

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
    a.atm_number,
    a.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
from
    etl_bankatm_data.fact_atm_trans f,
    etl_bankatm_data.dim_atm a,
    etl_bankatm_data.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
    inactive_transaction_count desc
limit 10;
```

Services

Search

[Option+S]

+

Q1 x

Untitled 2

table_creation_scripts*

Run

Limit 100

Explain

Isolated session

redshift-clust...

prod

Schedule

Export

Chart

...

```

1 -- Top 10 ATMs where most transactions are in the 'inactive' state
2
3 select
4   a.atm_number,
5   a.atm_manufacturer,
6   l.location,
7   count(trans_id) as total_transaction_count,
8   sum(
9     case
10      when atm_status = 'Inactive' then 1
11      else 0
12    end
13  ) as inactive_transaction_count
14 from atm a
15 join location l on a.location_id = l.location_id
16 group by a.atm_number, a.atm_manufacturer, l.location
17 order by total_transaction_count desc
18 limit 10

```

Result 1 (10)

Export

Chart

...

atm_number	atm_manufacturer	location	total_transaction_count	inactive_transaction_c...
16	NCR	Skive	44043	44043
12	NCR	Århus	33982	33982
2	NCR	Vejgaard	33725	33725
88	NCR	Storcenter indg. A	32183	32183
30	NCR	Nykøbing Mors	30883	30883
52	NCR	Farsø	27361	27361
50	NCR	Aarhus	23416	23416
29	NCR	Skelagervej 15	20773	20773
81	NCR	Spar København Tørh...	20148	20148
102	NCR	Aalborg Storcenter Afd	18297	18297

Elapsed time: 698 ms

Total rows: 10

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_bankatm_data.fact_atm_trans f
where f.weather_main != ''
group by f.weather_main
order by
  inactive_count_percent desc
limit 10;
```

Services Search [Option+S]

+ Q1* x Q2 x table_creation_scripts* x

Run Limit 100 Explain Isolated session redshift-clust... prod Schedule

```

1 -- Number of ATM failures corresponding to the different
2 -- weather conditions recorded at the time of the transactions
3
4 select
5     f.weather_main,
6     count(trans_id) as total_transaction_count,
7     sum(
8         case
9             when atm_status = 'Inactive' then 1
10            else 0
11        end
12    ) as inactive_count,

```

Result 1 (10)

weather_main	total_transaction_count	inactive_count	inactive_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

Export Chart

Elapsed time: 418 ms Total rows: 10

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_bankatm_data.fact_atm_trans f,
  etl_bankatm_data.dim_atm a,
  etl_bankatm_data.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;
```

Services [Option+S] 📧 🔔 🔍 ⚙️ N. Virginia upgradhemanthsameer @ 9549-7156-3245

+ Q1* Q2 Q3 table_creation_scripts*

▶ Run ⏸ ⚙️ Limit 100 ⚙️ Explain ⚙️ Isolated session 📄 redshift-clust... prod 📅 Schedule 📄 🔍 ⋮

```
1 -- Top 10 ATMs with the most number of transactions throughout the year
2
3 select
4   a.atm_number,
5   a.atm_manufacturer,
6   l.location,
7   count(trans_id) as total_transaction_count
8 from
9   etl_bankatm_data.fact_atm_trans f,
10  etl_bankatm_data.dim_atm a,
11  etl_bankatm_data.dim_location l
12 where
```

Result 1 (10)

	atm_number	atm_manufacturer	location	total_transaction_count
<input type="checkbox"/>	39	NCR	Svenstrup	55380
<input type="checkbox"/>	20	NCR	Bispensgade	54211
<input type="checkbox"/>	10	NCR	NÅfÅresundby	53794
<input type="checkbox"/>	24	NCR	Hobro	53378
<input type="checkbox"/>	45	NCR	Abildgaard	53198
<input type="checkbox"/>	16	NCR	Skive	44043
<input type="checkbox"/>	40	Diebold Nixdorf	Frederikshavn	43767
<input type="checkbox"/>	1	NCR	NÅfÅstved	42787
<input type="checkbox"/>	41	Diebold Nixdorf	Skagen	42732
<input type="checkbox"/>	48	Diebold Nixdorf	BrÅfÅnderslev	42493

Export 📄 📊 Chart 🔍 ⋮

Elapsed time: 464 ms Total rows: 10

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

```
select
    c.year,
    c.month,
    c.transaction_count,
    d.inactive_count,
    CAST(
        trunc(
            100.0 * d.inactive_count / c.transaction_count,
            2
        ) AS NUMERIC(10, 4)
    ) as inactive_count_percent
from (
    select
        a.year,
        a.month,
        count(b.trans_id) as transaction_count
    from
        etl_bankatm_data.dim_date a,
        etl_bankatm_data.FACT_ATM_TRANS b
    where a.date_id = b.date_id
    group by a.month, a.year
) c
left join (
    select
        a.year,
        a.month,
        count(b.atm_status) as inactive_count
    from
        etl_bankatm_data.dim_date a,
        etl_bankatm_data.FACT_ATM_TRANS b
    where
        a.date_id = b.date_id
        and b.atm_status = 'Inactive'
    group by
        a.month,
        a.year
) d on c.year = d.year
and c.month = d.month
order by c.year, c.month;
```

Services Search [Option+S] N. Virginia upgradhemanthsameer @ 9549-7156-3245

Q1* Q2* Q3* table_creation_scripts Q4* Q5 Q6 Q7* load_data*

Run Limit 100 Explain Isolated session redshift-clust... prod Schedule

```

1 -- Number of overall ATM transactions going inactive per month for each month
2
3 SELECT
4   d.year,
5   d.month,
6   COUNT(trans_id) AS total_transaction_count,
7   SUM(
8     CASE
9       WHEN atm_status = 'Inactive' THEN 1

```

Result 1 (12)

year	month	total_transaction_count	inactive_count	inactive_count_percent
2017	April	218865	41830	19.11
2017	August	217218	36713	16.9
2017	December	197048	20476	10.39
2017	February	182659	36656	20.06
2017	January	180195	35953	19.95
2017	July	227682	38139	16.75
2017	June	225166	36789	16.33
2017	March	209586	41046	19.58
2017	May	222418	37679	16.94
2017	November	193967	21684	11.17
2017	October	191667	21780	11.36
2017	September	202101	28913	14.3

Elapsed time: 174 ms Total rows: 12

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_bankatm_data.fact_atm_trans f,
  etl_bankatm_data.dim_atm a,
  etl_bankatm_data.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;
```

Services Search [Option+S] N. Virginia upgradhemanthsameer @ 9549-7156-3245

Q1* Q2* Q3* table_creation_scripts Q4* Q5* Q6* Q7* load_data*

Run Limit 100 Explain Isolated session redshift-clust... prod Schedule

```
1 -- Top 10 ATMs with the highest total withdrawn amount throughout the year
2
3 select
4   a.atm_number,
5   a.atm_manufacturer,
6   l.location,
7   sum(transaction_amount) as total_transaction_amount
8 from
9   etl_bankatm_data.fact_atm_trans f,
10  etl_bankatm_data.dim_atm a
```

Result 1 (10)

atm_number	atm_manufacturer	location	total_transaction_amount
39	NCR	Svenstrup	277097637
20	NCR	Bispensgade	271008803
24	NCR	Hobro	268289882
10	NCR	NÅfÅresundby	267379103
45	NCR	Abildgaard	265639616
16	NCR	Skive	220677013
40	Diebold Nixdorf	Frederikshavn	219812287
41	Diebold Nixdorf	Skagen	214127315
1	NCR	NÅfÅstved	213721117
48	Diebold Nixdorf	BrÅfÅnderslev	212883099

Elapsed time: 197 ms Total rows: 10

6. Number of failed ATM transactions across various card types

```
select
  ct.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
  etl_bankatm_data.fact_atm_trans f,
  etl_bankatm_data.dim_card_type ct
where
  f.card_type_id = ct.card_type_id
group by ct.card_type
order by
  inactive_count_percent desc
limit 10;
```

Services

Search

[Option+S]

N. Virginia

upgradhemanthsameer @ 9549-7156-3245

Q1*

Q2

Q3

table_creation_scripts*

Q4*

Q5

Q6

Run

Limit 100

Explain

Isolated session

redshift-clust...

prod

Schedule

```

1  -- Number of failed ATM transactions across various card types
2
3  select
4      ct.card_type,
5      count(trans_id) as total_transaction_count,
6      sum(
7          case
8              when atm_status = 'Inactive' then 1
9              else 0
10             end
11          ) as inactive_count,
12      case

```

Result 1 (10)

Export

Chart

<input type="checkbox"/>	card_type	total_transaction_count	inactive_count	inactive_count_percent
<input type="checkbox"/>	Mastercard - on-us	458226	86000	18.76
<input type="checkbox"/>	VISA	170828	30713	17.97
<input type="checkbox"/>	Dankort - on-us	143813	24680	17.16
<input type="checkbox"/>	CIRRUS	17362	2953	17
<input type="checkbox"/>	HÅfÅvekort - on-us	62487	10331	16.53
<input type="checkbox"/>	Dankort	28581	4557	15.94
<input type="checkbox"/>	MasterCard	400507	63482	15.85
<input type="checkbox"/>	Visa Dankort - on-us	748805	112972	15.08
<input type="checkbox"/>	HÅfÅvekort	8459	1208	14.28
<input type="checkbox"/>	Visa Dankort	427840	60547	14.15

Elapsed time: 628 ms

Total rows: 10

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_bankatm_data.fact_atm_trans f,
    etl_bankatm_data.dim_atm a,
    etl_bankatm_data.dim_location l,
    etl_bankatm_data.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
limit 10;
```

Services

Search

[Option+S]

N. Virginia

upgradhemanthsameer @ 9549-7156-3245

+

Q1*

Q2*

Q3*

table_creation_scripts

Q4*

Q5*

Q6*

Q7*

load_data*

Run

Limit 100

Explain

Isolated session

redshift-clust...

prod

Schedule

...

```

1  -- Number of transactions happening on an ATM on weekdays and on weekends throughout the year. Order
2  -- this by the ATM_number, ATM_manufacturer, location, weekend_flag and then total_transaction_count
3
4  select
5      a.atm_number,
6      a.atm_manufacturer,
7      l.location,
8      case
9          when d.weekday in ('Saturday', 'Sunday') then 1
10         else 0
11     end as weekend_flag,
12     count(trans_id) as total_transaction_count

```

Result 1 (10)

Export

Chart

	atm_number	atm_manufacturer	location	weekend_flag	total_transaction_count	
<input type="checkbox"/>	1	NCR	NÄfÄ:stved	0	32711	
<input type="checkbox"/>	1	NCR	NÄfÄ:stved	1	10076	
<input type="checkbox"/>	10	NCR	NÄfÄ:resundby	0	41667	
<input type="checkbox"/>	10	NCR	NÄfÄ:resundby	1	12127	
<input type="checkbox"/>	100	NCR	Intern Skive	0	17812	
<input type="checkbox"/>	100	NCR	Intern Skive	1	1	
<input type="checkbox"/>	101	NCR	Bryggen Vejle	0	11693	
<input type="checkbox"/>	101	NCR	Bryggen Vejle	1	3247	
<input type="checkbox"/>	102	NCR	Aalborg Storcenter Afd	0	14556	
<input type="checkbox"/>	102	NCR	Aalborg Storcenter Afd	1	3741	

Elapsed time: 240 ms Total rows: 10

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

Services

Search

[Option+S]

N. Virginia

upgradhemanthsameer @ 9549-7156-3245

+

Q1*

Q2*

Q3*

table_creation_scripts

Q4*

Q5*

Q6*

Q7*

load_data*

Q8

Run

Limit 100

Explain

Isolated session

redshift-clust...

prod

Schedule

```

1  -- Most active day in each ATMs from location "Vejgaard"
2
3  select
4      a.atm_number,
5      a.atm_manufacturer,
6      l.location,
7      d.weekday,
8      count(trans_id) as total_transaction_count
9  from
10     etl_bankatm_data.fact_atm_trans f
11     inner join etl_bankatm_data.dim_atm a on f.atm_id = a.atm_id
12     inner join etl_bankatm_data.dim_location l on a.atm_location_id = l.location_id
13     inner join etl_bankatm_data.dim_date d on f.date_id = d.date_id
14  where

```

Result 1 (2)

Export

Chart

	atm_number	atm_manufacturer	location	weekday	total_transaction_count
<input type="checkbox"/>	103	Diebold Nixdorf	Vejgaard	Friday	4757
<input type="checkbox"/>	2	NCR	Vejgaard	Friday	6290

Elapsed time: 1349 ms Total rows: 2