Solving analytical queries on Redshift Cluster

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

```
select b.atm_number, b.atm_manufacturer, c.location , count(1) as total_transaction_count,
count(1) as inactive_count
From etl_assign.FACT_ATM_TRANS a left join etl_assign.DIM_ATM b
on a.ATM_ID = b.ATM_ID
left join etl_assign.DIM_LOCATION c
on a.weather_loc_id = c.location_id
where a.atm_status ='Inactive'
group by b.atm_number, b.atm_manufacturer,c.location
order by inactive_count desc limit 10;
```

atm_number	atm_manufacturer	location	total_transaction_count	inactive_count
16	NCR	Skive	44043	44043
68	NCR	Intern Vejle	33982	33982
2	NCR	Vejgaard	33725	33725
88	NCR	Storcenter indg. A	32183	32183
30	NCR	NykÃƒÂ¸bing Mors	30883	30883
51	NCR	Gistrup	27361	27361
50	NCR	Aarhus	23416	23416
29	NCR	Skelagervej 15	20773	20773
49	NCR	Bindslev	20148	20148
45	NCR	Abildgaard	18297	18297

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 etl_assign.fact_atm_trans f
where f.weather_main != ''
group by f.weather_main
order by inactive_count_percent desc;
```

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	545135	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

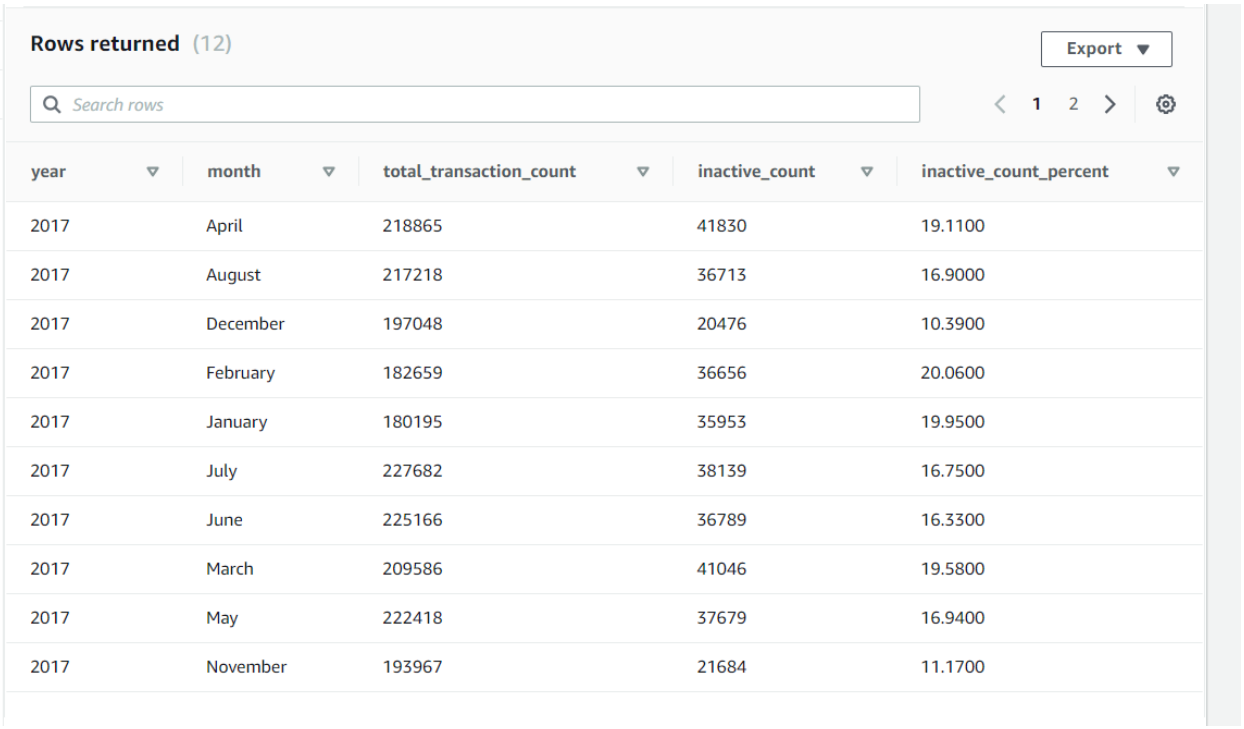
3. Top 10 ATMs with the most number of transactions throughout the year

```
select a.atm_number, a.atm_manufacturer, l.location, count(trans_id) as
total_transaction_count
from etl_assign.fact_atm_trans f, etl_assign.dim_atm a, etl_assign.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;
```

atm_number	atm_manufacturer	location	total_transaction_count
39	NCR	Svenstrup	55380
54	NCR	Durup	54211
10	NCR	NÃƒÂ¸rresundby	53794
21	NCR	Intern ÃƒÆœsterÃƒÂ¥	53378
79	NCR	Middelfart	53198
16	NCR	Skive	44043
40	Diebold Nixdorf	Frederikshavn	43767
1	NCR	NÃƒÂ¦stved	42787
41	Diebold Nixdorf	Skagen	42732
48	Diebold Nixdorf	BrÃƒÂ¸nderslev	42493

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 etl_assign.fact_atm_trans f inner join etl_assign.dim_date d on f.date_id =
d.date_id
group by d.year, d.month
order by d.year, d.month
```



Rows returned (12)

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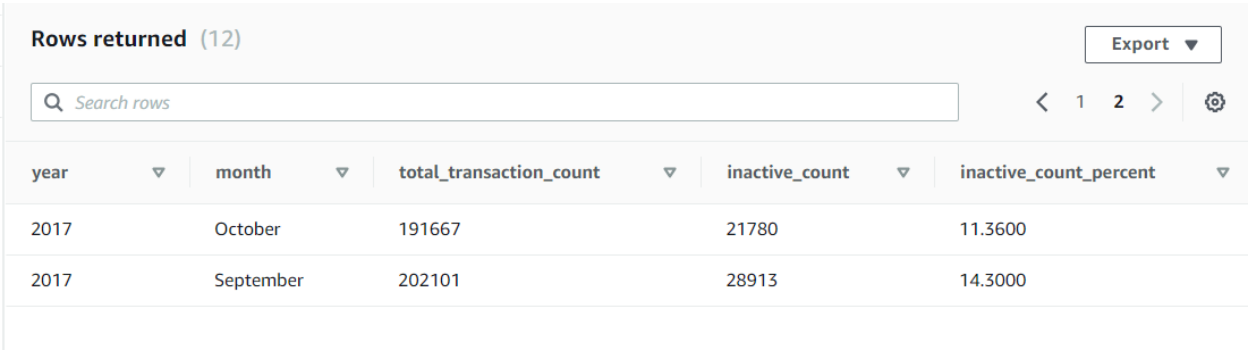
year	month	total_transaction_count	inactive_count	inactive_count_percent
2017	April	218865	41830	19.1100
2017	August	217218	36713	16.9000
2017	December	197048	20476	10.3900
2017	February	182659	36656	20.0600
2017	January	180195	35953	19.9500
2017	July	227682	38139	16.7500
2017	June	225166	36789	16.3300
2017	March	209586	41046	19.5800
2017	May	222418	37679	16.9400
2017	November	193967	21684	11.1700



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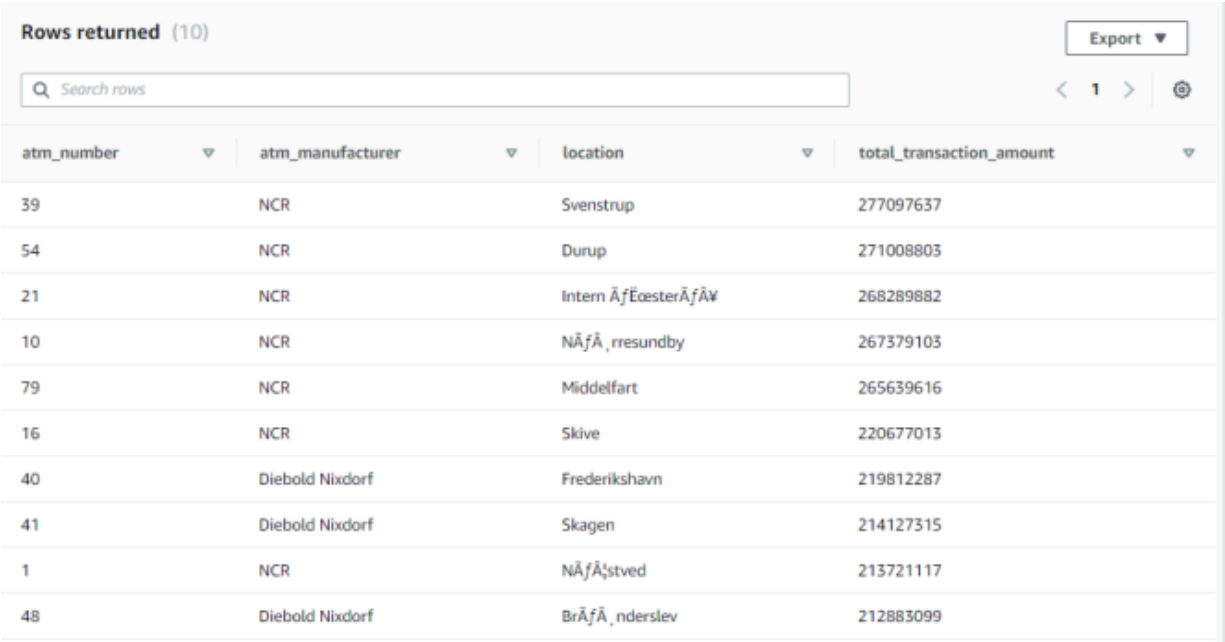
year	month	total_transaction_count	inactive_count	inactive_count_percent
2017	October	191667	21780	11.3600
2017	September	202101	28913	14.3000

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 etl_assign.fact_atm_trans f, etl_assign.dim_atm a, etl_assign.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;
```



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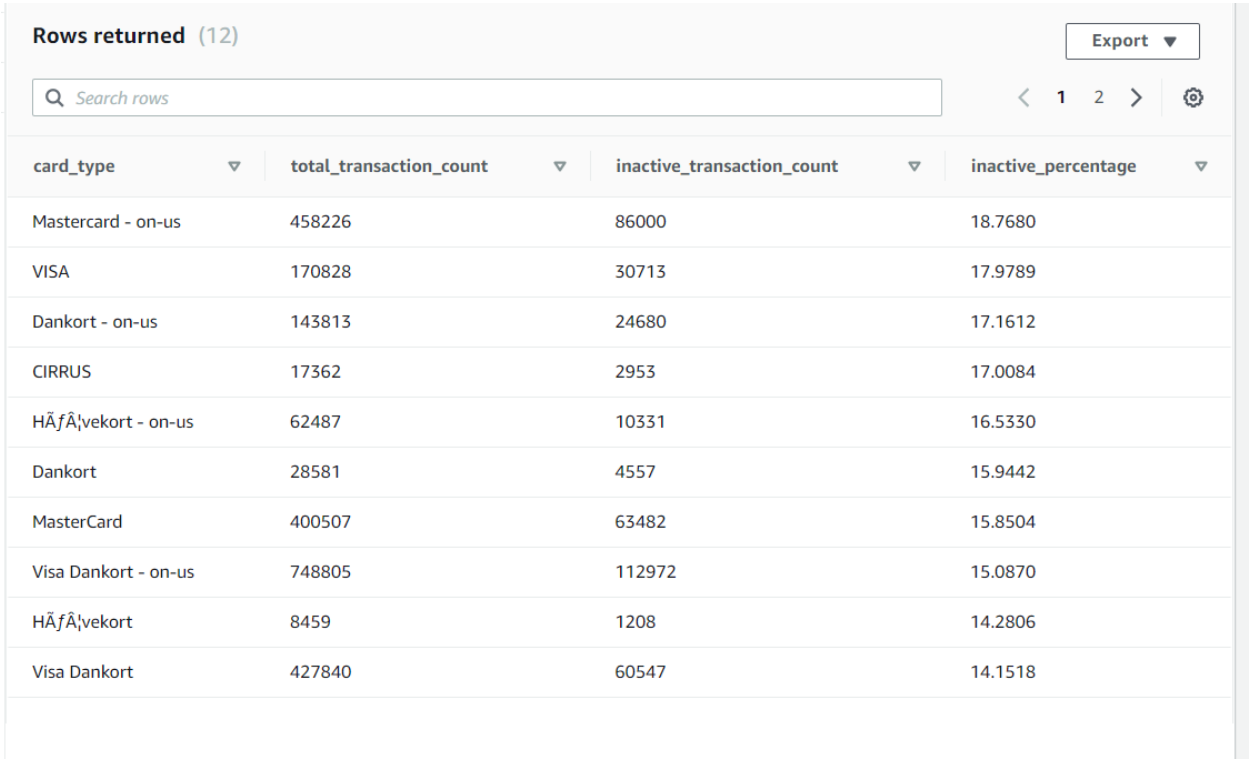
atm_number	atm_manufacturer	location	total_transaction_amount
39	NCR	Svenstrup	277097637
54	NCR	Durup	271008803
21	NCR	Intern ÃƒÆ’Ã¦sterÃƒÂ¥	268289882
10	NCR	NÃƒÂ¸rresundby	267379103
79	NCR	Middelfart	265639616
16	NCR	Skive	220677013
40	Diebold Nixdorf	Frederikshavn	219812287
41	Diebold Nixdorf	Skagen	214127315
1	NCR	NÃƒÂ¦stved	213721117
48	Diebold Nixdorf	BrÃƒÂ¸nderslev	212883099

6. Number of failed ATM transactions across various card types

```
select a.card_type, a.Total_transaction_count , b.Inactive_transaction_count,
ROUND(b.Inactive_transaction_count * 100.00 / a.Total_transaction_count, 4 ) as
Inactive_Percentage
from (select b.card_type ,count(1) as Total_transaction_count From
etl_assign.FACT_ATM_TRANS a left join etl_assign.DIM_CARD_TYPE B on a.card_type_id
= b.card_type_id group by b.card_type )
a inner join ( select b.card_type, count(1) as Inactive_transaction_count From
etl_assign.FACT_ATM_TRANS a left join etl_assign.DIM_CARD_TYPE B on a.card_type_id
= b.card_type_id where a.atm_status='Inactive' group by b.card_type )
b on ( a. card_type = b.card_type ) order by Inactive_Percentage desc;
```



Rows returned (12)

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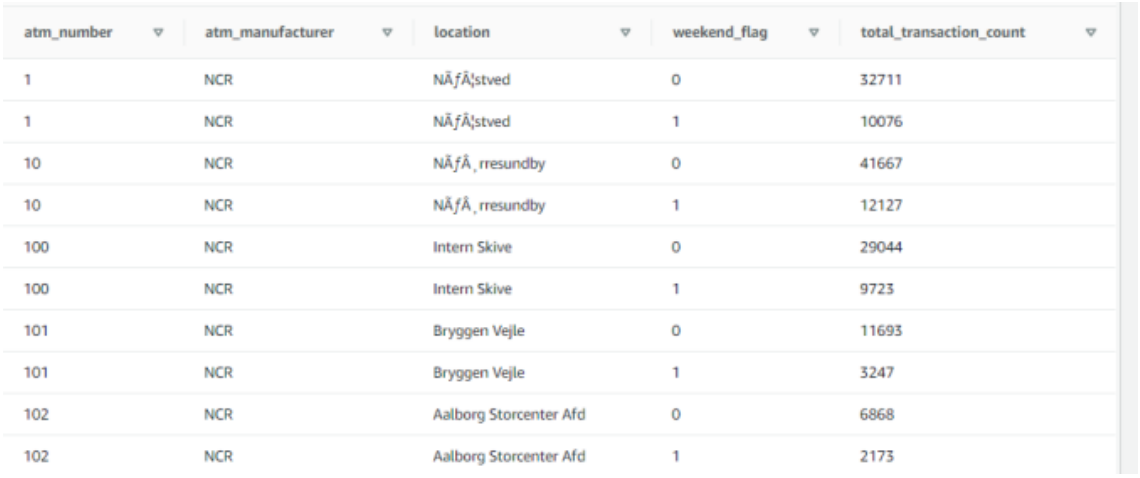
card_type	total_transaction_count	inactive_transaction_count	inactive_percentage
Mastercard - on-us	458226	86000	18.7680
VISA	170828	30713	17.9789
Dankort - on-us	143813	24680	17.1612
CIRRUS	17362	2953	17.0084
HÃƒÂ¦vekort - on-us	62487	10331	16.5330
Dankort	28581	4557	15.9442
MasterCard	400507	63482	15.8504
Visa Dankort - on-us	748805	112972	15.0870
HÃƒÂ¦vekort	8459	1208	14.2806
Visa Dankort	427840	60547	14.1518

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**

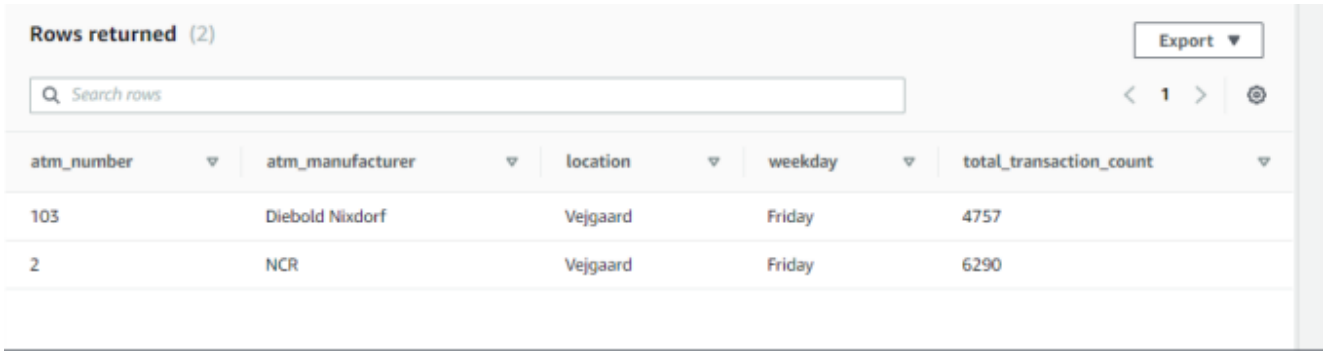
select a.atm_number, a.atm_manufacturer, l.location, case when d.weekday in ('Saturday','Sunday') then 1 else 0 end as weekend_flag, count(trans_id) as total_transaction_count from etl_assign.fact_atm_trans f, etl_assign.dim_atm a, etl_assign.dim_location l, etl_assign.dim_date d where f.atm_id = a.atm_id 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;



atm_number	atm_manufacturer	location	weekend_flag	total_transaction_count
1	NCR	NÃƒÂ¦stved	0	32711
1	NCR	NÃƒÂ¦stved	1	10076
10	NCR	NÃƒÂ¸rresundby	0	41667
10	NCR	NÃƒÂ¸rresundby	1	12127
100	NCR	Intern Skive	0	29044
100	NCR	Intern Skive	1	9723
101	NCR	Bryggen Vejle	0	11693
101	NCR	Bryggen Vejle	1	3247
102	NCR	Aalborg Storcenter Afd	0	6868
102	NCR	Aalborg Storcenter Afd	1	2173

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



Rows returned (2)

Export

Search rows

1

atm_number	atm_manufacturer	location	weekday	total_transaction_count
103	Diebold Nixdorf	Vejgaard	Friday	4757
2	NCR	Vejgaard	Friday	6290