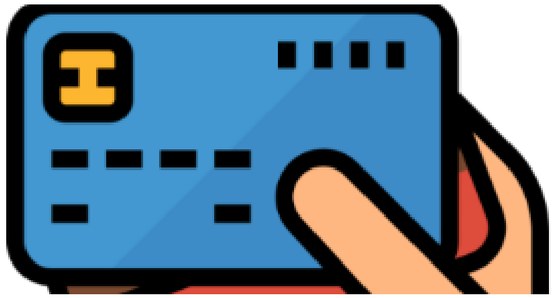
THE DEVASTATOR · UPDATED 6 MONTHS AGO

139 | New Notebook | Download (326 kB)

Credit Card Spending Habits in India

Gender, Location, and Transaction Trends



SQL PROJECT

Presented by Amit Patel

Solutions are Coded in - Microsoft Sql Server

Introduction

This dataset contains insights into credit card transactions made in India, offering a comprehensive look at the spending habits of Indians across the nation

- City: The city in which the transaction took place. (String)
- Date: The date of the transaction. (Date)
- Card Type: The type of credit card used for the transaction. (String)
- Exp Type: The type of expense associated with the transaction. (String)
- Gender: The gender of the cardholder. (String)
- Amount: The amount of the transaction. (Number)

Start with some basic EDA - total records , find nulls in dataset etc.

```sql
select count(1) from credit_card_transactions;
    -- total 26052 records are present in the dataset

select
  SUM(case when "Index" IS NULL THEN 1 ELSE 0 END) AS index_null_count
  ,sum(case when city IS NULL THEN 1 ELSE 0 END) AS city_null_count
  ,sum(case when "Date" IS NULL THEN 1 ELSE 0 END) AS date_null_count
  ,sum(case when Card_Type IS NULL THEN 1 ELSE 0 END) AS card_null_count
  ,sum(case when Exp_Type IS NULL THEN 1 ELSE 0 END) AS exp_null_count
  ,sum(case when Gender IS NULL THEN 1 ELSE 0 END) AS gender_null_count
  ,sum(case when Amount IS NULL THEN 1 ELSE 0 END) AS Amt_null_count
from credit_card_transactions;
    -- No nulls in the columns

select  top 1 Date
from    credit_card_transactions
order by Date ;
    --  04-oct-2013  is the first date of dataset

select  top 1 Date
from    credit_card_transactions
order by Date desc;
    -- 26-may-2015 is the last date of dataset
  So i have a data of credit card transaction from date 04-oct-2013 to 26-may-2015.
```

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

City	Citywise_Spent_Amount	Percentage_contribution
Greater Mumbai, India	576751476	14.15%
Bengaluru, India	572326739	14.04%
Ahmedabad, India	567794310	13.93%
Delhi, India	556929212	13.66%
Kolkata, India	115466943	02.83%

```sql
With cte1 as (
select top 5 city ,sum(Amount) as Citywise_Spent_Amount
from credit_card_transactions
group by city
order by Citywise_Spent_Amount desc
),
cte2 as (
select sum(Amount) as total_amt
from credit_card_transactions
)
select  c1.City
        ,c1.Citywise_Spent_Amount
        ,100.0*c1.Citywise_Spent_Amount / c2.total_amt as Percentage_contribution
from cte1 as c1
inner join cte2 as c2
on 1=1;
```

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

trans_year	trans_month	Card_Type	spent_amt
2015	January	Gold	55455064
2014	August	Platinum	57936507
2013	December	Signature	58799522
2015	March	Silver	59723549

```sql
with spent_amt_datewise as(
select  DATEPART(year,Date) as trans_year
        ,DATENAME(month,date) as trans_month
        ,Card_Type
        ,sum(amount) as spent_amt
from    credit_card_transactions
group by DATEPART(year,Date)
        ,DATENAME(month,date)
        ,Card_Type
)
,ranking as (
select  *
        ,DENSE_RANK() over(partition by card_type order by spent_amt desc) as drank
from    spent_amt_datewise
)
select  trans_year,trans_month,Card_Type,spent_amt
from    ranking
where   drank = 1;
```

3. write a query to print the transaction details(all columns from the table) for each card type when it reaches a cumulative of 10,00,000 total spends(We should have 4 rows in the o/p one for each card type)

```sql
select City,Date,Card_Type,Exp_Type,Gender,Amount,cumulative_sum
from (
    select *
    ,DENSE_RANK() over(Partition by card_type order by k.cumulative_sum) as drank
    from (
        select *
        ,sum(Amount) over(partition by card_type order by Date,Amount) as
              cumulative_sum
        from credit_card_transactions
        ) k
where k.cumulative_sum>=1000000
    ) m
where m.drank = 1;
```

City	Date	Card_Type	Exp_Type	Gender	Amount	cumulative_sum
Fatehpur Sikri, India	2013-10-04	Gold	Grocery	M	188578	1020560
Lingsugur, India	2013-10-05	Platinum	Grocery	F	104254	1081776
Greater Mumbai, India	2013-10-04	Signature	Food	F	290266	1264181
Bengaluru, India	2013-10-04	Silver	Food	M	182817	1112238

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

```sql
with cte1 as (
select City, sum(Amount) as spend_amt_ingold_citywise
from credit_card_transactions
where Card_Type = 'Gold'
group by City,Card_Type
)
, cte2 as (
select City, Sum(Amount) as spent_amt_citywise
from credit_card_transactions
group by City
)
,cte3 as (
select  c1.City
        ,c1.spend_amt_ingold_citywise as Citywise_Spent_money_ongold
        ,c2.spent_amt_citywise as Citywise_Spent_money
        ,100.0 * c1.spend_amt_ingold_citywise / c2.spent_amt_citywise as perc_contribution
from cte1 c1
join cte2 c2
on c1.City = c2.City
)
select top 1 *
from cte3
order by perc_contribution; -- Dhamtari, India has spent least amount in gold.
```

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

```sql
with cte_1 as (
select  City ,Exp_Type, sum(Amount) as spent_amt
from    credit_card_transactions
group by City , Exp_Type )
, cte_2 as (
select  city,
        min(spent_amt) as lowest_spent_amount,
        MAX(spent_amt) as highest_spent_amount
from    cte_1
group by City
)
select  c1.City,
        max(case when c2.highest_spent_amount = c1.spent_amt then Exp_Type end) as highest_expense_type,
        max(case when c2.lowest_spent_amount = c1.spent_amt then Exp_Type end ) as lowest_expense_type
from    cte_1 as c1
inner join cte_2 as c2
on      c1.City=c2.City
group by c1.City
order by c1.City;
```

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

```sql
with cte_1 as (
select  Exp_Type , sum(Amount) as Exp_type_spent_amount
from    credit_card_transactions
where   Gender = 'F'
group by Exp_Type
), cte_2 as (
select  sum(Amount) as total_spent
from    credit_card_transactions
where   Gender = 'F'
)
select
        Exp_Type,
        format(100.0* Exp_type_spent_amount / total_spent ,'f2') as perc_contribution_spent_female
from    cte_1 inner join cte_2 on 1=1;
```

Exp_Type	perc_contribution_spent_female
Grocery	16.58
Food	20.53
Travel	2.53
Entertainment	16.26
Fuel	17.79
Bills	26.30

7. which card and expense type combination saw highest month over month growth in january 2014?

```sql
with cte_1 as(
select  Card_Type,Exp_Type,
        DATEPART(year,Date) as Trans_Year,
        DATEPART(month,Date) as Trans_Month,
        sum(Amount)  as total_amount
from    credit_card_transactions
group by Card_Type,Exp_Type,DATEPART(year,Date),DATEPART(month,Date)
)
,cte_2 as(
select  *,
        LAG(total_amount,1) over(partition by Card_Type,Exp_Type order by Trans_Year,Trans_Month)
as prev_month_trans_amount
from    cte_1
)
,cte_3 as(
select  *,
        100.0*(total_amount - prev_month_trans_amount)/ prev_month_trans_amount as
growth_per_month
from    cte_2
where   Trans_Year = 2014 and Trans_Month = 1
)
select  top 1 *
from    cte_3
order by growth_per_month desc;
## Gold card and Travel expense type combination saw highest month over month growth in january
2014
```

8. during weekends which city has highest total spend to total no of transcations ratio

```
select  top 1 city,
        sum(Amount) as total_spent
        ,count(1) as Count_of_transaction
        ,ratio = sum(Amount)/count(1)
from    credit_card_transactions
where   DATEPART(weekday,Date) in (7,1)
group by City
order by 4 desc;
## Sonepur, India has the highest spent to
total no of transaction ratio.
```

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

```
WITH CTE1 AS
(
select  City,count(1) as count_of_trans,
        min(Date) AS MIN_DATE,
        MAX(DATE) AS MAX_DATE
from    credit_card_transactions
group by City
HAVING count(1) >=500
)
,CTE2 AS (
SELECT  CITY,DATE,
        ROW_NUMBER() OVER(PARTITION BY CITY ORDER BY DATE) AS ROW_NM
FROM    credit_card_transactions
WHERE   City IN ( SELECT City FROM CTE1)
)
, CTE3 AS (
SELECT      C1.CITY,C1.MIN_DATE , C1.MAX_DATE ,C1.count_of_trans
            ,C2.DATE
FROM        CTE1 AS C1
INNER JOIN  CTE2 AS C2
ON          C1.CITY = C2.CITY
WHERE       C2.ROW_NM = 500
)
SELECT       CITY , MIN_DATE AS TRANS_START_DATE
            ,DATE AS TRANS_DATE_FOR500TH_TRANS
            ,DATEDIFF(DAY,MIN_DATE,DATE) AS DAYS_TO_REACH_500TH_TRANS
FROM        CTE3
ORDER BY    DAYS_TO_REACH_500TH_TRANS;

## Bengaluru, India city took 81 days to reach its 500th transaction
```

10. Show me the Transactions frequency on each city

```
select      City , count(1) as Frequency_Usage
from        credit_card_transactions
group by    City
order by    2 desc
```

Bangalore, Greater Mumbai, Ahmedabad & Delhi are those cities where transactions are more

11. Show me the transaction frequency by Gender and credit card type

```
select      Gender,Card_Type,count(1) as Frequency_Usage
from        credit_card_transactions
group by    Gender,Card_Type
order by    3 desc;
```

Female category used more credit card as compared to male category.

12. Show me the transactions frequency by Expense type and Gender

```sql
select      gender,Exp_Type ,count(1) as Frequency_Usage
from        credit_card_transactions
group by    gender,Exp_Type
order by    3 desc;
```

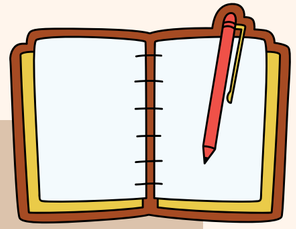
Food, Fuel , Entertainment , Grocery & Bills are the main Expense type on which Users did Transactions

13. Show me the Amount Spent by Gender and credit card type

```sql
select  gender,Card_Type , sum(Amount) as Spent_Amount_Credittype
from    credit_card_transactions
group by gender,Card_Type
order by 3 desc;
```

Female category Spent more money via Silver Credit card type
and male category Spent more money via Platinum Credit card type

Call to actions



1. Allocate additional marketing resources and promotional campaigns to the top 5 cities to capitalize on their high spending patterns.
2. Plan targeted promotional offers or campaigns during the highest spending months for each card type to encourage increased spending.
3. Investigate the reasons behind the low spending in the identified city and consider targeted marketing strategies or partnerships to increase spending in that location.
4. Allocate additional staffing or resources in the city with the highest spend-to-transaction ratio during weekends to capitalize on increased spending opportunities.
5. Identify market potential and consider targeted marketing efforts in the city with the fastest transaction growth to capture new customers and increase business growth.
6. Develop specific product or service offerings targeted towards females based on their significant contribution to spending in specific expense categories.

THANK YOU SO MUCH!