Credit card transaction project document

1. Summary:

```
--Total trasanction:

select count(*) as total_transaction
from credit_card_transcations
```

	total_transaction
1	26052

```
--Transaction city:

select count(distinct(city)) as total_city
from credit_card_transcations
```

total_city
986

```
--card type:

select distinct(card_type) as cards
from credit_card_transcations
```

	cards
1	Silver
2	Signature
3	Gold
4	Platinum

```
 --gender:

select distinct(gender) as gender
from credit_card_transcations
```

	gender
1	F
2	M

```
--expense type:

select distinct(exp_type) as expenses
from credit_card_transcations
```

	expenses
1	Entertainment
2	Food
3	Bills
4	Fuel
5	Travel
6	Grocery

```
--Total amount:

select sum(amount) as total_amount
from credit_card_transcations
```

total_amount
4074833373

2. Overview:

```
--Total top 5 trasanction and expenses by city

select top 5 city, count(*) as total_transaction,sum(amount) as
total_expense
from credit_card_transcations group
by city
order by total_expense desc
```

	city	total_transaction	total_expense
1	Greater Mumbai	3493	576751476
2	Bengaluru	3552	572326739
3	Ahmedabad	3491	567794310
4	Delhi	3482	556929212
5	Kolkata	773	115466943

```sql
--total transaction and expenses by card_type

select card_type, count(*) as total_transaction,
sum(amount) as total_expense
from credit_card_transcations
group by card_type
```

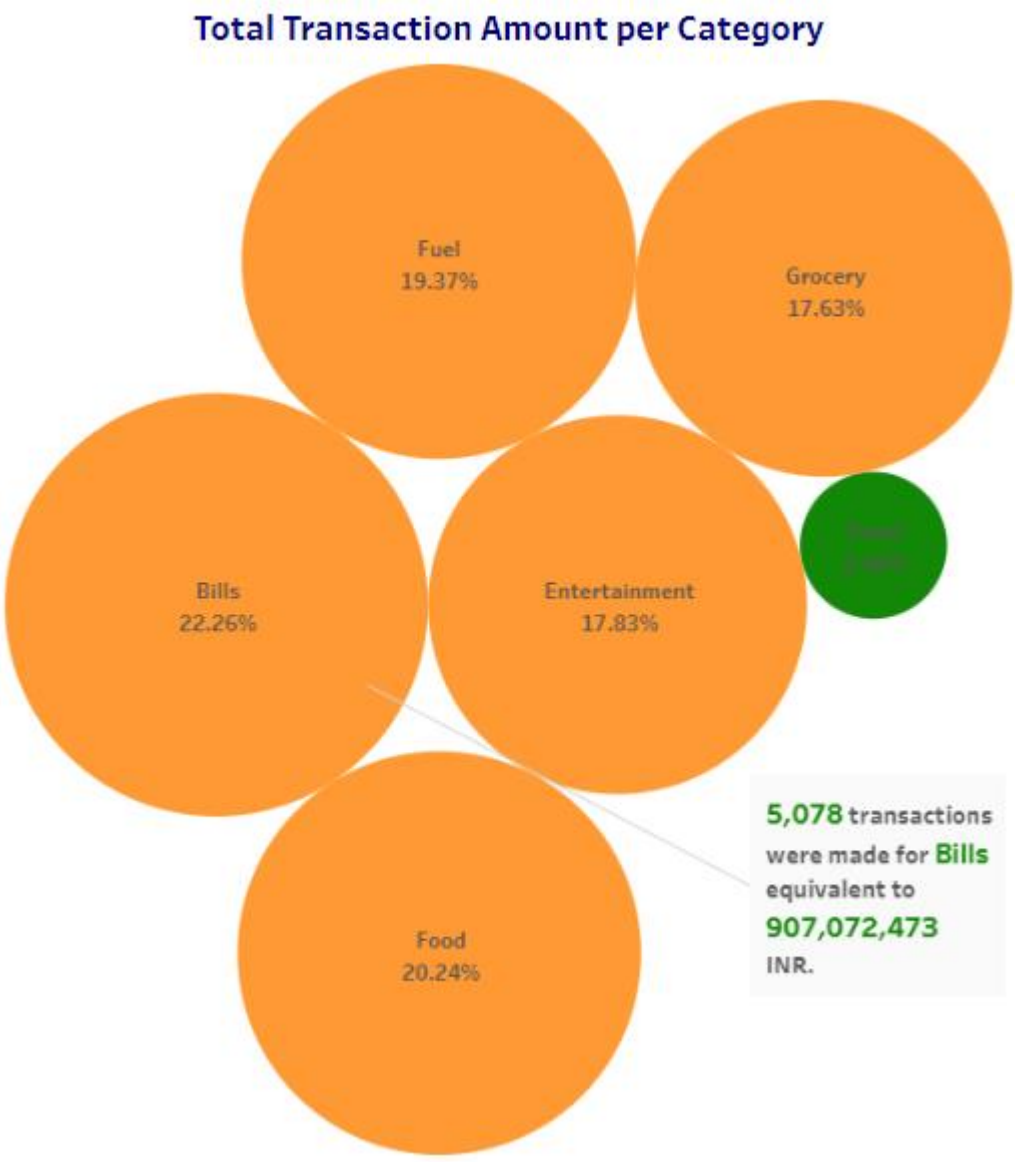
	card_type	total_transaction	total_expense
1	Silver	6840	1069613713
2	Signature	6447	1013041105
3	Gold	6367	984539536
4	Platinum	6398	1007639019

```sql
--Total transaction and expenses by gender

select gender, count(*) as total_transaction,
sum(amount) as total_expense
from credit_card_transcations group
by gender
```

	gender	total_transaction	total_expense
1	F	13680	2205311030
2	M	12372	1869522343

```sql
--Total transaction and expenses by expense_type

select exp_type, count(*) as total_transaction,
sum(amount) as total_expense
from credit_card_transcations group
by exp_type
```

	exp_type	total_transaction	total_expense
1	Entertainment	4762	726437536
2	Food	5463	824724009
3	Bills	5078	907072473
4	Fuel	5257	789135821
5	Travel	738	109255611
6	Grocery	4754	718207923




```sql
--Total transaction and expenses by year

select datepart(year,transaction_date) as year,count(*) as
total_transaction,sum(amount) as total_expense from
credit_card_transcations
group by datepart(year,transaction_date)
```

	year	total_transaction	total_expense
1	2013	3927	613643884
2	2014	15791	2454714033
3	2015	6334	1006475456

3. Details:

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

with cte as(
select city,sum(amount) as city_amount
from credit_card_transcations
group by city
),
cte1 as(
select city,city_amount,(100*city_amount/(select sum(amount) from
credit_card_transcations)) as percentage_contribution
,rank() over (order by city_amount desc) as rn
from cte
group by city,city_amount
)
select top 5 *
from cte1
```

	city	city_amount	percentage_contribution	rn
1	Greater Mumbai	576751476	14.1539892114749	1
2	Bengaluru	572326739	14.0454022682807	2
3	Ahmedabad	567794310	13.9341724685536	3
4	Delhi	556929212	13.6675333938863	4
5	Kolkata	115466943	2.83366048204789	5

```sql
--2)- write a query to print highest spend month and then amount
spent in that month for each card type

with cte as (
select format(transaction_date,'yyyyMM') as
year_month,card_type,sum(amount) as amount_spend
from credit_card_transcations
group by format(transaction_date,'yyyyMM'), card_type
),
cte1 as (
select top 1 year_month, sum(amount_spend) as total_amount
from cte
group by year_month
order by total_amount
)
select *
from cte
inner join cte1 on cte.year_month=cte1.year_month
order by cte.amount_spend desc
```

	year_month	card_type	amount_spend	year_month	total_amount
1	201505	Silver	47478539	201505	173693297
2	201505	Signature	45879491	201505	173693297
3	201505	Platinum	42203610	201505	173693297
4	201505	Gold	38131657	201505	173693297

```sql
--3)- write a query to print highest spend month and amount spent in
that month for each card type

with cte as (
select card_type,FORMAT(transaction_date,'yyyyMM') as
year_month,sum(amount) as amount_spend
from credit_card_transcations
group by card_type,FORMAT(transaction_date,'yyyyMM')
)
select card_type,year_month,amount_spend from (select *,rank() over
(partition by card_type order by amount_spend desc) as card_rank
from cte)A
where
card_rank=1
```

	card_type	year_month	amount_spend
1	Gold	201501	55455064
2	Platinum	201408	57936507
3	Signature	201312	58799522
4	Silver	201503	59723549

```
//*4- 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 cte as (
select *,sum(amount) over (partition by card_type order by
transaction_date,transaction_id) as running_amount
from credit_card_transcations
),
cte1 as (
select *,rank() over (partition by card_type order by
running_amount) as rn
from cte
where running_amount>=1000000
)
select *
from cte1
where rn=1
```

	transaction_id	city	transaction_date	card_type	exp_type	gender	amount	running_amount	rn
1	1522	Delhi	2013-10-04	Gold	Food	M	281924	1272624	1
2	191	Ahmedabad	2013-10-05	Platinum	Bills	F	612572	1537482	1
3	73	Delhi	2013-10-04	Signature	Bills	F	550782	1285819	1
4	7565	Bengaluru	2013-10-04	Silver	Food	F	205179	1115582	1

```sql
--5- write a query to find city which had lowest percentage spend
for gold card type

with cte as(
select city,sum(amount) as total_amount
from credit_card_transcations
group by city
),
cte1 as (
select city,sum(amount) as gold_amount
from credit_card_transcations
where card_type='Gold'
group by city
)
select
c1.city,c.total_amount,c1.gold_amount,(100*c1.gold_amount/c.total_am
ount) as gold_percentage
from cte1 c1
join cte c on c.city=c1.city
order by gold_percentage
```

	city	total_amount	gold_amount	gold_percentage
1	Dhamtari	425241	1416	0.332987647004875
2	Solan	790741	2910	0.368009247022729
3	Suar	861153	3328	0.386458620012936
4	Bhiwandi	557886	2186	0.391836324983957
5	Bhadrachalam	1133551	4544	0.400864186966444
6	Lalitpur	848581	3482	0.410332072011982
7	Uravakonda	772163	4131	0.534990669068578
8	Ranchi	619502	3547	0.572556666483724
9	Brahmapur	539133	3184	0.590577835153849
10	Samastipur	741869	5059	0.681926323919722
11	Jammalamad...	1867345	15300	0.819345112981265
12	Adoor	647725	6536	1.00907020726389
13	Valsad	515904	5771	1.11861896786999
14	Kadi	928116	14611	1.57426442384357
15	Chatra	1034340	21781	2.10578726530928
16	Rosera	883661	20650	2.33686900293212
17	Giridih	947517	24093	2.54275121185161
18	Warora	960361	25374	2.64213144848656
19	Tiruchengode	925418	24462	2.64334603390036
20	Dharmavaram	499688	13240	2.64965338371144
21	Adilabad	1769464	49020	2.77033045035107
22	Thirumangal...	1068672	31114	2.91146394777818
23	Tirukalukun...	1218582	35714	2.93078348441057
24	Seoni	985134	30916	3.13825327315878
25	Belagavi	1317506	43260	3.28347650788687

Query executed successfully. | DESKTOP-F48KCKJ\SQLEXPRESS ... | DESKTOP-F48KCKJ\HP (77) | Ashishdb | 00:00:00 | 766 rows

```sql
--6)- write a query to print 3 columns:  city, highest_expense_type
, lowest_expense_type (example format : Delhi , bills, Fuel)

with cte as (
select city,exp_type,sum(amount) as amount
from credit_card_transcations group by
city,exp_type
),
cte1 as (select *,rank()over (partition by city order by amount
desc) as highest_expense_rank from cte),
cte2 as (select city,exp_type as highest_expense_type from
cte1
where highest_expense_rank=1),
cte3 as (select *,rank()over (partition by city order by amount) as
lowest_expense_rank from cte),
cte4 as (select city,exp_type as lowest_expense_type from cte3 where
lowest_expense_rank=1)
select cte2.city,cte2.highest_expense_type,cte4.lowest_expense_type
from cte2
inner join cte4 on cte2.city=cte4.city
```

	city	highest_expense_type	lowest_expense_type
1	Achalpur	Grocery	Entertainment
2	Adilabad	Bills	Food
3	Adityapur	Food	Grocery
4	Adoni	Bills	Entertainment
5	Adoor	Fuel	Bills
6	Afzalpur	Fuel	Food
7	Agartala	Grocery	Food
8	Agra	Bills	Grocery
9	Ahmed...	Bills	Grocery
10	Ahmed...	Fuel	Grocery
11	Aizawl	Food	Grocery
12	Ajmer	Entertainment	Fuel
13	Akola	Bills	Fuel
14	Akot	Fuel	Entertainment
15	Alappu...	Food	Entertainment
16	Aligarh	Bills	Entertainment
17	Alipurd...	Food	Entertainment
18	Alirajpur	Entertainment	Entertainment
19	Allahab...	Grocery	Bills
20	Alwar	Food	Entertainment
21	Amalap...	Grocery	Fuel
22	Amalner	Entertainment	Food
23	Ambejo...	Food	Grocery
24	Ambika...	Bills	Food
25	Amravati	Bills	Food

Query executed successfully. | DESKTOP-F48KCKJ\SQLEXPRESS ... | DESKTOP-F48KCKJ\HP (77) | Ashishdb | 00:00:00 | 986 rows

```sql
--7- write a query to find percentage contribution of spends by
females for each expense type

with cte as (
select exp_type,sum(amount) as total_expense,sum(case when
gender='F' then amount else 0 end) as female_expense
from credit_card_transcations
group by exp_type
)
select *,round((100*female_expense/total_expense),2) as
female_percentage_contribution
from cte
```

	exp_type	total_expense	female_expense	female_percentage_contribution
1	Entertainment	726437536	358663333	49.37
2	Food	824724009	452817279	54.91
3	Bills	907072473	580035469	63.95
4	Fuel	789135821	392282421	49.71
5	Travel	109255611	55865530	51.13
6	Grocery	718207923	365646998	50.91

```sql
--8- which card and expense type combination saw highest month over
month growth in Jan-2014

with cte as (
select card_type,exp_type,format(transaction_date,'yyyyMM') as
year_month,sum(amount) as expense
from credit_card_transcations
group by card_type,exp_type,format(transaction_date,'yyyyMM')
),
cte1 as (select *,lag(expense) over (partition by card_type,exp_type
order by year_month) as previous_month_expense
from cte)
select top 1*,
round((100*(expense-
previous_month_expense)/previous_month_expense),2)
as month_growth_percentage
from cte1
where year_month='201401'
order by month_growth_percentage desc
```

	card_type	exp_type	year_month	expense	previous_month_expense	month_growth_percentage
1	Gold	Travel	201401	2092554	1113534	87.92

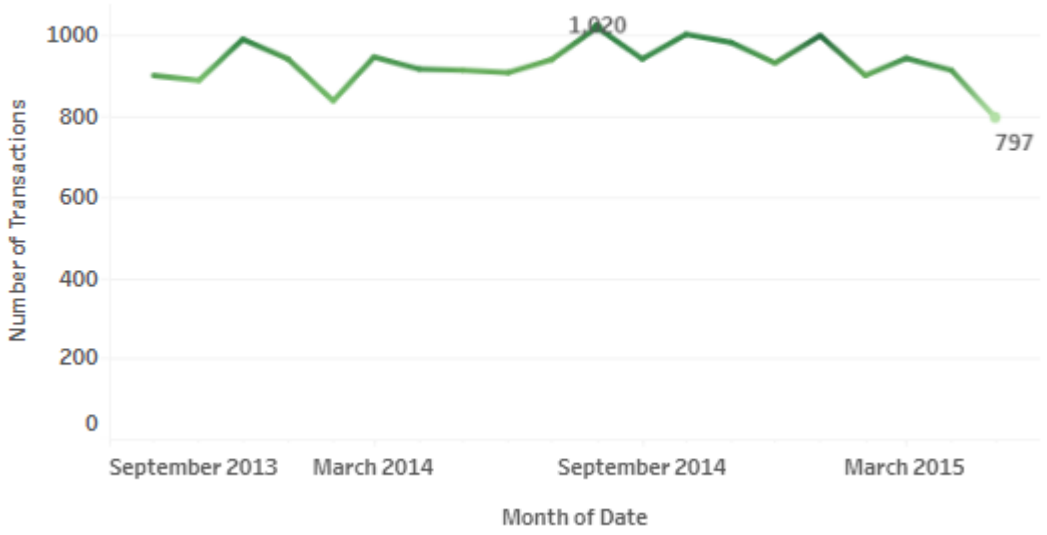
```sql
--9- during weekends which city has highest total spend to total no
of transcations ratio

with cte as (
select *,DATEPART(WEEKDAY,transaction_date) as weekend
from credit_card_transcations
),
cte1 as (
select city,sum(amount) as city_expense,
count(transaction_id) as no_of_transaction
from cte
where weekend in (1,7)
group by city
)
select top 1*,
(city_expense/no_of_transaction) as spend_to_transaction_ratio
from cte1
order by spend_to_transaction_ratio desc
```

	city	city_expense	no_of_transaction	spend_to_transaction_ratio
1	Sonepur	299905	1	299905

```sql
--10- 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) as rn
from credit_card_transcations
),
cte1 as (select city,transaction_date as first_transaction_date
from cte
where rn=1
),
cte2 as (select city,transaction_date as
fivehundred_transaction_date
from cte
where rn=500),
cte3 as (select
c1.city,c1.first_transaction_date,c2.fivehundred_transaction_date
from cte1 c1
inner join cte2 c2 on c1.city=c2.city)
select top1*,datediff(day,first_transaction_date,
fivehundred_transaction_date) as transaction_days
from cte3
order by transaction_days
```

	city	first_transaction_date	fivehundred_transaction_date	transaction_days
1	Bengaluru	2013-10-04	2013-12-24	81

Number of Transactions per Month



Top 10 Cities with the Most Credit Card Transactions