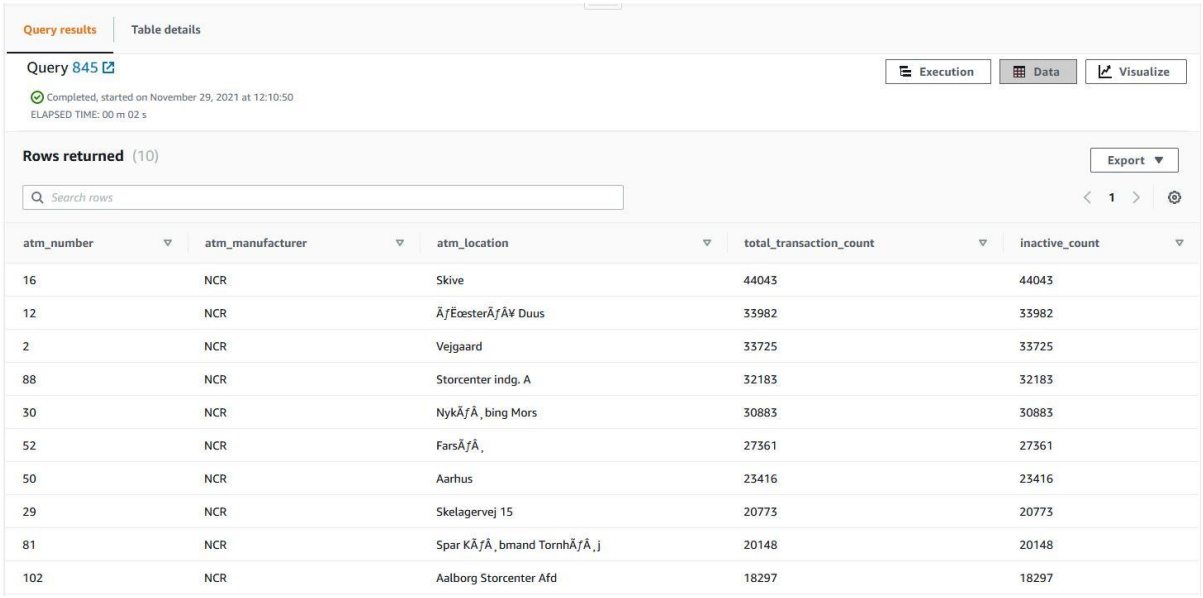
Solving analytical queries on Redshift Cluster

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.atm_location, count(f.transaction_amount)
as total_transaction_count, count(f.atm_status) as inactive_count
from etl.fact_atm_trans f INNER JOIN etl.atm a on f.atm_id = a.atm_id INNER JOIN
etl.loc l on a.location_id = l.location_id
where f.atm_status = 'Inactive'
group by a.atm_number, a.atm_manufacturer, l.atm_location
order by inactive_count desc
limit 10;
```

```
-- Query 1 --
select a.atm_number, a.atm_manufacturer, l.atm_location, count(f.transaction_amount) as total_transaction_count, count(f.atm_status) as inactive_count
from etl.fact_atm_trans f INNER JOIN etl.atm a on f.atm_id = a.atm_id INNER JOIN etl.loc l on a.location_id = l.location_id
where f.atm_status = 'Inactive'
group by a.atm_number, a.atm_manufacturer, l.atm_location
order by inactive_count desc
limit 10;
```



Query results | Table details

Query 845

Completed, started on November 29, 2021 at 12:10:50

ELAPSED TIME: 00 m 02 s

Execution | Data | Visualize

Rows returned (10)

Export

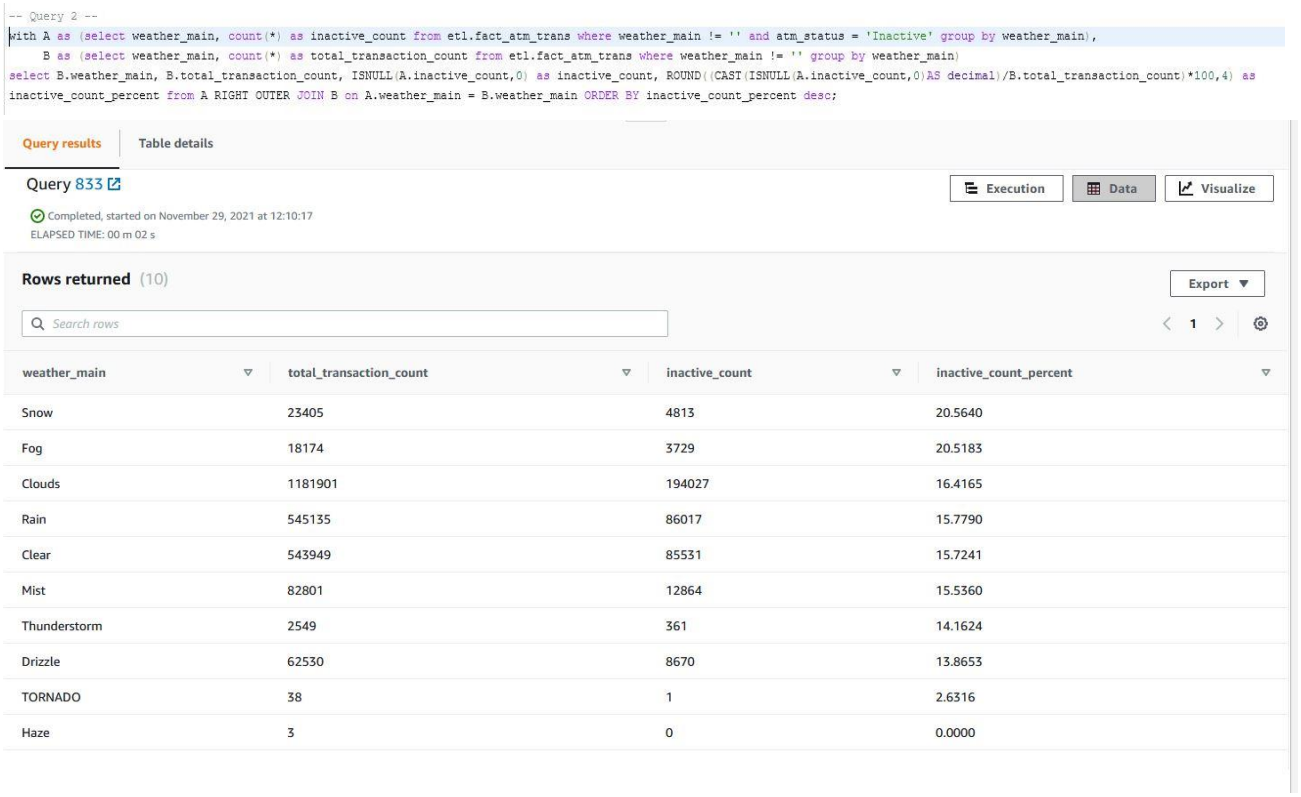
Search rows

1

atm_number	atm_manufacturer	atm_location	total_transaction_count	inactive_count
16	NCR	Skive	44043	44043
12	NCR	ÃƒÉœsterÃƒÂ¥ Duus	33982	33982
2	NCR	Vejgaard	33725	33725
88	NCR	Storcenter indg. A	32183	32183
30	NCR	NykÃƒÂ¸bing Mors	30883	30883
52	NCR	FarsÃƒÂ¸	27361	27361
50	NCR	Aarhus	23416	23416
29	NCR	Skelagervej 15	20773	20773
81	NCR	Spar KÃƒÂ¸bmand TornhÃƒÂ¸j	20148	20148
102	NCR	Aalborg Storcenter Afd	18297	18297

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

```
with A as (select weather_main, count(*) as inactive_count from etl.fact_atm_trans
where weather_main != '' and atm_status = 'Inactive' group by weather_main),
        B as (select weather_main, count(*) as total_transaction_count from
etl.fact_atm_trans where weather_main != '' group by weather_main)
select B.weather_main, B.total_transaction_count, ISNULL(A.inactive_count,0) as
inactive_count, ROUND((CAST(ISNULL(A.inactive_count,0)AS
decimal)/B.total_transaction_count)*100,4) as inactive_count_percent from A RIGHT
OUTER JOIN B on A.weather_main = B.weather_main ORDER BY
inactive_count_percent desc;
```



```
-- Query 2 --
with A as (select weather_main, count(*) as inactive_count from etl.fact_atm_trans where weather_main != '' and atm_status = 'Inactive' group by weather_main),
     B as (select weather_main, count(*) as total_transaction_count from etl.fact_atm_trans where weather_main != '' group by weather_main)
select B.weather_main, B.total_transaction_count, ISNULL(A.inactive_count,0) as inactive_count, ROUND((CAST(ISNULL(A.inactive_count,0)AS decimal)/B.total_transaction_count)*100,4) as
inactive_count_percent from A RIGHT OUTER JOIN B on A.weather_main = B.weather_main ORDER BY inactive_count_percent desc;
```

Query results | Table details

Query 833

Execution | Data | Visualize

Completed, started on November 29, 2021 at 12:10:17
ELAPSED TIME: 00 m 02 s

Rows returned (10)

Export

Search rows

1

weather_main	total_transaction_count	inactive_count	inactive_count_percent
Snow	23405	4813	20.5640
Fog	18174	3729	20.5183
Clouds	1181901	194027	16.4165
Rain	545135	86017	15.7790
Clear	543949	85531	15.7241
Mist	82801	12864	15.5360
Thunderstorm	2549	361	14.1624
Drizzle	62530	8670	13.8653
TORNADO	38	1	2.6316
Haze	3	0	0.0000

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

select a.atm_number,a.atm_manufacturer,l.atm_location,count(t.trans_id) as numTransactions
from etl.atm a, etl.loc l, etl.FACT_ATM_TRANS t
where a.atm_id = t.atm_id
and l.location_id = t.location_id
group by a.atm_number, a.atm_manufacturer, l.atm_location
order by numTransactions desc
limit 10;

```
-- Query 3 --
select a.atm_number,a.atm_manufacturer,l.atm_location,count(t.trans_id) as numTransactions
from etl.atm a, etl.loc l, etl.FACT_ATM_TRANS t
where a.atm_id = t.atm_id
and l.location_id = t.location_id
group by a.atm_number, a.atm_manufacturer, l.atm_location
order by numTransactions desc
limit 10;
```

Query results | Table details

Query 810

Completed, started on November 29, 2021 at 12:08:30
ELAPSED TIME: 00 m 04 s

Execution | Data | Visualize

Rows returned (10)

Export

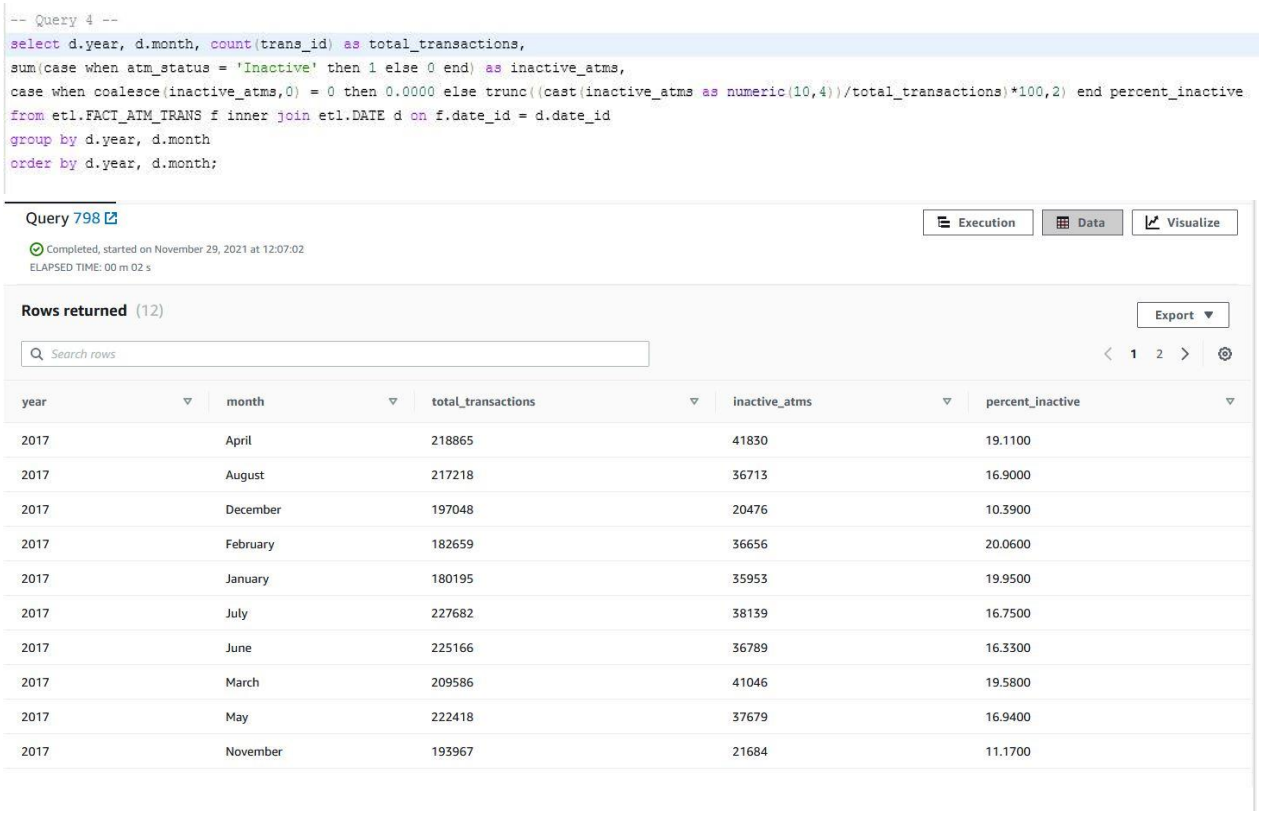
Search rows

1

atm_number	atm_manufacturer	atm_location	numtransactions
39	NCR	Svenstrup	55380
20	NCR	Bispensgade	54211
10	NCR	NÃƒÂ¸rresundby	53794
24	NCR	Hobro	53378
45	NCR	Abildgaard	53198
16	NCR	Skive	44043
40	Diebold Nixdorf	Frederikshavn	43767
1	NCR	NÃƒÂ¦stved	42787
41	Diebold Nixdorf	Skagen	42732
48	Diebold Nixdorf	BrÃƒÂ¸nderslev	42493

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

```
select d.year, d.month, count(trans_id) as total_transactions,
sum(case when atm_status = 'Inactive' then 1 else 0 end) as inactive_atms,
case when coalesce(inactive_atms,0) = 0 then 0.0000 else trunc((cast(inactive_atms as
numeric(10,4))/total_transactions)*100,2) end percent_inactive
from etl.FACT_ATM_TRANS f inner join etl.DATE d on f.date_id = d.date_id
group by d.year, d.month
order by d.year, d.month;
```



```
-- Query 4 --
select d.year, d.month, count(trans_id) as total_transactions,
sum(case when atm_status = 'Inactive' then 1 else 0 end) as inactive_atms,
case when coalesce(inactive_atms,0) = 0 then 0.0000 else trunc((cast(inactive_atms as numeric(10,4))/total_transactions)*100,2) end percent_inactive
from etl.FACT_ATM_TRANS f inner join etl.DATE d on f.date_id = d.date_id
group by d.year, d.month
order by d.year, d.month;
```

Query 798

Completed, started on November 29, 2021 at 12:07:02
ELAPSED TIME: 00 m 02 s

Execution | Data | Visualize

Rows returned (12)

Export

Search rows

1 2

year	month	total_transactions	inactive_atms	percent_inactive
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

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

```
select a.atm_number, a.atm_manufacturer,l.atm_location, sum(t.transaction_amount) as total_amount
from etl.FACT_ATM_TRANS t, etl.atm a, etl.loc l
where t.atm_id=a.atm_id
and t.location_id = l.location_id
group by a.atm_number, a.atm_manufacturer,l.atm_location
order by total_amount desc
limit 10;
```

```
-- Query 5 --
select a.atm_number, a.atm_manufacturer,l.atm_location, sum(t.transaction_amount) as total_amount
from etl.FACT_ATM_TRANS t, etl.atm a, etl.loc l
where t.atm_id=a.atm_id
and t.location_id = l.location_id
group by a.atm_number, a.atm_manufacturer,l.atm_location
order by total_amount desc
limit 10;
```

Query 742

Completed, started on November 29, 2021 at 12:03:41
ELAPSED TIME: 00 m 03 s

Execution | Data | Visualize

Rows returned (10)

Export

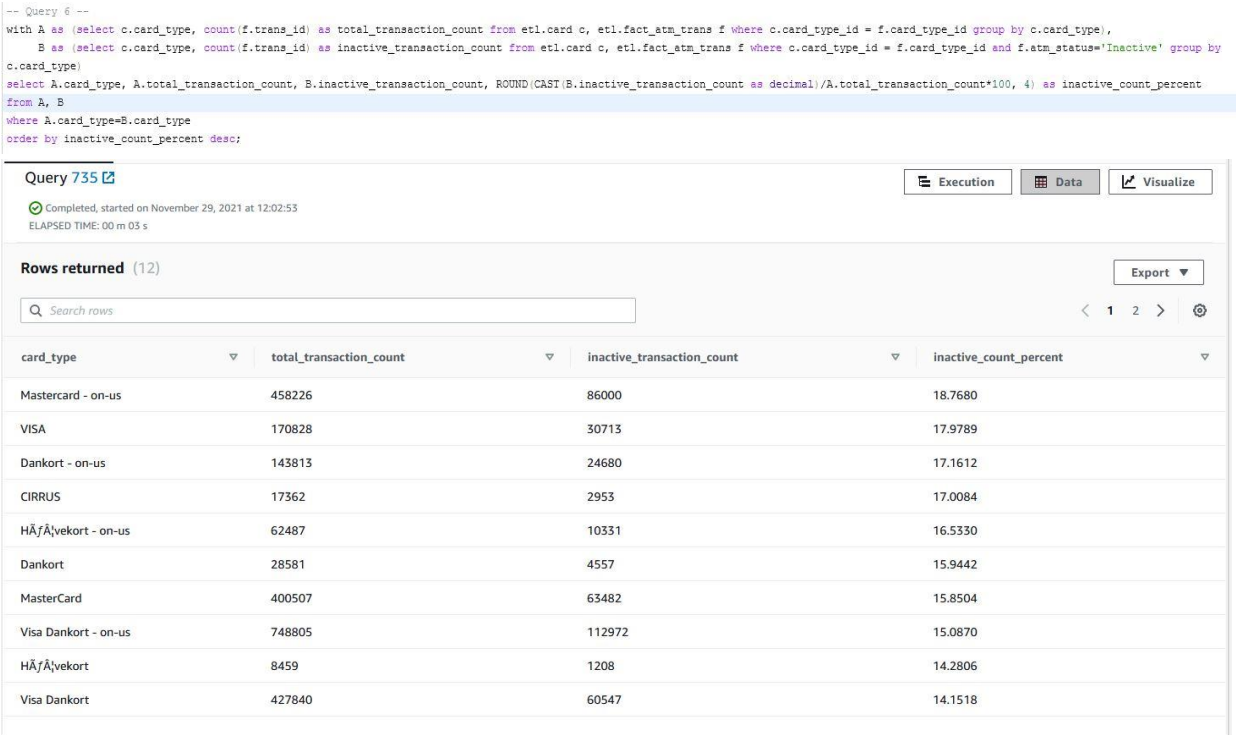
Search rows

1

atm_number	atm_manufacturer	atm_location	total_amount
39	NCR	Svenstrup	277097637
20	NCR	Bispensgade	271008803
24	NCR	Hobro	268289882
10	NCR	NÃƒÂ¸rresundby	267379103
45	NCR	Abildgaard	265639616
16	NCR	Skive	220677013
40	Diebold Nixdorf	Frederikshavn	219812287
41	Diebold Nixdorf	Skagen	214127315
1	NCR	NÃƒÂ¦stved	213721117
48	Diebold Nixdorf	BrÃƒÂ¸nderslev	212883099

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

```
with A as (select c.card_type, count(f.trans_id) as total_transaction_count from etl.card
c, etl.fact_atm_trans f where c.card_type_id = f.card_type_id group by c.card_type),
        B as (select c.card_type, count(f.trans_id) as inactive_transaction_count from
etl.card c, etl.fact_atm_trans f where c.card_type_id = f.card_type_id and
f.atm_status='Inactive' group by c.card_type)
select A.card_type, A.total_transaction_count, B.inactive_transaction_count,
ROUND(CAST(B.inactive_transaction_count as decimal)/A.total_transaction_count*100,
4) as inactive_count_percent
from A, B
where A.card_type=B.card_type
order by inactive_count_percent desc;
```



```
-- Query 6 --
with A as (select c.card_type, count(f.trans_id) as total_transaction_count from etl.card c, etl.fact_atm_trans f where c.card_type_id = f.card_type_id group by c.card_type),
     B as (select c.card_type, count(f.trans_id) as inactive_transaction_count from etl.card c, etl.fact_atm_trans f where c.card_type_id = f.card_type_id and f.atm_status='Inactive' group by
c.card_type)
select A.card_type, A.total_transaction_count, B.inactive_transaction_count, ROUND(CAST(B.inactive_transaction_count as decimal)/A.total_transaction_count*100, 4) as inactive_count_percent
from A, B
where A.card_type=B.card_type
order by inactive_count_percent desc;
```

Query 735

Execution | Data | Visualize

Completed, started on November 29, 2021 at 12:02:53
ELAPSED TIME: 00 m 03 s

Rows returned (12)

Export

Search rows

1 2

card_type	total_transaction_count	inactive_transaction_count	inactive_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
HÃƒÂ¦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
HÃƒÂ¦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, b.atm_location,
case c.weekday
        when 'Sunday' then '1'
        when 'Saturday' then '1'
        else '0'
        end as weekend_flag,
count(d.trans_id) as total_transaction_count
from etl.atm a, etl.loc b, etl.date c, etl.FACT_ATM_TRANS d
where d.atm_id = a.atm_id
and b.location_id = d.location_id
and c.date_id = d.date_id
group by a.atm_number, a.atm_manufacturer, b.atm_location, weekend_flag
order by a.atm_number, a.atm_manufacturer, b.atm_location, weekend_flag,
total_transaction_count
limit 10;
```

```
-- Query 7 --
SELECT a.atm_number, a.atm_manufacturer, b.atm_location,
case c.weekday
            when 'Sunday' then '1'
            when 'Saturday' then '1'
            else '0'
            end as weekend_flag,
count(d.trans_id) as total_transaction_count
from etl.atm a, etl.loc b, etl.date c, etl.FACT_ATM_TRANS d
where d.atm_id = a.atm_id
and b.location_id = d.location_id
and c.date_id = d.date_id
group by a.atm_number, a.atm_manufacturer, b.atm_location, weekend_flag
order by a.atm_number, a.atm_manufacturer, b.atm_location, weekend_flag, total_transaction_count
limit 10;
```

Query 712

Completed, started on November 29, 2021 at 12:01:22
ELAPSED TIME: 00 m 03 s

Execution | Data | Visualize

Rows returned (10)

Export

Search rows

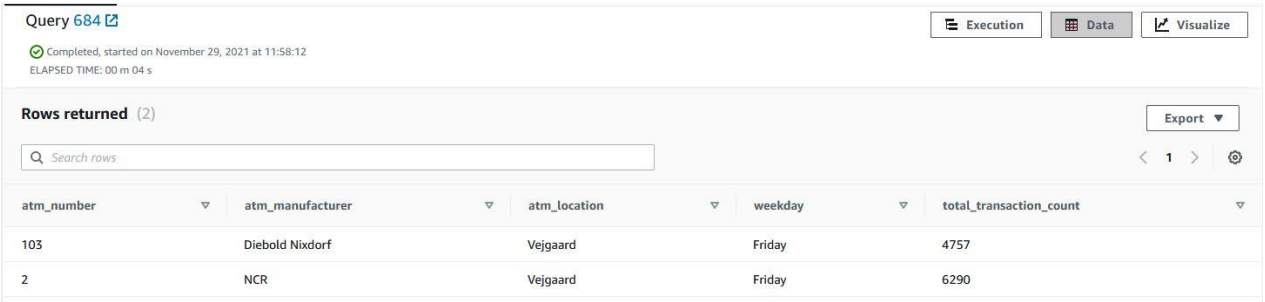
1

atm_number	atm_manufacturer	atm_location	weekend_flag	total_transaction_count
1	NCR	NÃƒÂ¦stved	0	32711
1	NCR	NÃƒÂ¦stved	1	10076
10	NCR	NÃƒÂ¸rresundby	0	41667
10	NCR	NÃƒÂ¸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 atm_number,atm_manufacturer,atm_location,weekday,total_transaction_count
FROM (select
atm_number,atm_manufacturer,atm_location,weekday,total_transaction_count,max(total
_transaction_count) over (partition by atm_number) as max_transactions
        from (SELECT a.atm_number, a.atm_manufacturer, b.atm_location, c.weekday,
                count(d.trans_id) as total_transaction_count
                from etl.atm a, etl.loc b, etl.date c, etl.FACT_ATM_TRANS d
                where d.atm_id = a.atm_id
                and b.location_id = d.location_id
                and b.atm_location = 'Vejgaard'
                and c.date_id = d.date_id
                group by a.atm_number, a.atm_manufacturer, b.atm_location,
c.weekday) c
              ) t
where total_transaction_count = max_transactions;
```

```
-- Query 8 --
SELECT atm_number,atm_manufacturer,atm_location,weekday,total_transaction_count
FROM (select atm_number,atm_manufacturer,atm_location,weekday,total_transaction_count,max(total_transaction_count) over (partition by atm_number) as max_transactions
    from (SELECT a.atm_number, a.atm_manufacturer, b.atm_location, c.weekday,
          count(d.trans_id) as total_transaction_count
          from etl.atm a, etl.loc b, etl.date c, etl.FACT_ATM_TRANS d
          where d.atm_id = a.atm_id
          and b.location_id = d.location_id
          and b.atm_location = 'Vejgaard'
          and c.date_id = d.date_id
          group by a.atm_number, a.atm_manufacturer, b.atm_location, c.weekday) c
         ) t
where total_transaction_count = max_transactions;
```



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