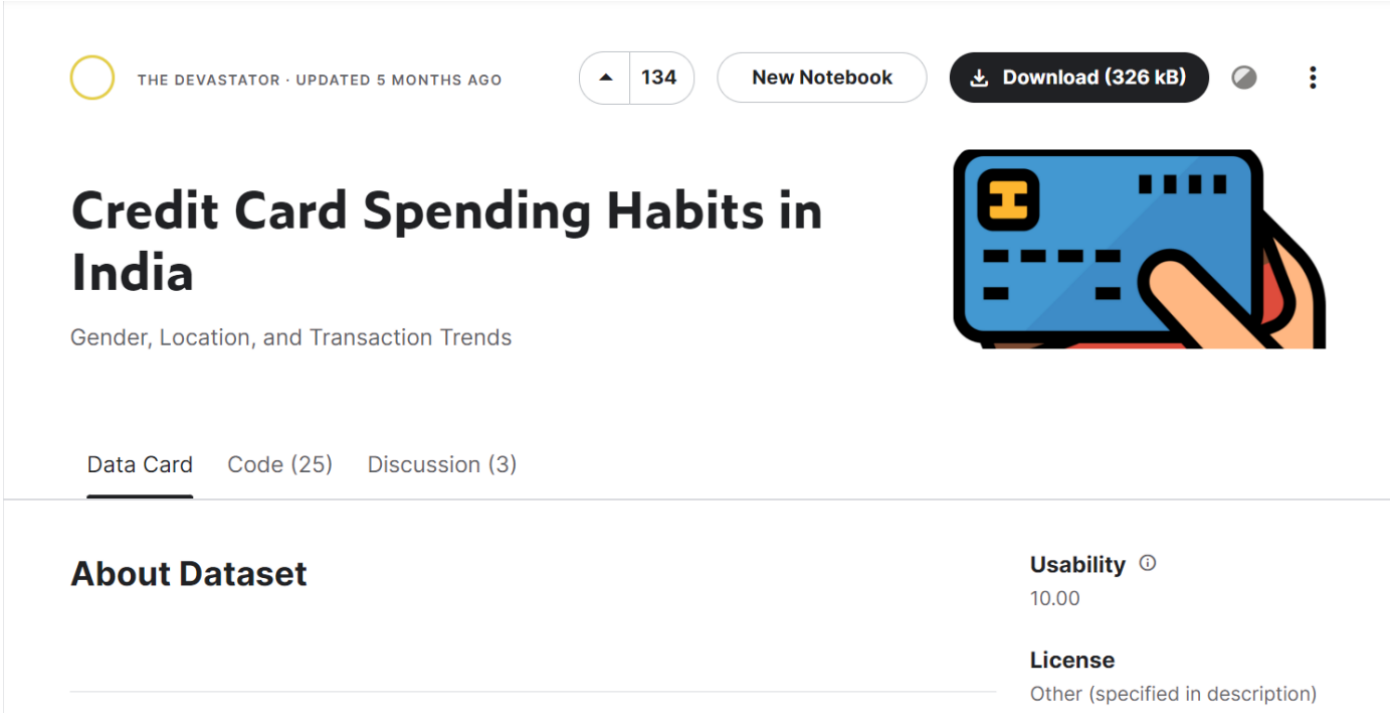
Credit Card SQL Assignment



Data Preparation and Data Check

```
CREATE TABLE Credit_Card_Transactions
(
   CITY VARCHAR,
   Date Date,
   CARD_TYPE VARCHAR,
   EXP_TYPE VARCHAR,
   GENDER VARCHAR,
   AMOUNT INT
);

-- Load Data (CSV File) From local file system to Credit_Card_Transactions Table
Copy Credit_Card_Transactions(City,Date,Card_Type,Exp_Type,Gender,Amount)
FROM 'D:\Personal_Documents\Credit_Card_Transactions_Dataa.csv'
Delimiter ','
CSV HEADER;

-- Basic Check Of Data
Select count(*) from Credit_Card_Transactions;
Select * from Credit_Card_Transactions;
```

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

with Total_Spend_Per_City As (
Select
    x.city,
    x.total_spend
    from ( select city, sum(amount) as total_spend from credit_card_transactions group by city ) as x
    order by x.total_spend desc limit 5
)
,Total_Spend_Overall As (
Select
    sum(amount) as total_spend_all
    from credit_card_transactions
)
Select
    x.city,
    x.total_spend,
    ROUND(cast(x.total_spend as decimal)/x.total_spend_all * 100,2)  as contribution
From (select * from Total_Spend_Per_City,Total_Spend_Overall) as x;
```

Output Messages Notifications

city character varying	total_spend bigint	contribution numeric
Greater Mumbai, India	576751476	14.15
Bengaluru, India	572326739	14.05
Ahmedabad, India	567794310	13.93
Delhi, India	556929212	13.67
Kolkata, India	115466943	2.83

```sql
--2. write a query to print highest spend month and amount spent in that month for each card type
with map_month_year AS (
    select *,
        Extract(month from date) as spend_month,
        Extract(year from date) as spend_year
    from credit_card_transactions
)
,highest_spend_month AS (
    select
        spend_month,
        spend_year,
        sum(amount) as spend
    from map_month_year group by spend_month, spend_year order by spend desc limit 1
)
select
    mmy.spend_month, mmy.spend_year, mmy.card_type, sum(mmy.amount)
from highest_spend_month as hsm join map_month_year as mmy
on hsm.spend_month = mmy.spend_month and hsm.spend_year = mmy.spend_year
Group by mmy.card_type, mmy.spend_month, mmy.spend_year;
```

Output Messages Notifications

spend_month numeric	spend_year numeric	card_type character varying	sum bigint
1	2015	Gold	55455064
1	2015	Platinum	57850182
1	2015	Signature	52774683
1	2015	Silver	57478645

```
--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 apply_rolling_sum AS (
 select *, sum(amount) over(partition by card_type order by date) as sum_till_date from credit_card_transactions
)
,apply_dense_rank AS (
    select *, dense_rank()Over(partition by card_type order by sum_till_date) rank_amount from apply_rolling_sum  as a where a.sum_till_date >= 1000000
)
select card_type, date from apply_dense_rank where rank_amount = 1 group by card_type, date;
```

Output Messages Notifications

card_type character varying	date date
Gold	2013-10-04
Platinum	2013-10-05
Signature	2013-10-04
Silver	2013-10-04

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

with Total_Spend_Overall_Gold As (
Select
    city, sum(amount) as total_spend_all
    from credit_card_transactions
    group by city
)
,Lowest_Spend_city_for_gold AS (
select
    city, card_type, sum(amount) as amount
    from credit_card_transactions where card_type = 'Gold'
    group by city, card_type
    order by amount limit 1
)
select x.city, x.card_type,
x.amount, ROUND(cast(x.amount as decimal)/x.total_spend_all * 100,2)  as pct_contribution
From (
    select l.*, t.total_spend_all
    from Lowest_Spend_city_for_gold as l inner join Total_Spend_Overall_Gold as t
    on l.city = t.city
) as x;
```

Output Messages Notifications

city character varying	card_type character varying	amount bigint	pct_contribution numeric
Dhamtari, India	Gold	1416	0.33

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

with total_spend_city_exp_type AS (
select city, exp_type, sum(amount) as amount_spend
    from credit_card_transactions
    group by city, exp_type
)
,find_highest_expense_type AS (
select B.city, A.exp_type as highest_expense_type from total_spend_city_exp_type as A inner join
    ( select city, max(amount_spend) as max_spend from total_spend_city_exp_type group by city ) as B
        on A.city = B.city and A.amount_spend = B.max_spend
)
,find_lowest_expense_type AS (
select B.city, A.exp_type as lowest_expense_type from total_spend_city_exp_type as A inner join
    ( select city, min(amount_spend) as min_spend from total_spend_city_exp_type group by city ) as B
        on A.city = B.city and A.amount_spend = B.min_spend
)
Select h.city, h.highest_expense_type, l.lowest_expense_type
from find_highest_expense_type as h inner join find_lowest_expense_type as l
on h.city = l.city
order by h.city;
```

Output Messages Notifications

city character varying	highest_expense_type character varying	lowest_expense_type character varying
Achalpur, India	Grocery	Entertainment
Adilabad, India	Bills	Food
Adityapur, India	Food	Grocery
Adoni, India	Bills	Entertainment
Adoor, India	Fuel	Bills

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

with total_spend_gender_exp_type AS (
select exp_type, sum(amount) as amount_spend_by_female
    from credit_card_transactions
    where gender = 'F'
    group by exp_type
)
, total_spend_exp_type AS (
    select exp_type, sum(amount) as total_amount_spend
    from credit_card_transactions
    group by exp_type
)
Select
x.exp_type as expense_type,
x.amount_spend_by_female,
x.total_amount_spend,
ROUND(cast(x.amount_spend_by_female as decimal)/x.total_amount_spend * 100,2)  as pct_contribution
From ( select a.*, b.total_amount_spend
      from total_spend_gender_exp_type as a inner join total_spend_exp_type as b
      on a.exp_type = b.exp_type ) as x
      order by x.exp_type
```

Output Messages Notifications

expense_type character varying	amount_spend_by_female bigint	total_amount_spend bigint	pct_contribution numeric
Bills	580035469	907072473	63.95
Entertainment	358663333	726437536	49.37
Food	452817279	824724009	54.91
Fuel	392282421	789135821	49.71
Grocery	365646998	718207923	50.91
Travel	55865530	109255611	51.13

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

with month_year_spend as (
    select
    card_type,
    exp_type,
    Extract(month from date) as spend_month,
    Extract(year from date) as spend_year,
    sum(amount) as spend
    from credit_card_transactions
    Group By card_type, exp_type, spend_month, spend_year
)
,get_prev_spend as (
    select
    *
    ,lag(spend,1)over(partition by card_type, exp_type order by spend_year, spend_month) as lag_spend
    from month_year_spend
)
select *,
(spend-lag_spend) as growth
from get_prev_spend
where spend_month = 1 and spend_year = 2014 and(spend-lag_spend) > 0
order by (spend-lag_spend) desc limit 1;
```

Output Messages Notifications

card_type character varying	exp_type character varying	spend_month numeric	spend_year numeric	spend bigint	lag_spend bigint	growth bigint
Platinum	Grocery	1	2014	12256343	7757562	4498781

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

with weekend_identifier AS (
    select
    *,
    case when EXTRACT(dow FROM date) IN (0,6) THEN 'weekend' else 'weekday' end as wflag
    from credit_card_transactions
)
,sum_weekend_per_city as (
    select city, sum(amount) as amt from weekend_identifier where wflag = 'weekend' group by city
)
,total_transactions_per_city AS (
    select city, count(*) as cnt from weekend_identifier where wflag = 'weekend' group by city
)
select x.city, x.amt, x.cnt as txns, Round((cast(x.amt as decimal)/x.cnt),2) as ratio from
(select ww.city, tt.cnt, ww.amt from total_transactions_per_city as tt join sum_weekend_per_city as ww on tt.city = ww.city) x
order by ratio desc limit 1
```

Output Messages Notifications

city character varying	amt bigint	txns bigint	ratio numeric
Sonepur, India	299905	1	299905.00

```sql
--9. which city took least number of days to reach its 500th transaction after first transaction in that city
with get_first_day_txn_dates  AS (
    select x.city, x.date from
        ( select city, date, dense_rank()over(partition by city order by date asc) rank_txns from credit_card_transactions) x
    where x.rank_txns = 1
)
, get_500th_day_txn_dates AS (
    select x.city, x.date, x.rns from
        ( select city, date, ROW_NUMBER()over(partition by city order by date asc) rns from credit_card_transactions) x
    where x.rns = 500
)
select f.city as city, f.date as first_txn_date, l.date as txn_date_500th, l.date-f.date as days
from get_first_day_txn_dates as f join get_500th_day_txn_dates as l on f.city = l.city
order by l.date-f.date limit 1;
```

Output Messages Notifications

city character varying	first_txn_date date	txn_date_500th date	days integer
Bengaluru, India	2013-10-04	2013-12-24	81