

## Analytical Queries on Redshift Cluster

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

```
with inactive_transactions as (  
  select atm_id, count(trans_id) as inactive_count  
  from myetlproject.fact_atm_trans  
  where atm_status = 'Inactive'  
  group by atm_id  
)  
,  
total_transactions as (  
  select atm_id, count(trans_id) as total_transaction_count  
  from myetlproject.fact_atm_trans  
  group by atm_id  
)  
,  
transactions as (  
  select total_transactions.total_transaction_count, inactive_transactions.inactive_count,  
  inactive_transactions.atm_id,  
  (inactive_transactions.inactive_count/ total_transactions.total_transaction_count)*100 as  
  count_percentage  
  from inactive_transactions  
  inner join total_transactions on inactive_transactions.atm_id = total_transactions.atm_id  
)  
  
select atm.atm_number, atm.atm_manufacturer, location.location,  
transactions.total_transaction_count, transactions.inactive_count,  
transactions.count_percentage  
from transactions  
left join myetlproject.dim_atm atm on transactions.atm_id = atm.atm_id  
left join myetlproject.dim_location location on atm.atm_location_id = location.location_id  
order by inactive_count desc  
limit 10
```

atm_number	atm_manufacturer	location	total_transaction_count	inactive_count	count_percentage
16	NCR	Skive	44043	44043	100.0
12	NCR	ÅrsterÅv Duus	33982	33982	100.0
2	NCR	Vejgaard	33725	33725	100.0
88	NCR	Storcenter indg. A	32183	32183	100.0
30	NCR	NykÅ, bing Mors	30883	30883	100.0
52	NCR	FarsÅ	27361	27361	100.0
50	NCR	Aarhus	23416	23416	100.0
29	NCR	Skelagervej 15	20773	20773	100.0
81	NCR	Spar KÅ, brand TornhÅ, j	20148	20148	100.0
102	NCR	Aalborg Storcenter	18297	18297	100.0

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

with inactive\_transactions as (  
 select weather\_main, count(trans\_id) as inactive\_count  
 from myetlproject.fact\_atm\_trans  
 where atm\_status = 'Inactive'  
 group by weather\_main

),  
 total\_transactions as (  
 select weather\_main, count(trans\_id) as total\_transaction\_count  
 from myetlproject.fact\_atm\_trans  
 group by weather\_main  
 )

select inactive\_transactions.weather\_main, total\_transactions.total\_transaction\_count,  
 inactive\_transactions.inactive\_count,  
 ((inactive\_transactions.inactive\_count)/(total\_transactions.total\_transaction\_count))\*100 as  
 count\_percentage  
 from inactive\_transactions  
 inner join total\_transactions on inactive\_transactions.weather\_main =  
 total\_transactions.weather\_main  
 order by count\_percentage desc

weather_main	total_transaction_count	inactive_count	count_percentage
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 atm.atm_number, atm.atm_manufacturer, location.location,
transactions.total_transaction_count
from (select atm_id, count(trans_id) as total_transaction_count from myetlproject.fact_atm_trans
group by atm_id ) transactions
left join myetlproject.dim_atm atm on transactions.atm_id = atm.atm_id
left join myetlproject.dim_location location on atm.atm_location_id = location.location_id
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	NÅ , rresundby	53794
24	NCR	Hobro	53378
45	NCR	Abildgaard	53198
16	NCR	Skive	44043
40	Diebold Nixdorf	Frederikshavn	43767
1	NCR	NÅ , stved	42787
41	Diebold Nixdorf	Skagen	42732
48	Diebold Nixdorf	BrÅ , nderslev	42493

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

```
with inactive_transactions as (  
  select date_id, count(trans_id) as inactive_count  
  from myetlproject.fact_atm_trans  
  where atm_status = 'Inactive'  
  group by date_id  
)  
  
,  
total_transactions as (  
  select date_id, count(trans_id) as total_transaction_count  
  from myetlproject.fact_atm_trans  
  group by date_id  
)  
  
transactions as (  
  select total_transactions.total_transaction_count, inactive_transactions.inactive_count,  
         inactive_transactions.date_id  
    from inactive_transactions  
    inner join total_transactions on inactive_transactions.date_id = total_transactions.date_id  
)  
  
select datedf.year, datedf.month, SUM(transactions.total_transaction_count) as  
total_transaction_count, SUM(transactions.inactive_count) as inactive_count,  
(SUM(transactions.inactive_count)/SUM(transactions.total_transaction_count))*100 as  
count_percentage  
from transactions  
left join myetlproject.dim_date datedf on transactions.date_id = datedf.date_id  
group by year, month  
order by inactive_count desc  
limit 10
```

year	month	total_transaction_count	inactive_count	count_percentage
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
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 atm.atm_number, atm.atm_manufacturer, location.location,
transactions.total_transaction_amount
from (select atm_id, count(trans_id) as total_transaction_amount from
myetlproject.fact_atm_trans group by atm_id ) transactions
left join myetlproject.dim_atm atm on transactions.atm_id = atm.atm_id
left join myetlproject.dim_location location on atm.atm_location_id = location.location_id
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	N��rresundby	267379103
45	NCR	Abildgaard	265639616
16	NCR	Skive	220677013
40	Diebold Nixdorf	Frederikshavn	219812287
41	Diebold Nixdorf	Skagen	214127315
1	NCR	N��r��stved	213721117
48	Diebold Nixdorf	Br��nderslev	212883099

## 6. Number of failed ATM transactions across various card types

```
with inactive_transactions as (  
  select card_type_id, count(trans_id) as inactive_count  
  from myetlproject.fact_atm_trans  
  where atm_status = 'Inactive'  
  group by card_type_id  
)  
,  
total_transactions as (  
  select card_type_id, count(trans_id) as total_transaction_count  
  from myetlproject.fact_atm_trans  
  group by card_type_id  
)  
transactions as (  
  select inactive_transactions.card_type_id, total_transactions.total_transaction_count,  
         inactive_transactions.inactive_count,  
         ((inactive_transactions.inactive_count)/(total_transactions.total_transaction_count))*100 as  
         count_percentage  
  from inactive_transactions  
  inner join total_transactions on inactive_transactions.card_type_id =  
  total_transactions.card_type_id  
)  
  
select card_type.card_type, transactions.total_transaction_count, transactions.inactive_count,  
       transactions.count_percentage  
from transactions  
left join myetlproject.dim_card_type card_type on transactions.card_type_id =  
card_type.card_type_id  
order by count_percentage desc
```

card_type	total_transaction_count	inactive_count	count_percentage
Mastercard - on-us	458226	86000	18.7600
VISA	170828	30713	17.9700
Dankort - on-us	143813	24680	17.1600
CIRRUS	17362	2953	17.0000
HÅvekort - on-us	62487	10331	16.5300
Dankort	28581	4557	15.9400
MasterCard	400507	63482	15.8500
Visa Dankort - on-us	748805	112972	15.0800
HÅvekort	8459	1208	14.2800
Visa Dankort	427840	60547	14.1500



- 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 atm.atm_number, atm.atm_manufacturer, location.location,  
case when weekday.weekday in ('Saturday','Sunday') then 1 else 0 end as weekend_flag,  
sum(transactions.total_transaction_count) as total_transaction_count  
from (select atm_id, date_id, count(trans_id) as total_transaction_count from  
myetlproject.fact_atm_trans group by atm_id, date_id ) transactions  
left join myetlproject.dim_atm atm on transactions.atm_id = atm.atm_id  
left join myetlproject.dim_location location on atm.atm_location_id = location.location_id  
left join myetlproject.dim_date weekday on transactions.date_id = weekday.date_id  
group by atm_number, atm_manufacturer, location, weekend_flag  
order by total_transaction_count desc  
limit 10
```

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

```
select atm_number, atm_manufacturer, location, weekday, total_transaction_count from (
select *, DENSE_RANK () OVER ( PARTITION BY atm_number ORDER BY
total_transaction_count desc) as rnk from (
select atm.atm_number, atm.atm_manufacturer, location.location, weekday.weekday,
sum(transactions.total_transaction_count) as total_transaction_count
from (select atm_id, date_id, count(trans_id) as total_transaction_count from
myetlproject.fact_atm_trans group by atm_id, date_id ) transactions
left join myetlproject.dim_atm atm on transactions.atm_id = atm.atm_id
left join myetlproject.dim_location location on atm.atm_location_id = location.location_id
left join myetlproject.dim_date weekday on transactions.date_id = weekday.date_id
where location = 'Vejgaard'
group by atm_number, atm_manufacturer, location, weekday
order by total_transaction_count desc )) where rnk =1
```

atm_number	atm_manufacturer	location	weekday	total_transaction_count
103	Diebold Nixdorf	Vejgaard	Friday	4757
2	NCR	Vejgaard	Friday	8149