448
Gold	Bills	2014	3	11640328	9476516	2163812

8- During weekends which city has highest total spend to total no of transaction ratio.

```
SELECT
   city, SUM(amount) / COUNT(*) AS ratio
FROM
   credit_card_transcations
WHERE
   DAYOFWEEK(transaction_date) IN (1 , 7)
GROUP BY city
ORDER BY ratio DESC LIMIT 1;
```

	city	ratio
▶	Sonepur	299905.0000

9- Which city took least number of days to reach its 500th transaction after the first transaction in that city.

```
WITH cte AS (
   SELECT *,
        ROW_NUMBER() OVER(PARTITION BY city ORDER BY transaction_date, transaction_id) AS rn
   FROM credit_card_transcations
)
SELECT
   city,
   MIN(transaction_date) AS first_transaction,
   MAX(transaction_date) AS last_transaction,
   DATEDIFF(MAX(transaction_date), MIN(transaction_date)) AS days_to_500
FROM cte
WHERE rn IN (1, 500)
GROUP BY city
HAVING COUNT(*) = 2
ORDER BY days_to_500 ASC;
```

city	first_transaction	last_transaction	days_to_500
Bengaluru	2013-10-04	2013-12-24	81
Greater Mumbai	2013-10-04	2013-12-28	85
Ahmedabad	2013-10-04	2013-12-29	86
Delhi	2013-10-04	2014-01-02	90
Chennai	2013-10-04	2014-10-19	380
Hyderabad	2013-10-04	2014-10-23	384
Kolkata	2013-10-04	2014-10-28	389
Lucknow	2013-10-05	2014-10-30	390