

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 C.atm_number, C.atm_manufacturer, D.location, total_transaction_count, inactive_count,
inactive_count/total_transaction_count*100.0 as count_percent
from (
    select atm_id, count(atm_id) as total_transaction_count
    from etl_bank_schema.fact_atm_trans
    group by atm_id
    order by total_transaction_count desc
) A, (
    select atm_id, count(atm_id) as inactive_count
    from etl_bank_schema.fact_atm_trans
    where atm_status = 'Inactive'
    group by atm_id
    order by inactive_count desc limit 10
) B,
etl_bank_schema.dim_atm C,
etl_bank_schema.dim_location D
where A.atm_id = B.atm_id
AND B.atm_id = C.atm_id
AND C.atm_location_id = D.location_id
ORDER BY inactive_count desc;
```

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Rows returned (10) Export

Search rows

atm_number	atm_manufacturer	location	total_transaction_count	inactive_count	count_percent
16	NCR	Skive	44043	44043	100.0
12	NCR	Åfjølster Åfjøl Duus	33982	33982	100.0
2	NCR	Vejgaard	33725	33725	100.0
88	NCR	Storcenter indg. A	32183	32183	100.0
30	NCR	Nykjøl, bing Mors	30883	30883	100.0
52	NCR	Farsjøl,	27361	27361	100.0
50	NCR	Aarhus	23416	23416	100.0
29	NCR	Skelagervej 15	20773	20773	100.0
81	NCR	Spar Kjøl, bmand Tornhøl, 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, total_transaction_count, convert(decimal(10,0),COALESCE(inactive,0.0)) as
inactive_count, convert(decimal(10,4),100.0*inactive_count/total_transaction_count) as
inactive_count_percent
from (
    select weather_main, count(*) as total_transaction_count from
etl_bank_schema.fact_atm_trans
    group by weather_main
    having weather_main != "
) A
LEFT JOIN (
    select weather_main, count(*) as inactive
    from etl_bank_schema.fact_atm_trans
    where atm_status = 'Inactive'
    group by weather_main having weather_main != "
) B
ON A.weather_main = B.weather_main
order by inactive_count_percent desc;

```

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Rows returned (10)
Export

weather_main

total_transaction_count

inactive_count

inactive_count_percent

Snow

23405

4813

20.5639

Fog

18174

3729

20.5183

Clouds

1181901

194027

16.4165

Rain

545135

86017

15.7790

Clear

543949

85531

15.7240

Mist

82801

12864

15.5360

Thunderstorm

2549

361

14.1624

Drizzle

62530

8670

13.8653

TORNADO

38

1

2.6315

Haze

3

0

0.0000

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

```
select B.atm_number, B.atm_manufacturer, C.location, total_transaction_count
from (
    select atm_id, count(atm_id) as total_transaction_count
    from etl_bank_schema.fact_atm_trans
    group by atm_id
    order by total_transaction_count desc limit 10
) A,
etl_bank_schema.dim_atm B,
etl_bank_schema.dim_location C
where A.atm_id = B.atm_id AND B.atm_location_id = C.location_id
order by total_transaction_count desc;
```

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Rows returned (10) Export

Search rows

atm_number	atm_manufacturer	location	total_transaction_count
39	NCR	Svenstrup	55380
20	NCR	Bispensgade	54211
10	NCR	NÃfÃ, rresundby	53794
24	NCR	Hobro	53378
45	NCR	Abildgaard	53198
16	NCR	Skive	44043
40	Diebold Nixdorf	Frederikshavn	43767
1	NCR	NÃfÃstved	42787
41	Diebold Nixdorf	Skagen	42732
48	Diebold Nixdorf	BrÃfÃ, nderslev	42493

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

```
select total.year, total.month, total_transaction_count, inactive_count,
convert(decimal(10,4),100.0*inactive_count/total_transaction_count) as inactive_count_percent
from (
    select year, month, count(*) as total_transaction_count
    from etl_bank_schema.fact_atm_trans A, etl_bank_schema.dim_date B
    where A.date_id = B.date_id
    group by year, month
) total, (
    select year, month, count(*) as inactive_count
    from etl_bank_schema.fact_atm_trans C, etl_bank_schema.dim_date D
    where C.date_id = D.date_id AND C.atm_status = 'Inactive'
    group by year, month
) inactive
where total.month=inactive.month
order by inactive_count desc;
```

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Rows returned (12) Ex

Search rows

year	month	total_transaction_count	inactive_count	inactive_count_percent
2017	April	218865	41830	19.1122
2017	March	209586	41046	19.5843
2017	July	227682	38139	16.7509
2017	May	222418	37679	16.9406
2017	June	225166	36789	16.3386
2017	August	217218	36713	16.9014
2017	February	182659	36656	20.0679
2017	January	180195	35953	19.9522
2017	September	202101	28913	14.3062
2017	October	191667	21780	11.3634

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

```
select B.atm_number, B.atm_manufacturer, C.location, total_transaction_amount
from (
    select atm_id, sum(transaction_amount) as total_transaction_amount
    from etl_bank_schema.fact_atm_trans
    group by atm_id
    order by total_transaction_amount desc limit 10
) A,
etl_bank_schema.dim_atm B,
etl_bank_schema.dim_location C
where A.atm_id = B.atm_id AND B.atm_location_id = C.location_id
order by total_transaction_amount desc;
```

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Rows returned (10)

Q Search rows

atm_number	atm_manufacturer	location	total_transaction_amount
39	NCR	Svenstrup	277097637
20	NCR	Bispenssgade	271008803
24	NCR	Hobro	268289882
10	NCR	NÅfÅ, rresundby	267379103
45	NCR	Abildgaard	265639616
16	NCR	Skive	220677013
40	Diebold Nixdorf	Frederikshavn	219812287
41	Diebold Nixdorf	Skagen	214127315
1	NCR	NÅfÅ, stved	213721117
48	Diebold Nixdorf	BrÅfÅ, nderslev	212883099

6. Number of failed ATM transactions across various card types

```
select C.card_type, total_transaction_count, inactive_count,
convert(decimal(10,4),100.0*inactive_count/total_transaction_count) as inactive_count_percent
from (
    select card_type_id, count(atm_id) as total_transaction_count
    from etl_bank_schema.fact_atm_trans
    group by card_type_id order by total_transaction_count desc limit 10
) A, (
    select card_type_id, count(atm_id) as inactive_count
    from etl_bank_schema.fact_atm_trans
    where atm_status = 'Inactive'
    group by card_type_id order by inactive_count desc limit 10
) B,
etl_bank_schema.dim_card_type C
where A.card_type_id = B.card_type_id AND A.card_type_id = C.card_type_id
order by inactive_count_percent desc;
```

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Rows returned (10)

Search rows

card_type	total_transaction_count	inactive_count	inactive_count_percent
Mastercard-on-us	458226	86000	18.7680
VISA	170828	30713	17.9789
Dankort-on-us	143813	24680	17.1611
CIRRUS	17362	2953	17.0084
HÃfÃvekort-on-us	62487	10331	16.5330
Dankort	28581	4557	15.9441
MasterCard	400507	63482	15.8504
VisaDankort-on-us	748805	112972	15.0869
HÃfÃvekort	8459	1208	14.2806
VisaDankort	427840	60547	14.1517

- 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, loc.location,
CASE(date.weekday) WHEN 'Saturday' THEN '1' WHEN 'Sunday' THEN '1' ELSE '0' END as weekend_flag,
count(*) as total_transaction_count
from etl_bank_schema.fact_atm_trans fact,
etl_bank_schema.dim_atm atm,
etl_bank_schema.dim_location loc,
etl_bank_schema.dim_date date
where fact.atm_id = atm.atm_id
and fact.weather_loc_id = loc.location_id and fact.date_id = date.date_id
group by atm_number,location,weekend_flag
order by atm_number,location,weekend_flag;
```

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Rows returned (222)

Q Search rows < 1 2 3 4 5 6 7

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

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

```
select final.atm_number, final.atm_manufacturer, final.location, final.weekday,
final.total_transaction_count
from (
    select factor.atm_number, factor.atm_manufacturer, factor.location, factor.weekday,
    factor.total_transaction_count, DENSE_RANK() OVER (partition by factor.location, factor.atm_number,
    factor.atm_manufacturer order by factor.total_transaction_count desc) as RANK
    from (
        select atm.atm_number, atm.atm_manufacturer, loc.location, date.weekday,
        count(*) as total_transaction_count
        from etl_bank_schema.fact_atm_trans fact,
        etl_bank_schema.dim_atm atm,
        etl_bank_schema.dim_location loc,
        etl_bank_schema.dim_date date
        where fact.atm_id = atm.atm_id and fact.location_id = loc.location_id
        and fact.date_id = date.date_id
        group by loc.location, atm.atm_number, atm.atm_manufacturer, date.weekday
        having loc.location = 'Vejgaard'
    ) factor
) final
where RANK = 1
ORDER BY final.total_transaction_count;
```

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Rows returned (2)

Search rows

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