CREDIT CARD TRANSACTION ANALYSIS

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INTRODUCTION

Project Description

The dataset offers insights into credit card spending habits across India, detailing variables like gender, card-type, city-wise spending, and expense categories. It highlights trends in customer preferences and spending patterns, providing a rich resource for data analysis and business intelligence.

Growth of Credit Card Users in India

The significant rise in the number of credit card users across India over the past decade, driven by increased digital literacy and financial accessibility.

PURPOSE AND APPROACH

Understanding Spending Patterns

An in- depth analysis of how consumers utilize credit cards, identifying trends in spending categories such as card type, expense type, city, and gender.

Impact on Economy

Examining the broader economic effects of increased credit card use, including consumer spending behavior, financial stability, and market growth dynamics.

Business Queries

We have received business-related queries that require analysis. Our task involves examining the datasets and delivering insightful, data-driven answers to address these queries effectively.

DATASET

Here are a few variables that is relevant in a credit card transaction dataset:

- City: The city where the transaction was made.
- Transaction Date: The date on which the transaction occurred.
- Card Type: The type of credit card used for the transaction.
- Expense Type: The category of expenses associated with the transaction.
- Gender: The gender of the cardholder.
- Amount: The total amount of the transaction.

BUSINESS QUERIES

Query to print top 5 cities with highest spends and their percentage contribution of total credit card spends.

```
with cte as (
select SUM(amount) as 'total_spends'
from credit_card_transactions),

cte1 as (
select top 5 city, SUM(amount) as 'spends'
from credit_card_transactions
group by city
order by spends desc)

select *, concat(round(cast((spends/total_spends*100) as float),2), '%') as 'precentage_contribution'
from cte1 cross join cte;
```

Query to print highest spend month and amount spent in that month for each card type.

```sql
with cte as (
select card_type, DATEname(month, transaction_date) as 'monthNo',
DATEPART(year, transaction_date) as 'yearNo', SUM(amount) as 'spends'
from credit_card_transactions
group by card_type, DATEname(month, transaction_date), DATEPART(year, transaction_date)
)

select * from (
select *,
RANK() over(partition by card_type order by spends desc) as 'rnk'
from cte) as A
where A.rnk = 1;
```

Query to print the transaction details for each card type when it reaches a cumulative of 1000000 total spends.

```sql
with cte as (
select *,
sum(amount) over(partition by card_type order by transaction_date, transaction_id) as 'cumulativeSUm'
from credit_card_transactions)

select * from (
select *,
RANK() over(partition by card_type order by cumulativeSUm) as 'rnk'
from cte where cumulativeSUm >= 1000000) as A
where A.rnk = 1;
```

Query to find city which had lowest percentage spend for gold card type.

```sql
with cte as (
select city, SUM(amount) as 'total_spends'
from credit_card_transactions
group by city),

cte1 as (
select city, card_type, SUM(amount) as 'gold_spends'
from credit_card_transactions
group by city, card_type
),

cte2 as (
select cte.city,cte.total_spends, cte1.card_type, cte1.gold_spends
from cte join cte1 on cte.city = cte1.city
where cte1.card_type = 'Gold')

select *, (gold_spends * 100/total_spends) as 'percentage_spends'
from cte2
order by percentage_spends asc;
```

Query to print 3 columns: city, highest_expense_type , lowest_expense_type.

```sql
with cte as (
select city,exp_type, SUM(amount) as 'total_spends'
from credit_card_transactions
group by city, exp_type)

,cte1 as (
select *,
RANK() over(partition by city order by total_spends desc) as 'highest_rank',
rank() over(partition by city order by total_spends) as 'lowest_rank'
from cte
)

select cte1.city,
max(case when highest_rank = 1 then cte1.exp_type end) as 'highest_expense_type',
max(case when lowest_rank = 1 then cte1.exp_type end) as 'lowest_expense_type'
from cte1
group by cte1.city;
```

Query to find percentage contribution of spends by females for each expense type.

```sql
with cte as (
select exp_type, SUM(amount) as 'total_spends'
from credit_card_transactions
group by exp_type),

cte1 as (
select exp_type, gender, SUM(amount) as 'gender_expenses'
from credit_card_transactions
group by exp_type, gender),

cte2 as (
select cte.exp_type, cte.total_spends, cte1.gender, cte1.gender_expenses
from cte join cte1 on cte.exp_type = cte1.exp_type
where cte1.gender = 'F')

select *, (gender_expenses * 100/total_spends) as 'percentage_contribution'
from cte2 order by percentage_contribution;
```

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

```sql
with cte as (
select card_type, exp_type, DATEpart(month, transaction_date) as 'monthname',
DATEPART(year, transaction_date) as 'year', SUM(amount) as 'total_spends'
from credit_card_transactions
group by card_type, exp_type, DATEpart(month, transaction_date), DATEPART(year, transaction_date)),

cte1 as (
select *,
LAG(total_spends,1) over(partition by card_type, exp_type order by year, monthname) as 'prev_month_spends'
from cte)

select top 1 *, (total_spends-prev_month_spends) as 'mom_growth' from
cte1 where prev_month_spends is not null and year = 2014 and monthname = 1
order by mom_growth desc;
```

Which city has highest total spend to total number of transactions ratio during weekends.

```sql
select city, SUM(amount) as 'total_spends', SUM(amount)/COUNT(*) as 'transaction_ratio'
from credit_card_transactions
where DATEPART(weekday, transaction_date) = 1 OR DATEPART(weekday, transaction_date) = 7
group by city
order by transaction_ratio desc;
```

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

```sql
with cte as (
select *,
ROW_NUMBER() over(partition by city order by transaction_date, transaction_id) as 'rn'
from credit_card_transactions)

select city, MIN(transaction_date) as 'first_transaction', MAX(transaction_date) as 'last_transaction',
DATEDIFF(day, MIN(transaction_date), MAX(transaction_date)) as 'date_diff'
from cte
where rn in (1,500)
group by city
having count(*) = 2
order by date_diff asc;
```

INSIGHTS

The top 5 cities with the highest credit card spends—Greater Mumbai, Bengaluru, Ahmedabad, Delhi, and Kolkata—contribute significantly to the total spending, with Mumbai leading at 14.15% and Kolkata at 2.83%.

The highest spend month for each card type is January 2015 for Gold (₹55,455,064), August 2014 for Platinum (₹57,936,507), December 2013 for Signature (₹58,799,522), and March 2015 for Silver (₹59,723,549).

The city with the lowest percentage spend for the Gold card type is Dhamtari, with a contribution of 0.33%. Females contribute 49.37% to Entertainment, 49.71% to Fuel, 50.91% to Grocery, 51.13% to Travel, 54.91% to Food, and 63.95% to Bills of contribution of total spends.

The Platinum card with the Grocery expense type saw the highest month-over-month growth in January 2014, with a growth of 4,498,781.

Bengaluru took 81 days, Greater Mumbai 85 days, Ahmedabad 86 days, Delhi 90 days, Chennai 380 days, Hyderabad 384 days, Kolkata 389 days, Lucknow 390 days, Kanpur 395 days, Jaipur 401 days, Surat 403 days, and Pune 411 days to reach their 500th transaction after the 1st transaction.

Thank You