

## 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;
```

ELAPSED TIME: 00 m 14 s

Rows returned (10)

Search rows

Export

atm_number	atm_manufacturer	location	total_transaction_count	inactive_count	count_percent
16	NCR	Skive	44043	44043	100
12	NCR	Århus	33982	33982	100
2	NCR	Vejgaard	33725	33725	100
88	NCR	Storcenter indg. A	32183	32183	100
30	NCR	Nykøbing Mors	30883	30883	100
52	NCR	Farsø	27361	27361	100
50	NCR	Aarhus	23416	23416	100
29	NCR	Skelagervej 15	20773	20773	100
81	NCR	Spar K&A, bmand Torshøj	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;
```

rain\_3h  
service  
trans\_id  
transaction\_amount  
weather\_description  
weather\_id  
weather\_loc\_id  
weather\_main  
card\_type  
date  
location

ELAPSED TIME: 00 m 11 s

Rows returned (10)

Export

Search rows

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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;
```

rain_3h		ELAPSED TIME: 00 m 14 s	Fetch all rows
service		Rows returned (50)	Expert ▼
trans_id		Search rows	< 1 2 3 4 5 > @
transaction_amount		atm_number	atm_manufacturer
weather_description		location	total_transaction_count
weather_id			
weather_loc_id			
weather_main			
► card_type	...	39	NCR
► date	...	20	NCR
► location	...	10	NCR
		24	NCR
		45	NCR
		16	NCR
		40	Diebold Nixdorf
		1	NCR
		41	Diebold Nixdorf
		48	Diebold Nixdorf

#### 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
```

service	trans_id	transaction_amount	weather_description	weather_id	weather_loc_id	weather_main
card_type	...					
date	...					
location	...					

  

Rows returned (12)						
Search rows						
year	month	total_transaction_count	inactive_count	inactive_count_percent		
2017	April	201361	33627	16.69		
2017	August	206991	33197	16.03		
2017	December	216945	32141	14.81		
2017	February	194885	32339	16.59		
2017	January	220278	37090	16.83		
2017	July	209333	33590	16.04		
2017	June	214301	36097	16.84		
2017	March	207621	34298	16.51		
2017	May	210789	33825	16.04		
2017	November	195168	30412	15.58		

## 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;
```

rain\_3h  
service  
trans\_id  
transaction\_amount  
weather\_description  
weather\_id  
weather\_loc\_id  
weather\_main

▶ card\_type ...  
▶ date ...  
▶ location ...

ELAPSED TIME: 00 m 14 s

Rows returned (10)

Search rows

Export

atm_number	atm_manufacturer	location	total_transaction_amount
39	NCR	Svenstrup	277097637
20	NCR	Bispensgade	271008803
24	NCR	Hobro	268289882
10	NCR	Nå/Å, resundby	267379103
45	NCR	Abildgaard	265639616
16	NCR	Skive	220677013
40	Diebold Nixdorf	Frederikshavn	219812287
41	Diebold Nixdorf	Intern Odense	214127315
1	NCR	Nå/Å, stved	213721117
48	Diebold Nixdorf	Brå/Å, nderslev	212883099

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## 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)

Search rows

Export

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
HÅ/Å\ekort - on-us	62487	10331	16.53
Dankort	28581	4557	15.94
MasterCard	400507	63482	15.85
Visa Dankort - on-us	748805	112972	15.08
HÅ/Å\ekort	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;
```

rain\_3h

service

trans\_id

transaction\_amount

weather\_description

weather\_id

weather\_loc\_id

weather\_main

▶ card\_type

...

▶ date

...

▶ location

...

ELAPSED TIME: 00 m 10 s

Fetch all rows

Rows returned (50)

Export ▼

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1

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3

4

5

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atm_number	atm_manufacturer	location	weekend_flag	transaction_count
1	NCR	Nåråstved	0	30919
1	NCR	Nåråstved	1	11868
10	NCR	Nårå, resundby	0	39121
10	NCR	Nårå, resundby	1	14673
100	NCR	Intern Skive	0	13572
100	NCR	Intern Skive	1	4241
101	NCR	Bryggen Vejle	1	4037
101	NCR	Bryggen Vejle	0	10903
102	NCR	Aalborg Storcenter Afd	0	13602
102	NCR	Aalborg Storcenter Afd	1	4695

## 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;
```

ELAPSED TIME: 00 m 15 s

Rows returned (2)

Search rows

Export

atm_number	atm_manufacturer	location	weekday	total_transaction_count
103	Diebold Nixdorf	Vejgaard	Wednesday	3261
2	NCR	Vejgaard	Thursday	5268

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