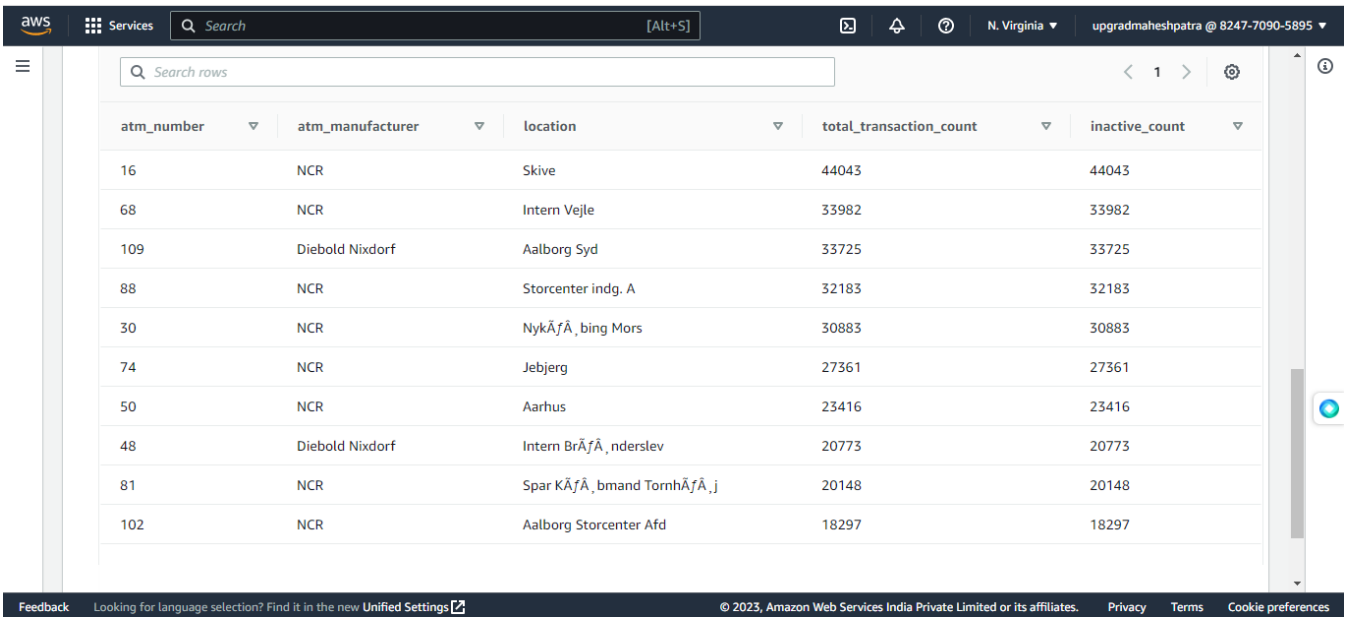
Solving analytical queries on Redshift Cluster

Here, I have written the query used for solving the question and the screenshots of the table which is outputted after the query is run on the AWS Redshift Query editor UI.

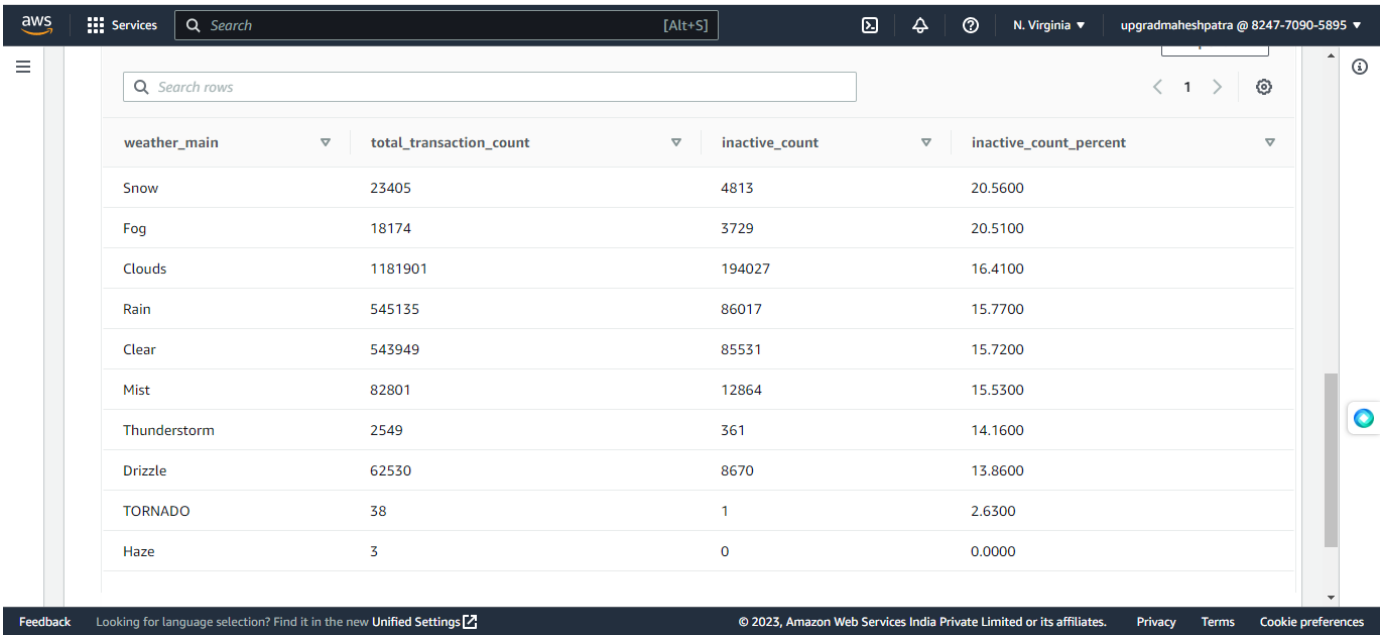
1. **Top 10 ATMs where most transactions are in the 'inactive' state**

```
select a.atm_number, a.atm_manufacturer, l.location,
count(trans_id) as total_transaction_count,
sum(case when atm_status = 'Inactive' then 1 else 0 end) as inactive_count
from bank_data.fact_atm_trans f, bank_data.dim_atm a, bank_data.dim_location l
where f.atm_id = a.atm_id and a.atm_location_id = l.location_id
group by a.atm_number, a.atm_manufacturer, l.location
order by inactive_count desc
limit 10;
```



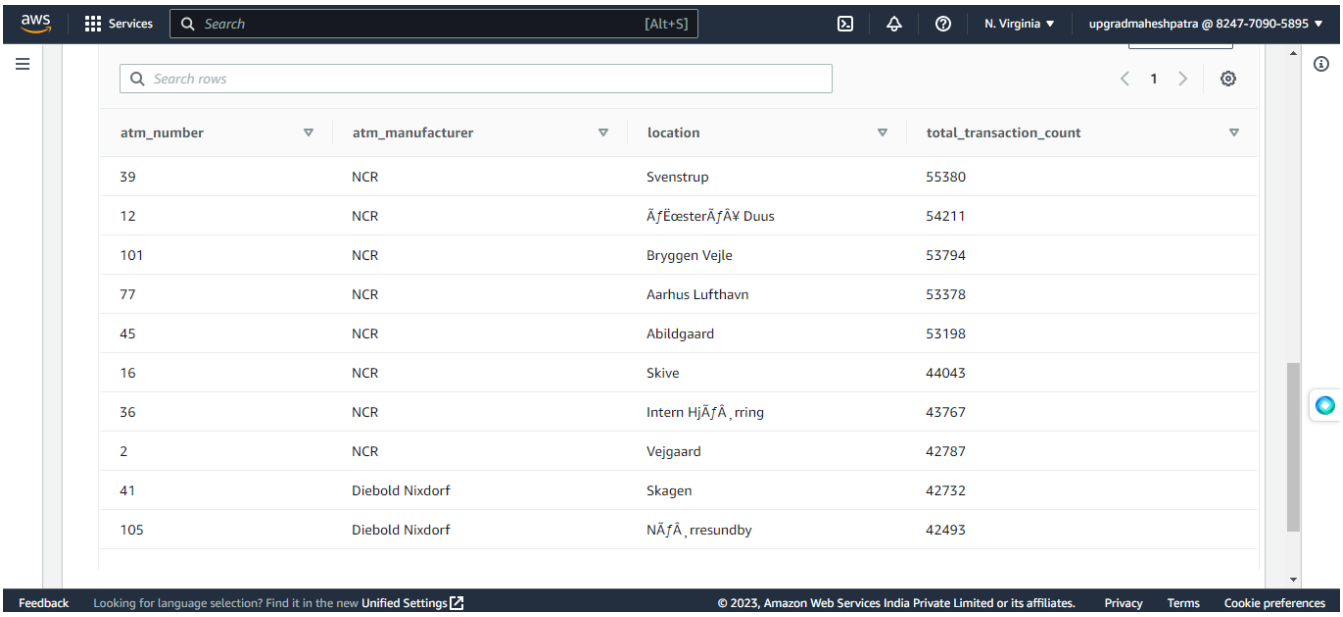
2. **Number of ATM failures corresponding to the different weather conditions recorded at the time of the transactions**

```
select f.weather_main, count(trans_id) as total_transaction_count,
sum(case when atm_status = 'Inactive' then 1 else 0 end) as inactive_count,
case when coalesce(inactive_count, 0) = 0 then 0.0000
else trunc((cast(inactive_count as numeric(10,4))/total_transaction_count)*100, 2)
end as inactive_count_percent
from bank_data.fact_atm_trans f
where f.weather_main != ''
group by f.weather_main
order by inactive_count_percent desc
limit 10;
```



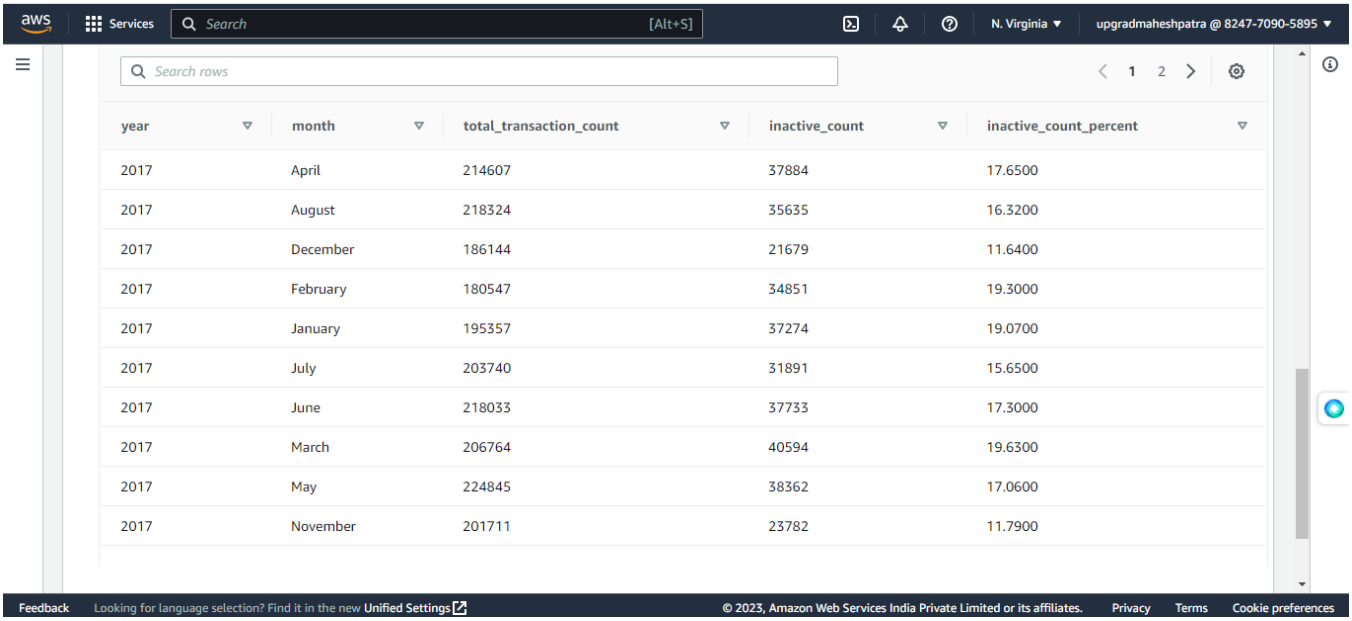
3. Top 10 ATMs with the most number of transactions throughout the year

```
select a.atm_number, a.atm_manufacturer, l.location,
count(trans_id) as total_transaction_count
from bank_data.fact_atm_trans f, bank_data.dim_atm a, bank_data.dim_location l
where f.atm_id = a.atm_id and a.atm_location_id = l.location_id
group by a.atm_number, a.atm_manufacturer, l.location
order by total_transaction_count desc
limit 10;
```



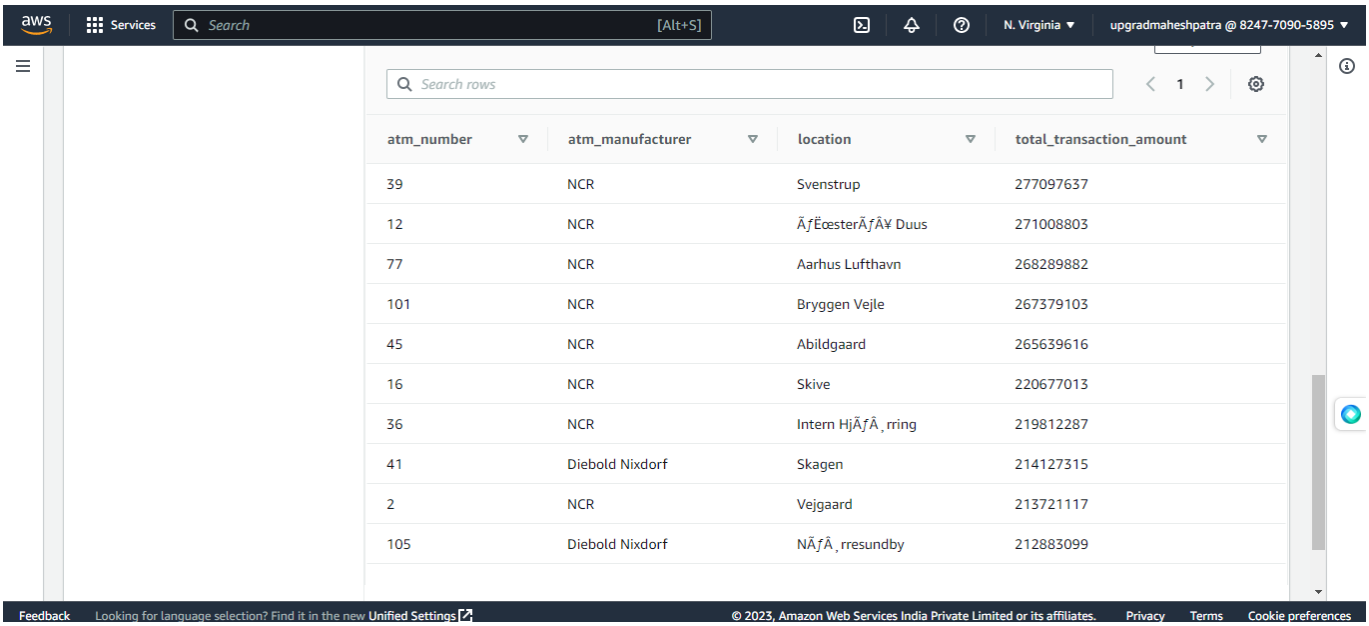
4. **Number of overall ATM transactions going inactive per month for each month**

```
select d.year, d.month, count(trans_id) as total_transaction_count,
sum(case when atm_status = 'Inactive' then 1 else 0 end) as inactive_count,
case when coalesce(inactive_count, 0) = 0 then 0.0000
else trunc((cast(inactive_count as numeric(10,4))/total_transaction_count)*100, 2)
end as inactive_count_percent
from bank_data.fact_atm_trans f inner join bank_data.dim_date d on f.date_id =d.date_id
group by d.year, d.month
order by d.year, d.month;
```



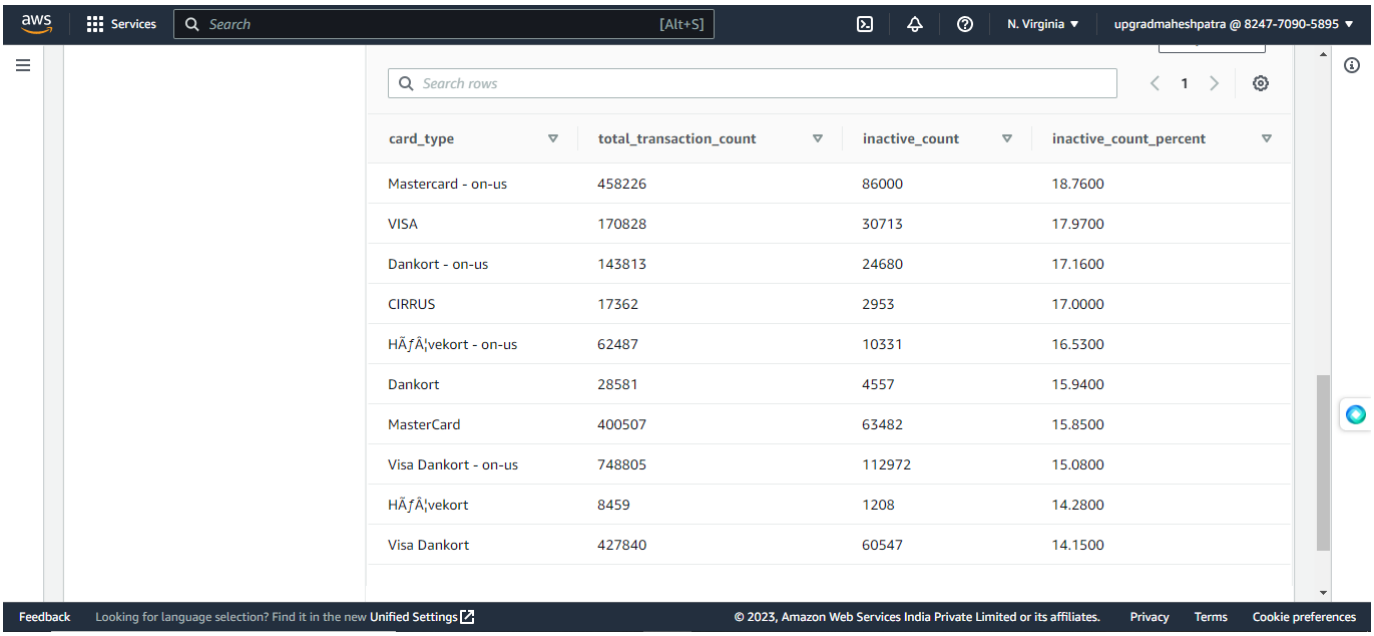
5. **Top 10 ATMs with the highest total withdrawn amount throughout the year**

```
select a.atm_number, a.atm_manufacturer, l.location,
sum(transaction_amount) as total_transaction_amount
from bank_data.fact_atm_trans f, bank_data.dim_atm a, bank_data.dim_location l
where f.atm_id = a.atm_id and a.atm_location_id = l.location_id
group by a.atm_number, a.atm_manufacturer, l.location
order by total_transaction_amount desc
limit 10;
```



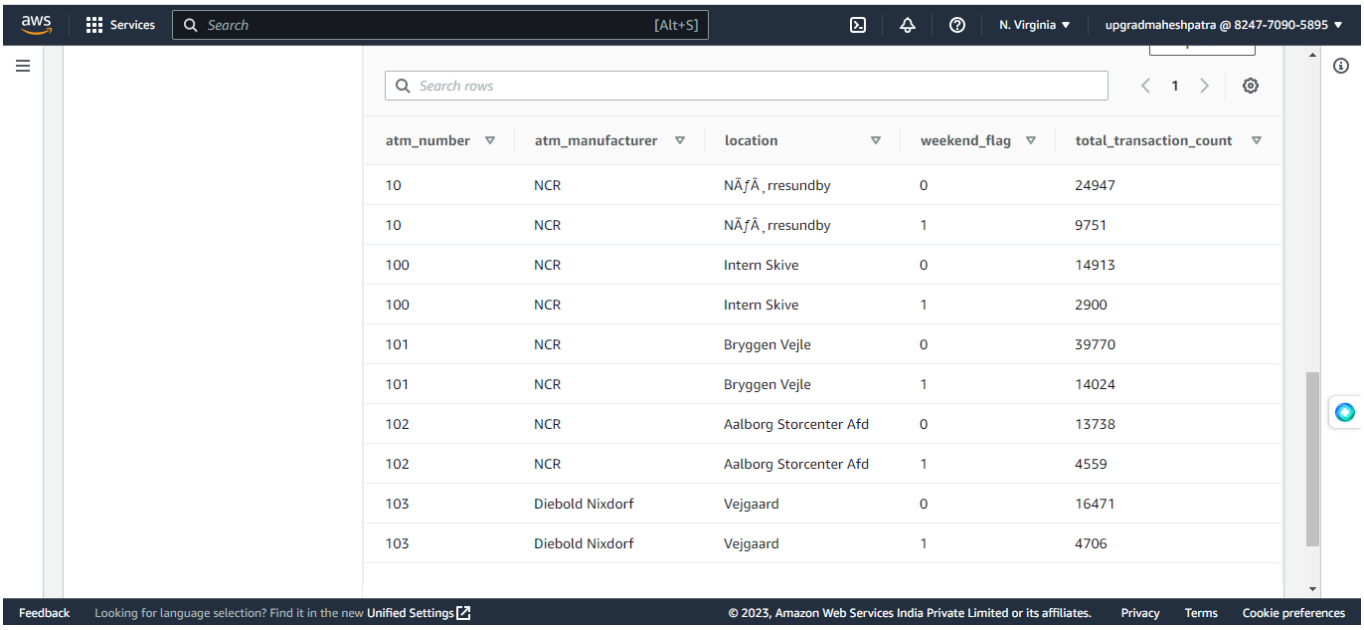
6. Number of failed ATM transactions across various card types

```
select ct.card_type, count(trans_id) as total_transaction_count,
sum(case when atm_status = 'Inactive' then 1 else 0 end) as inactive_count,
case when coalesce(inactive_count, 0) = 0 then 0.0000
else trunc((cast(inactive_count as numeric(10,4))/total_transaction_count)*100, 2)
end as inactive_count_percent
from bank_data.fact_atm_trans f, bank_data.dim_card_type ct
where f.card_type_id = ct.card_type_id
group by ct.card_type
order by inactive_count_percent desc
limit 10;
```



7. **Number of transactions happening on an ATM on weekdays and on weekends throughout the year. Order this by the ATM_number, ATM_manufacturer, location, weekend_flag and then total_transaction_count**

```
select a.atm_number, a.atm_manufacturer, l.location,
case when d.weekday in ('Saturday','Sunday') then 1 else 0 end as weekend_flag,
count(trans_id) as total_transaction_count
from bank_data.fact_atm_trans f, bank_data.dim_atm a, bank_data.dim_location l,
bank_data.dim_date d
where f.atm_id = a.atm_id and a.atm_location_id = l.location_id and f.date_id = d.date_id
group by a.atm_number, a.atm_manufacturer, l.location, weekend_flag
order by a.atm_number, a.atm_manufacturer, l.location, weekend_flag, total_transaction_count
limit 10;
```



8. **Most active day in each ATMs from location "Vejgaard"**

```
select a.atm_number, a.atm_manufacturer, l.location, d.weekday,
count(trans_id) as total_transaction_count
from bank_data.fact_atm_trans f inner join bank_data.dim_atm a on f.atm_id = a.atm_id
inner join bank_data.dim_location l on a.atm_location_id = l.location_id
inner join bank_data.dim_date d on f.date_id = d.date_id
where l.location = 'Vejgaard' and d.weekday in
( select d.weekday from bank_data.fact_atm_trans f inner join bank_data.dim_date d
on f.date_id = d.date_id
inner join bank_data.dim_location l on f.weather_loc_id = l.location_id
where l.location = 'Vejgaard'
group by d.weekday
order by count(f.trans_id) desc
limit 1 )
group by a.atm_number, a.atm_manufacturer, l.location, d.weekday
order by total_transaction_count;
```