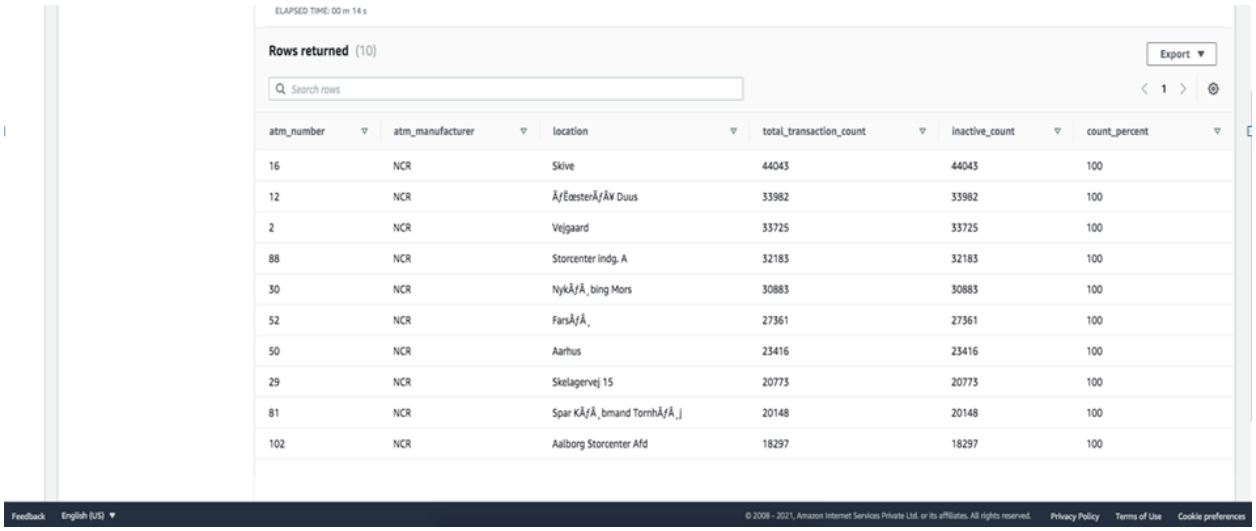
Solving analytical queries on RedShift Cluster

Queries 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 at.atm_number, at.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 fa, atm_data.dim_atm at,
atm_data.dim_location lo where fa.atm_id = at.atm_id and at.atm_location_id =
lo.location_id group by at.atm_number, at.atm_manufacturer, lo.location having
count_percent > 50 order by inactive_transaction_count desc limit 10;
```



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Rows returned (10)

Export

Search rows

1

atm_number	atm_manufacturer	location	total_transaction_count	inactive_count	count_percent
16	NCR	Skive	44043	44043	100
12	NCR	ÃƒÆ'Ã¦sterÃƒÆ'Ã¥ Duus	33982	33982	100
2	NCR	Vejgaard	33725	33725	100
88	NCR	Storcenter Indg. A	32183	32183	100
30	NCR	NykÃƒÆ'Ã¸bing Mors	30883	30883	100
52	NCR	FarsÃƒÆ'Ã¸	27361	27361	100
50	NCR	Aarhus	23416	23416	100
29	NCR	Skelagervej 15	20773	20773	100
81	NCR	Spar KÃƒÆ'Ã¸bmand TornhÃƒÆ'Ã¸j	20148	20148	100
102	NCR	Aalborg Storcenter Afd	18297	18297	100

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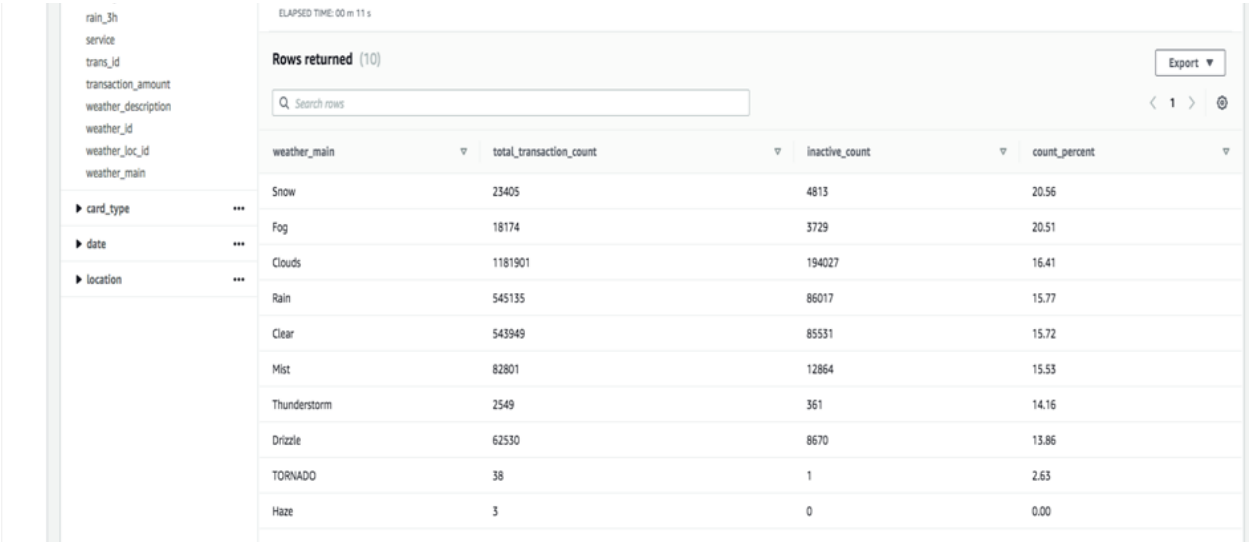
2. **Number of ATM failures corresponding to the different weather conditions recorded at the time of the transactions**

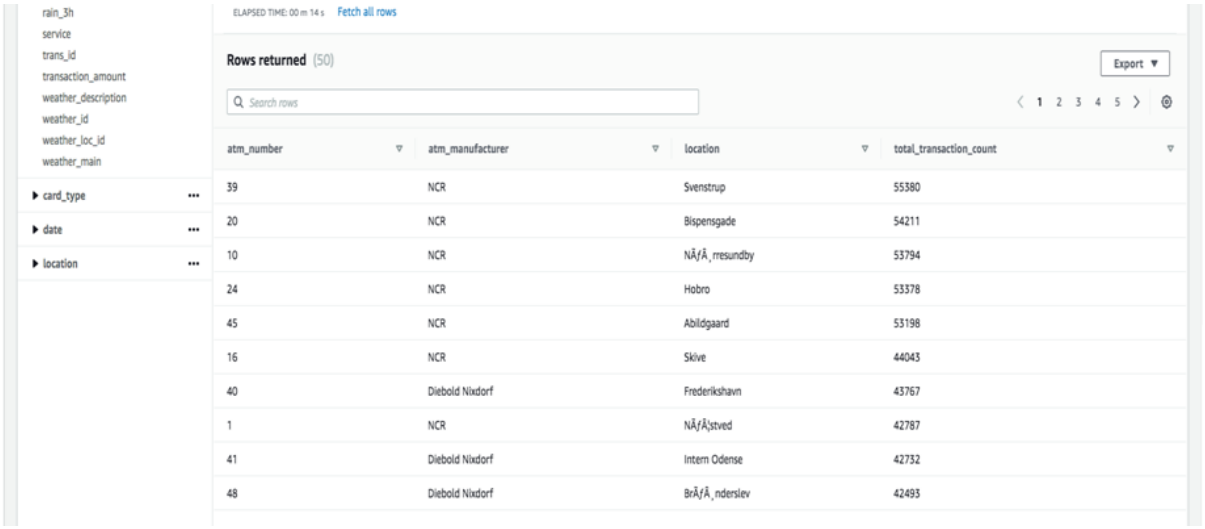
```
select fa.weather_main, count(trans_id) as total_transaction_count, sum(case when atm_status = 'Inactive' then 1 else 0 end) as inactive_count, case when coalesce(inactive_count, 0) = 0 then 0.0000 else trunc((cast(inactive_count as numeric(10,4))/total_transaction_count)*100, 2) end as inactive_count_percent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



weather_main	total_transaction_count	inactive_count	count_percent
Snow	23405	4813	20.56
Fog	18174	3729	20.51
Clouds	1181901	194027	16.41
Rain	545135	86017	15.77
Clear	543949	85531	15.72
Mist	82801	12864	15.53
Thunderstorm	2549	361	14.16
Drizzle	62530	8670	13.86
TORNADO	38	1	2.63
Haze	3	0	0.00

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

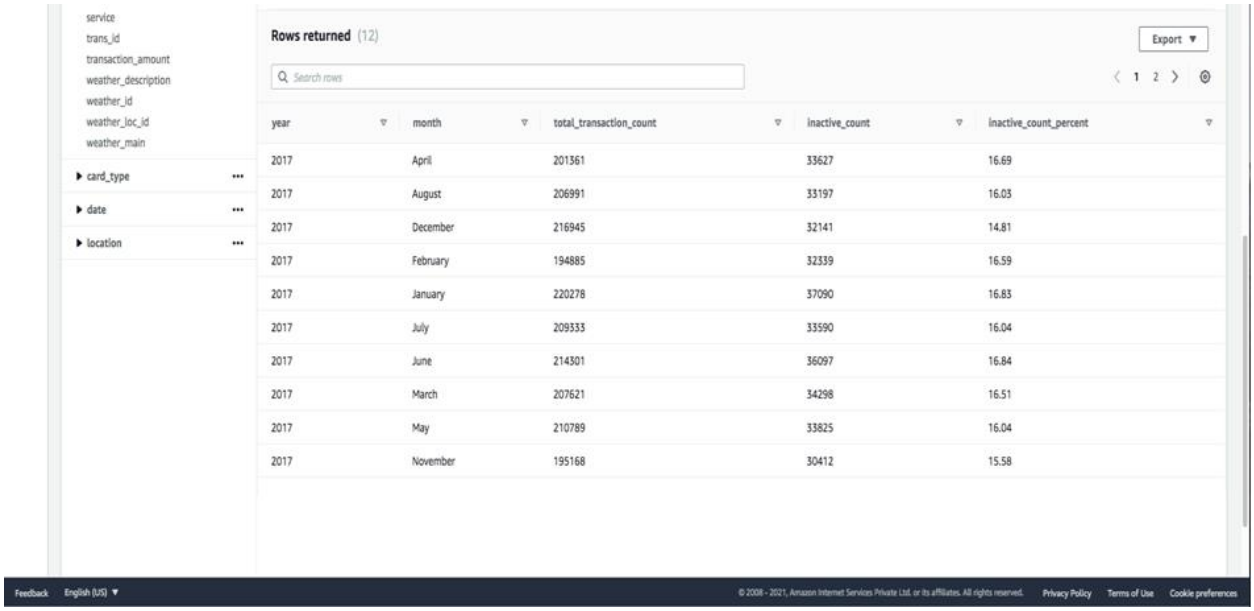
select at.atm_number, at.atm_manufacturer, lo.location, count(trans_id) as total_transaction_count from atm_data.fact_atm_trans fa, atm_data.dim_atm at, atm_data.dim_location lo where fa.atm_id = at.atm_id and at.atm_location_id = lo.location_id group by at.atm_number, at.atm_manufacturer, lo.location order by total_transaction_count desc limit 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	Aalborg	53198
16	NCR	Skive	44043
40	Diebold Nixdorf	Frederikshavn	43767
1	NCR	NÃƒÂ¦stved	42787
41	Diebold Nixdorf	Intern Odense	42732
48	Diebold Nixdorf	BrÃƒÂ¸nderslev	42493

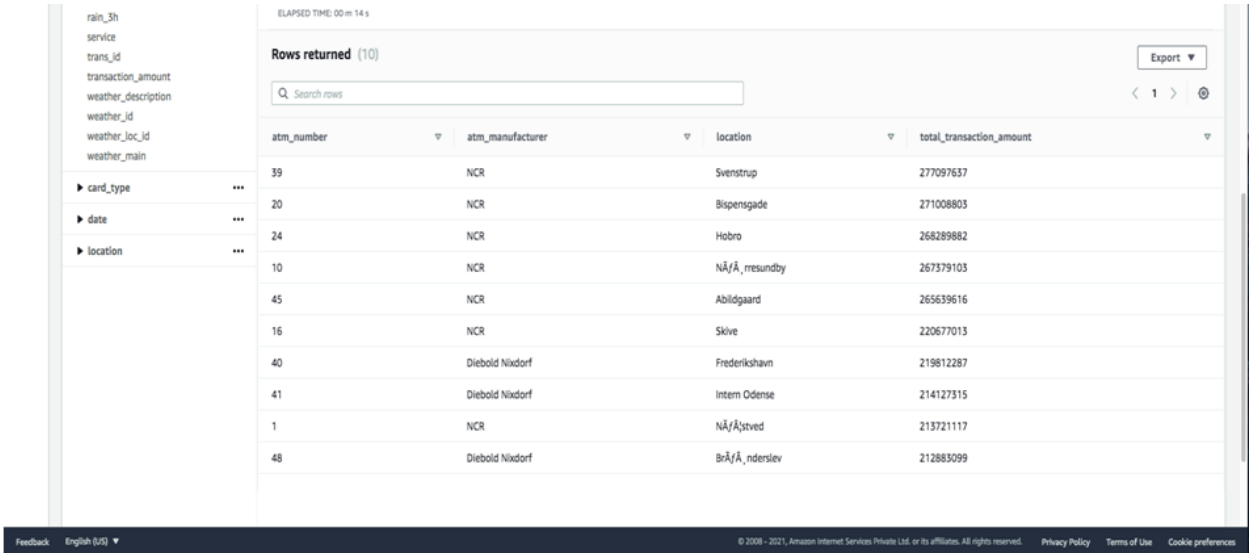
4. **Number of overall ATM transactions going inactive per month for each month**

```
select da.year, da.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 fa inner join atm_data.dim_date da on fa.date_id = da.date_id group by da.year, da.month order by da.year, da.month
```



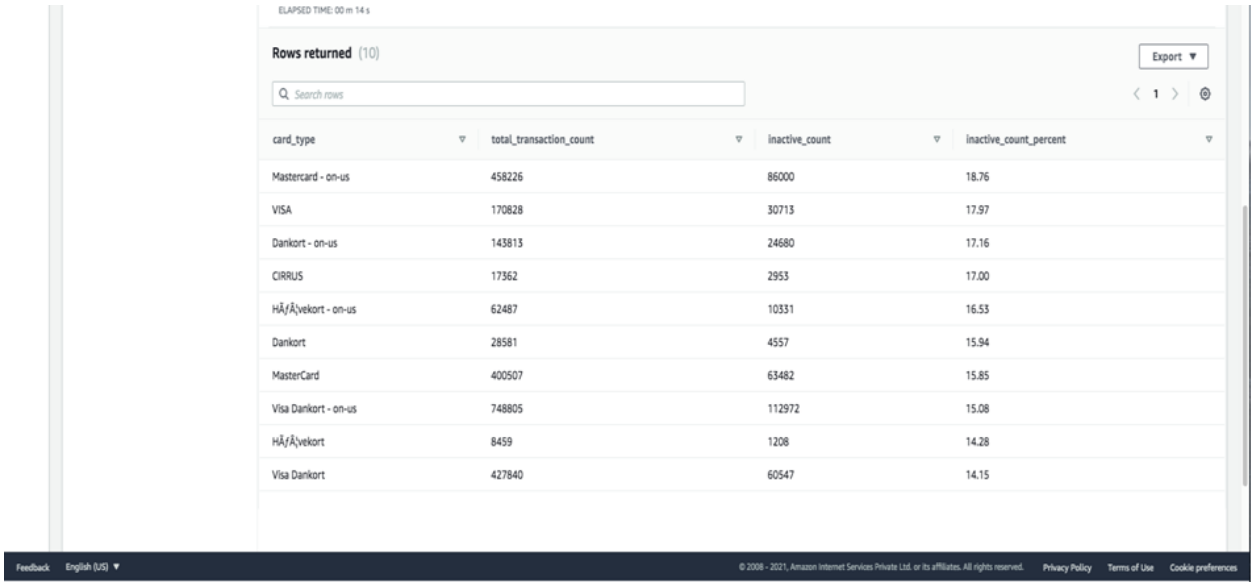
5. **Top 10 ATMs with the highest total withdrawn amount throughout the year**

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



6. Number of failed ATM transactions across various card types

```
select c.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 fa, atm_data.dim_card_type c where fa.card_type_id = c.card_type_id group by c.card_type order by inactive_count_percent desc limit 10;
```



ELAPSED TIME: 00 m 14 s

Rows returned (10)

Export

Search rows

1

card_type	total_transaction_count	inactive_count	inactive_count_percent
Mastercard - on-us	458226	86000	18.76
VISA	170828	30713	17.97
Dankort - on-us	143813	24680	17.16
CIRRUS	17362	2953	17.00
HÃƒÂ¦vekort - on-us	62487	10331	16.53
Dankort	28581	4557	15.94
MasterCard	400507	63482	15.85
Visa Dankort - on-us	748805	112972	15.08
HÃƒÂ¦vekort	8459	1208	14.28
Visa Dankort	427840	60547	14.15

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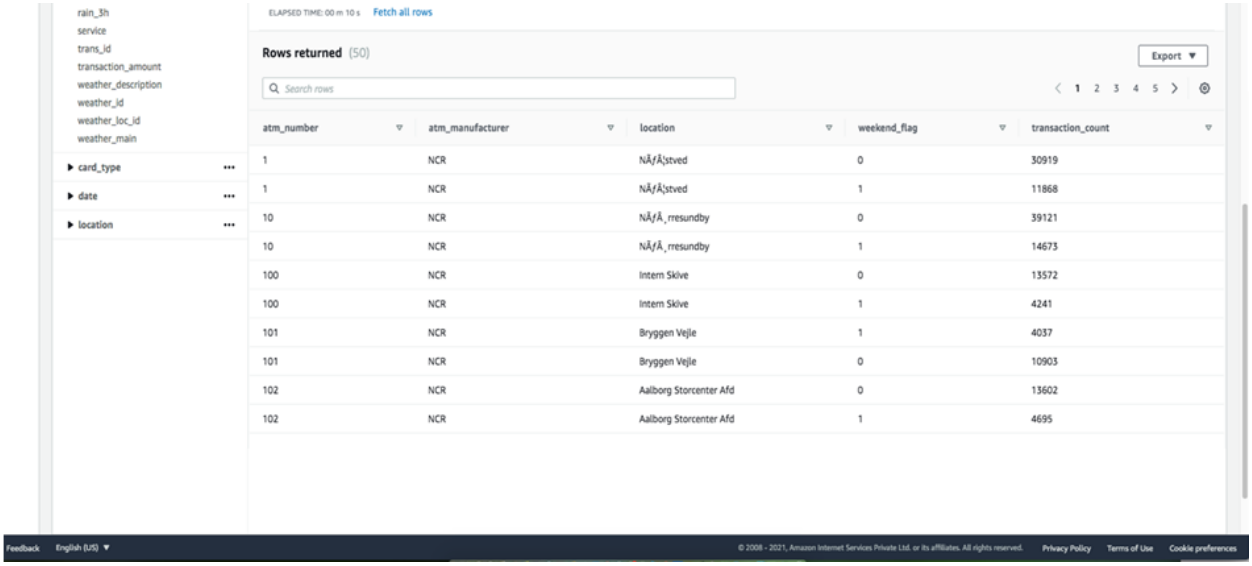
7. **Number of transactions happening on an ATM on weekdays and on weekends throughout the year. Order this by the ATM_number, ATM_manufacturer, location, weekend_flag and then total_transaction_count**

```
select at.atm_number, at.atm_manufacturer, lo.location, case when da.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 fa, atm_data.dim_atm at, atm_data.dim_location lo, atm_data.dim_date da where fa.atm_id = at.atm_id and at.atm_location_id = lo.location_id and fa.date_id = da.date_id group by at.atm_number, at.atm_manufacturer, lo.location, weekend_flag order by at.atm_number, at.atm_manufacturer, lo.location, weekend_flag, total_transaction_count limit 10;
```



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

```
select at.atm_number, at.atm_manufacturer, lo.location, da.weekday, count(trans_id) as total_transaction_count from atm_data.fact_atm_trans fa inner join atm_data.dim_atm at on fa.atm_id = at.atm_id inner join atm_data.dim_location lo on at.atm_location_id = lo.location_id inner join atm_data.dim_date da on fa.date_id = da.date_id where lo.location = 'Vejgaard' and da.weekday in ( select d.weekday from atm_data.fact_atm_trans fa inner join atm_data.dim_date da on fa.date_id = da.date_id inner join atm_data.dim_location lo on fa.weather_loc_id = lo.location_id where lo.location = 'Vejgaard' group by da.weekday order by count(fa.trans_id) desc limit 1 ) group by at.atm_number, at.atm_manufacturer, lo.location, da.weekday order by total_transact ion_count;
```