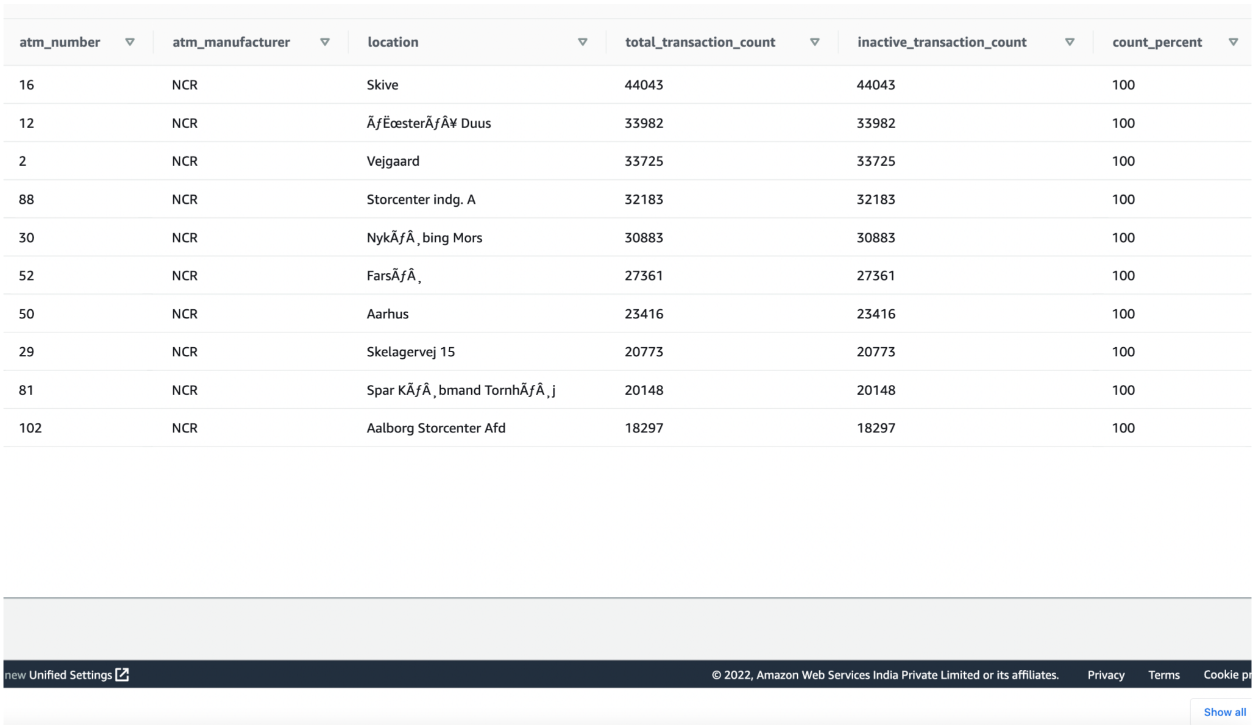
Solving analytical queries on Redshift Cluster

Here, you have to write 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_transaction_count,
(inactive_transaction_count/total_transaction_count)*100 as count_percent
from atm_data.fact_atm_trans f, atm_data.dim_atm a, atm_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
having count_percent > 50
order by inactive_transaction_count desc
limit 10;
```



atm_number	atm_manufacturer	location	total_transaction_count	inactive_transaction_count	count_percent
16	NCR	Skive	44043	44043	100
12	NCR	ÃƒËœsterÃƒÂ¥ Duus	33982	33982	100
2	NCR	Vejgaard	33725	33725	100
88	NCR	Storcenter indg. A	32183	32183	100
30	NCR	NykÃƒÂ¸bing Mors	30883	30883	100
52	NCR	FarsÃƒÂ¸	27361	27361	100
50	NCR	Aarhus	23416	23416	100
29	NCR	Skelagervej 15	20773	20773	100
81	NCR	Spar KÃƒÂ¸bmand TornhÃƒÂ¸j	20148	20148	100
102	NCR	Aalborg Storcenter Afd	18297	18297	100

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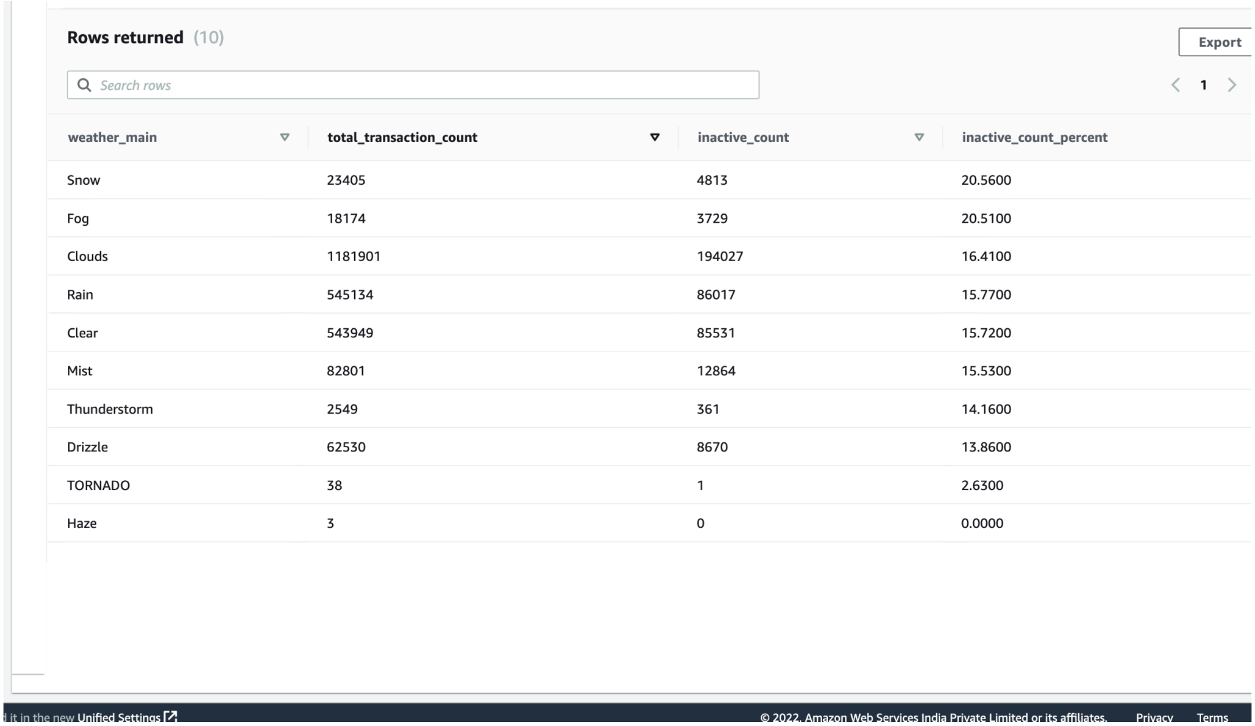
2. Number of ATM failures corresponding to the different weather conditions recorded at the time of the transactions

```
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 atm_data.fact_atm_trans f
where f.weather_main != ''
group by f.weather_main
order by inactive_count_percent desc
limit 10;
```


Rows returned (10)
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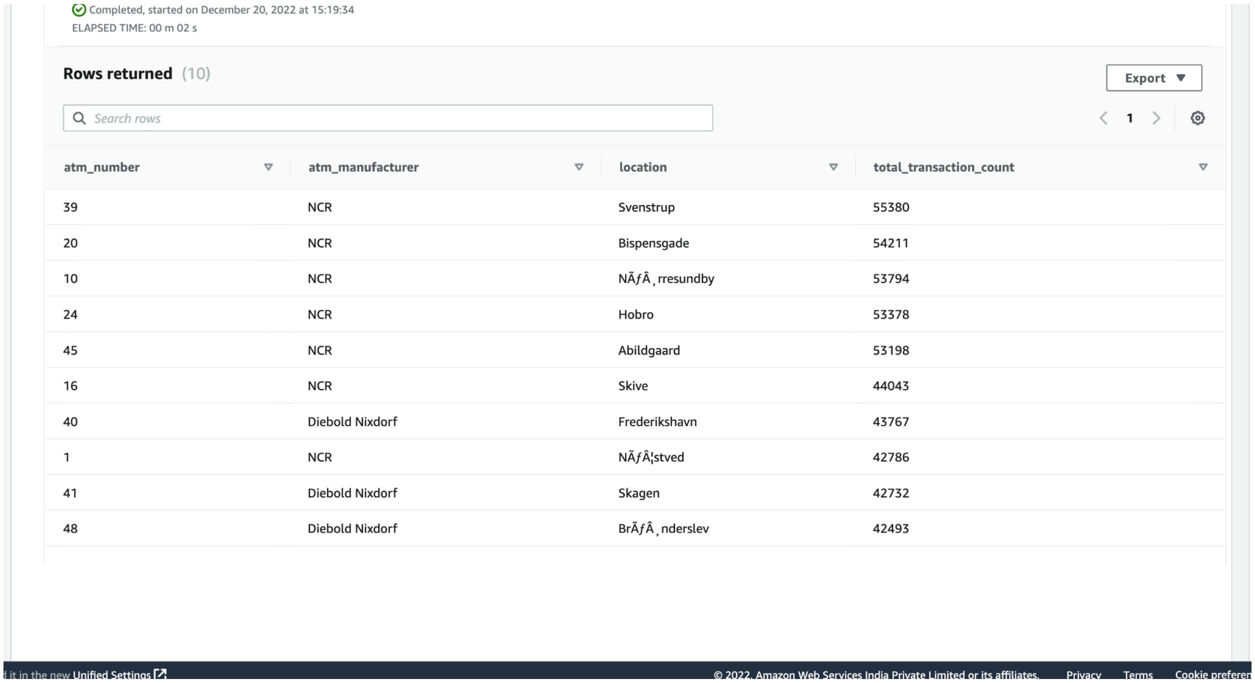
weather_main	total_transaction_count	inactive_count	inactive_count_percent
Snow	23405	4813	20.5600
Fog	18174	3729	20.5100
Clouds	1181901	194027	16.4100
Rain	545134	86017	15.7700
Clear	543949	85531	15.7200
Mist	82801	12864	15.5300
Thunderstorm	2549	361	14.1600
Drizzle	62530	8670	13.8600
TORNADO	38	1	2.6300
Haze	3	0	0.0000

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 atm_data.fact_atm_trans f, atm_data.dim_atm a, atm_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;
```



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Rows returned (10)

atm_number	atm_manufacturer	location	total_transaction_count
39	NCR	Svenstrup	55380
20	NCR	Bispensgade	54211
10	NCR	NÃƒÂ¸rresundby	53794
24	NCR	Hobro	53378
45	NCR	Abildgaard	53198
16	NCR	Skive	44043
40	Diebold Nixdorf	Frederikshavn	43767
1	NCR	NÃƒÂ¦stved	42786
41	Diebold Nixdorf	Skagen	42732
48	Diebold Nixdorf	BrÃƒÂ¸nderslev	42493

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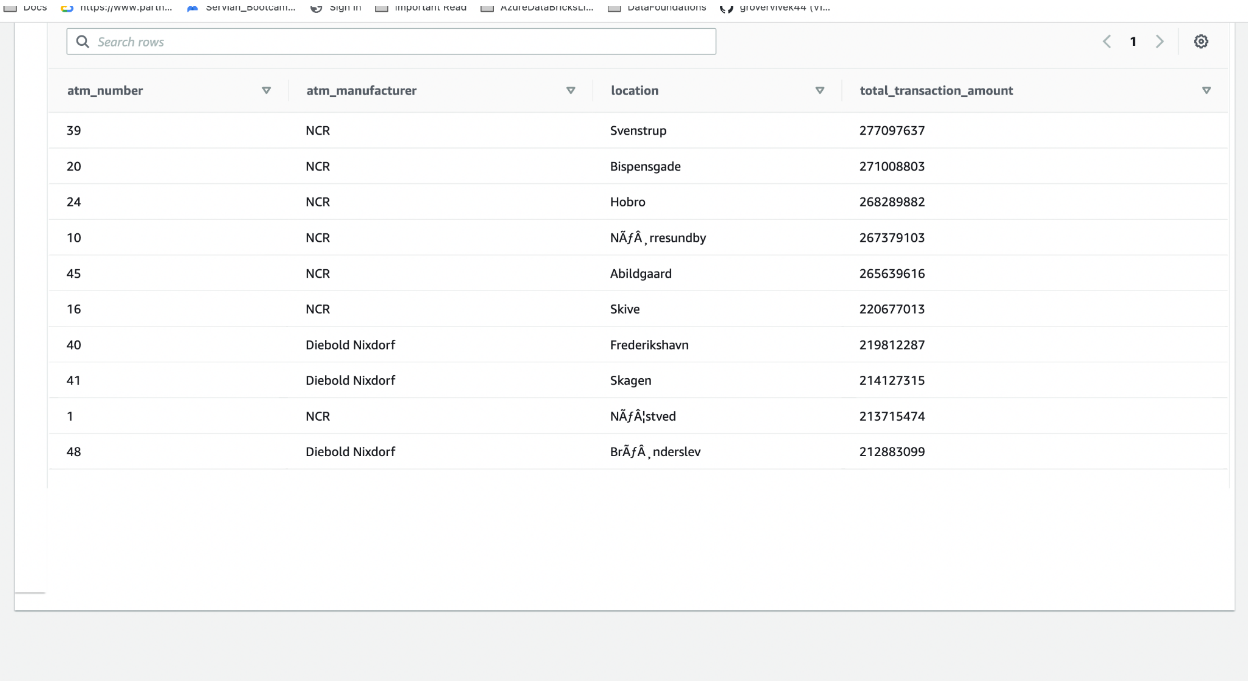
4. Number of overall ATM transactions going inactive per month for each month

```
 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 atm_data.fact_atm_trans f inner join atm_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

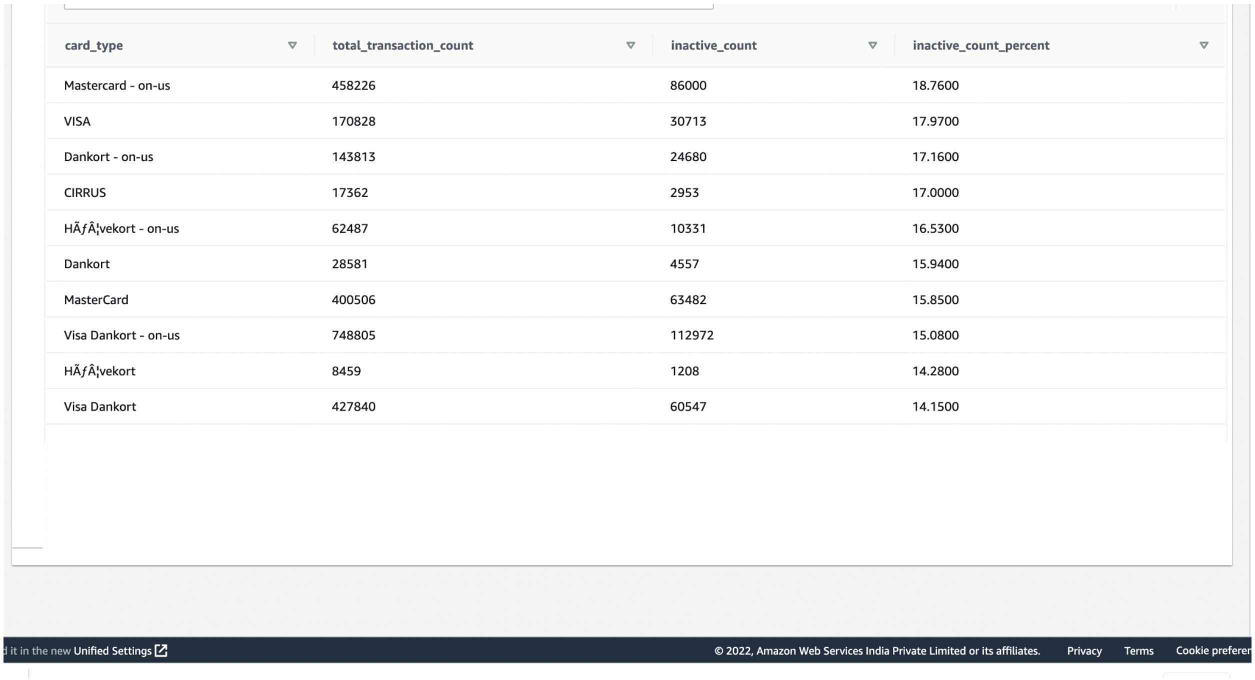
select a.atm_number, a.atm_manufacturer, l.location, sum(transaction_amount) as total_transaction_amount from atm_data.fact_atm_trans f, atm_data.dim_atm a, atm_data.dim_location l where f.atm_id = a.atm_id and a.atm_location_id = l.location_id group by a.atm_number, a.atm_manufacturer, l.location order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



atm_number	atm_manufacturer	location	total_transaction_amount
39	NCR	Svenstrup	277097637
20	NCR	Bispensgade	271008803
24	NCR	Hobro	268289882
10	NCR	NÃƒÂ¸rresundby	267379103
45	NCR	Abildgaard	265639616
16	NCR	Skive	220677013
40	Diebold Nixdorf	Frederikshavn	219812287
41	Diebold Nixdorf	Skagen	214127315
1	NCR	NÃƒÂ¦stved	213715474
48	Diebold Nixdorf	BrÃƒÂ¸nderslev	212883099

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 atm_data.fact_atm_trans f, atm_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;



card_type	total_transaction_count	inactive_count	inactive_count_percent
Mastercard - on-us	458226	86000	18.7600
VISA	170828	30713	17.9700
Dankort - on-us	143813	24680	17.1600
CIRRUS	17362	2953	17.0000
HÃƒÂ¦vekort - on-us	62487	10331	16.5300
Dankort	28581	4557	15.9400
MasterCard	400506	63482	15.8500
Visa Dankort - on-us	748805	112972	15.0800
HÃƒÂ¦vekort	8459	1208	14.2800
Visa Dankort	427840	60547	14.1500

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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 atm_data.fact_atm_trans f, atm_data.dim_atm a, atm_data.dim_location l, atm_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 atm_data.fact_atm_trans f inner join atm_data.dim_atm a on
f.atm_id = a.atm_id inner join atm_data.dim_location l on a.atm_location_id = l.location_id inner
join atm_data.dim_date d on f.date_id = d.date_id where l.location = 'Vejgaard' and d.weekday
in ( select d.weekday from atm_data.fact_atm_trans f inner join atm_data.dim_date d on
f.date_id = d.date_id inner join atm_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;
```