

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 atm_number, atm_manufacturer, location, total_transaction_count,
total_transaction_count as inactive_count,
round(100.0*total_transaction_count/total_transaction_count,1) as inactive_count_percent from
(select atm_number, weather_loc_id, atm_manufacturer, total_transaction_count,
total_transaction_count as inactive_count,
round(100.0*total_transaction_count/total_transaction_count,1) as inactive_count_percent from
(select atm_id, weather_loc_id, total_transaction_count from
(select atm_id, weather_loc_id, atm_status, count(transaction_amount) total_transaction_count
from etl_project.fact_atm_trans group by atm_id, weather_loc_id, atm_status having atm_status
= 'Inactive' order by 2, 3, 1) fat
where atm_status = 'Inactive' order by total_transaction_count desc limit 10) as fat_1
join
(select atm_id, atm_number, atm_manufacturer from etl_project.dim_atm) as atm
on fat_1.atm_id = atm.atm_id
) as a
join
(select location_id, location from etl_project.dim_location) b
on a.weather_loc_id = b.location_id
order by total_transaction_count desc LIMIT 10;
```

Rows returned (10)							Export ▼
Q Search rows							< 1 > ⌕
atm_number ▼	atm_manufacturer ▼	location ▼	total_transaction_count ▼	inactive_count ▼	inactive_count_percent ▼		
16	NCR	Skive	44043	44043	100.0		
12	NCR	ÅfEøsterÅ/ÅV Duus	33982	33982	100.0		
2	NCR	Vejgaard	33725	33725	100.0		
88	NCR	Storcenter indg. A	32183	32183	100.0		
30	NCR	NykÅfÅ, bing Mors	30883	30883	100.0		
52	NCR	FarsÅfÅ,	27361	27361	100.0		
50	NCR	Aarhus	23416	23416	100.0		
29	NCR	Skelagervej 15	20773	20773	100.0		
81	NCR	Spar KÅfÅ, bmand TornhÅfÅ, j	20148	20148	100.0		
102	NCR	Aalborg Storcenter Afd	18297	18297	100.0		

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

```
select a.weather_main as weather_main, total_transaction_count, nvl(inactive_count,0)
inactive_count, round(100.0*nvl(inactive_count,0)/total_transaction_count,1) as
inactive_count_percent from
(select weather_main, count(transaction_amount) total_transaction_count
from etl_project.fact_atm_trans group by weather_main having weather_main is not null and
weather_main!=" and weather_main!=' ' ) as a,
(select weather_main, atm_status, count(transaction_amount) inactive_count
from etl_project.fact_atm_trans group by weather_main, atm_status having atm_status =
'Inactive' and weather_main is not null and weather_main!=" and weather_main!=' ' order by
1,2) as b
where
a.weather_main = b.weather_main(+)
order by inactive_count_percent desc;
```

Rows returned (10)

Search rows

Export

weather_main	total_transaction_count	inactive_count	inactive_count_percent
Snow	23405	4813	20.6
Fog	18174	3729	20.5
Clouds	1181901	194027	16.4
Rain	545135	86017	15.8
Clear	543949	85531	15.7
Mist	82801	12864	15.5
Thunderstorm	2549	361	14.2
Drizzle	62530	8670	13.9
TORNADO	38	1	2.6
Haze	3	0	0.0

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

```
select atm.atm_number as atm_number, atm.atm_manufacturer as atm_manufacturer,
weather.location as location, total_transaction_count from
(select atm_id, weather_loc_id, count(transaction_amount) total_transaction_count
from etl_project.fact_atm_trans group by atm_id, weather_loc_id) as fact_atm_trans,
(select atm_id, atm_number, atm_manufacturer from etl_project.dim_atm) as atm,
(select location_id, location from etl_project.dim_location) weather
where fact_atm_trans.atm_id = atm.atm_id
and
fact_atm_trans.weather_loc_id = weather.location_id order by total_transaction_count desc
limit 10;
```

Rows returned (10)				Export
Q Search rows				< 1 > ⌕
atm_number	atm_manufacturer	location	total_transaction_count	
39	NCR	Svenstrup	55380	
20	NCR	Bispensgade	54211	
10	NCR	NÅfÅ, rresundby	53794	
24	NCR	Hobro	53378	
45	NCR	Abildgaard	53198	
16	NCR	Skive	44043	
40	Diebold Nixdorf	Frederikshavn	43767	
1	NCR	NÅfÅ;stved	42787	
41	Diebold Nixdorf	Skagen	42732	
48	Diebold Nixdorf	BrÅfÅ, nderslev	42493	

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

```
select a_total.year as year, a_total.month as month, total_transaction_count, inactive_count,
round(100.0*inactive_count/total_transaction_count,1) as inactive_count_percent from
(select year, month, count(trans_id) as total_transaction_count from
(select date_id, year, month from etl_project.dim_date) date_dt,
(select date_id, trans_id, atm_status from etl_project.fact_atm_trans) fat_1
where
date_dt.date_id = fat_1.date_id
group by year, month) as a_total
join
(select year, month, count(trans_id) as inactive_count from
(select date_id, year, month from etl_project.dim_date) date_dt_2,
(select date_id, trans_id, atm_status from etl_project.fact_atm_trans where
atm_status='Inactive') fat_2
where
date_dt_2.date_id = fat_2.date_id and fat_2.atm_status='Inactive'
group by year, month) as b_inactive
on a_total.year = b_inactive.year and a_total.month = b_inactive.month
--order by round(100.0*inactive_count/total_transaction_count,1) desc;
```

Rows returned (12)

Search rows

Export

year	month	total_transaction_count	inactive_count	inactive_count_percent
2017	June	225166	36789	16.3
2017	January	180195	35953	20.0
2017	February	182659	36656	20.1
2017	July	227682	38139	16.8
2017	September	202101	28913	14.3
2017	November	193967	21684	11.2
2017	March	209586	41046	19.6
2017	April	218865	41830	19.1
2017	May	222418	37679	16.9
2017	August	217218	36713	16.9
2017	October	191667	21780	11.4
2017	December	197048	20476	10.4

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

```
select b.atm_number, b.atm_manufacturer, b.atm_location_id,
SUM(TRANSACTION_AMOUNT) AS TOTAL_TRANSACTION_AMOUNT
from etl_project.fact_atm_trans a, etl_project.DIM_ATM b
where a.ATM_ID = b.ATM_ID
GROUP BY b.atm_number, b.atm_manufacturer, b.atm_location_id
ORDER BY TOTAL_TRANSACTION_AMOUNT DESC limit 10;
```

Rows returned (10)				Export ▼
<input type="text" value="Search rows"/>				< 1 > ⚙
atm_number	atm_manufacturer	atm_location_id	total_transaction_amount	
39	NCR	Svenstrup_GodthÃfÃbsvej_14	277097637	
20	NCR	Blispensgade_Blispensgade_35	271008803	
24	NCR	Hobro_Adelgade_31	268289882	
10	NCR	NÃfÃ_rresundby_Torvet_6	267379103	
45	NCR	Abildgaard_HjÃfÃ_rringvej_144	265639616	
16	NCR	Skive_Adelgade_8	220677013	
40	Diebold Nixdorf	Frederikshavn_Danmarksgade_48	219812287	
41	Diebold Nixdorf	Skagen_Sct. Laurentivej_36	214127315	
1	NCR	NÃfÃstved_Farimagvej_8	213721117	
48	Diebold Nixdorf	BrÃfÃ_nderslev_Algade_4	212883099	

6. Number of failed ATM transactions across various card types

```
select fat_active.card_type as card_type, TOTAL_TRANSACTION_count, inactive_count,
round(100.0*inactive_count/total_transaction_count,4) invalid_count_percent from
(select b.card_type, count(*) AS TOTAL_TRANSACTION_count from etl_project.fact_atm_trans
a, etl_project.DIM_CARD_TYPE b where a.CARD_TYPE_ID = b.CARD_TYPE_ID GROUP BY
b.card_type) as fat_active
join
(select b.card_type, count(*) AS inactive_count from etl_project.fact_atm_trans a,
etl_project.DIM_CARD_TYPE b where a.CARD_TYPE_ID = b.CARD_TYPE_ID and
a.atm_Status = 'Inactive' GROUP BY b.card_type)
as fat_inactive
on fat_inactive.card_type = fat_active.card_type
ORDER BY invalid_count_percent DESC;
```

card_type	total_transaction_count	inactive_count	invalid_count_percent
Mastercard - on-us	458226	86000	18.7680
VISA	170828	30713	17.9789
Dankort - on-us	143813	24680	17.1612
CIRRUS	17362	2953	17.0084
HÃfÃ\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
HÃfÃ\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 = 'Sunday' then 1
when d.weekday = 'Saturday' then 1
else 0
end as weekend_flag, count(*) as total_transaction_count
from etl_project.fact_atm_trans f,
etl_project.dim_Date d,
etl_project.dim_Atm a,
etl_project.dim_location l
where a.atm_id = f.atm_id
and d.date_id = f.date_id
and l.location_id = f.location_id
and (a.ATM_number like '10%' or a.ATM_number = 1)
group by a.ATM_number, a.ATM_manufacturer, l.location, weekend_flag
order by a.atm_number asc, weekend_flag asc, total_transaction_count desc, a.atm_number
asc limit 10;
```

atm_number	atm_manufacturer	location	weekend_flag	total_transaction_count
1	NCR	NÃfÃstved	0	32711
1	NCR	NÃfÃstved	1	10076
10	NCR	NÃfÃ, rresundby	0	41667
10	NCR	NÃfÃ, rresundby	1	12127
100	NCR	Intern Skive	0	17812
100	NCR	Intern Skive	1	1
101	NCR	Bryggen Vejle	0	11693
101	NCR	Bryggen Vejle	1	3247
102	NCR	Aalborg Storcenter Afd	0	14556
102	NCR	Aalborg Storcenter Afd	1	3741

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

```
select b.ATM_number, b.ATM_manufacturer, b.location, b.weekday, a.total_trnsaction_count
from
(select ATM_number, max(cnt) as total_trnsaction_count from
(
select a.ATM_number,a.atm_id, a.ATM_manufacturer, l.location,
d.weekday, count(*) as cnt from etl_project.fact_atm_trans f,
etl_project.dim_Date d,
etl_project.dim_Atm a,
etl_project.dim_location l
where l.location='Vejgaard'
and a.atm_id = f.atm_id
and d.date_id = f.date_id
and l.location_id = f.weather_loc_id
group by a.ATM_number, a.atm_id, a.ATM_manufacturer, l.location,
d.weekday) group by ATM_number) a,
(select a.ATM_number,a.atm_id, a.ATM_manufacturer, l.location,
d.weekday, count(*) as cnt from etl_project.fact_atm_trans f,
etl_project.dim_Date d,
etl_project.dim_Atm a,
etl_project.dim_location l
where l.location='Vejgaard'
and a.atm_id = f.atm_id
and d.date_id = f.date_id
and l.location_id = f.weather_loc_id
group by a.ATM_number, a.atm_id, a.ATM_manufacturer, l.location,
d.weekday) b
where a.ATM_number = b.atm_number
and a.total_trnsaction_count = b.cnt;
```

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