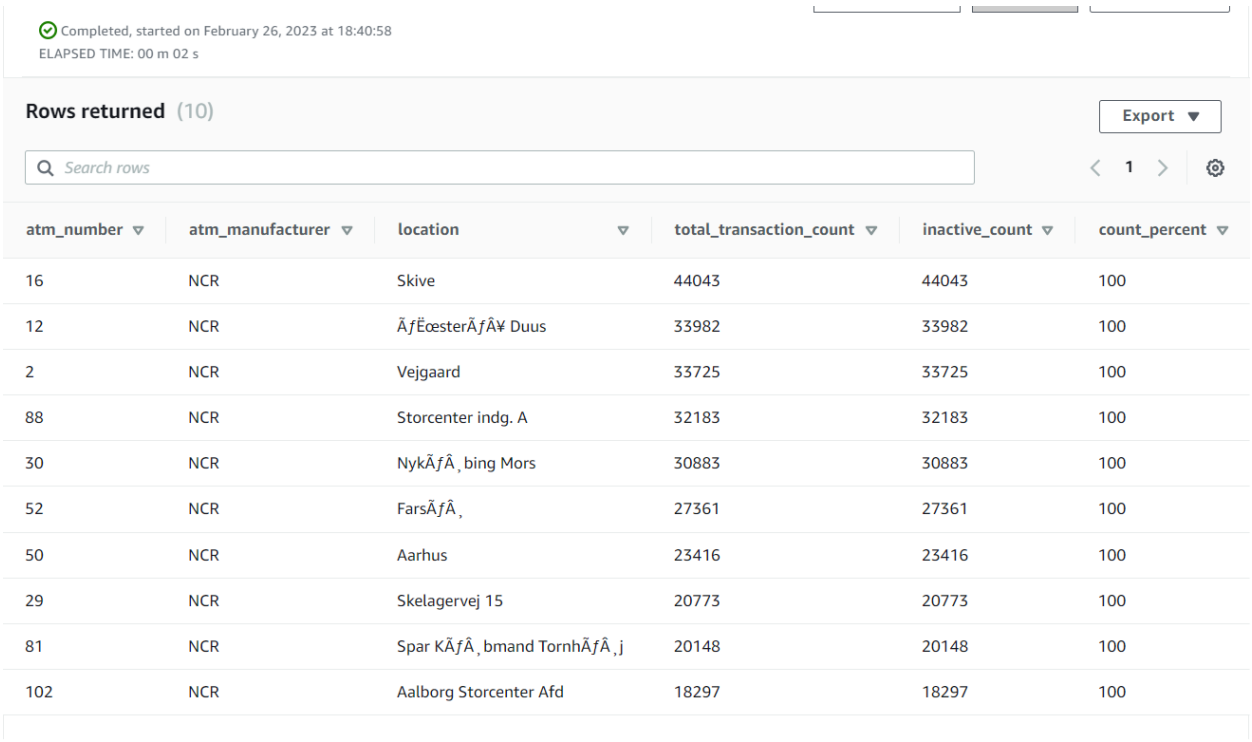
## Solving analytical queries on Redshift Cluster

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

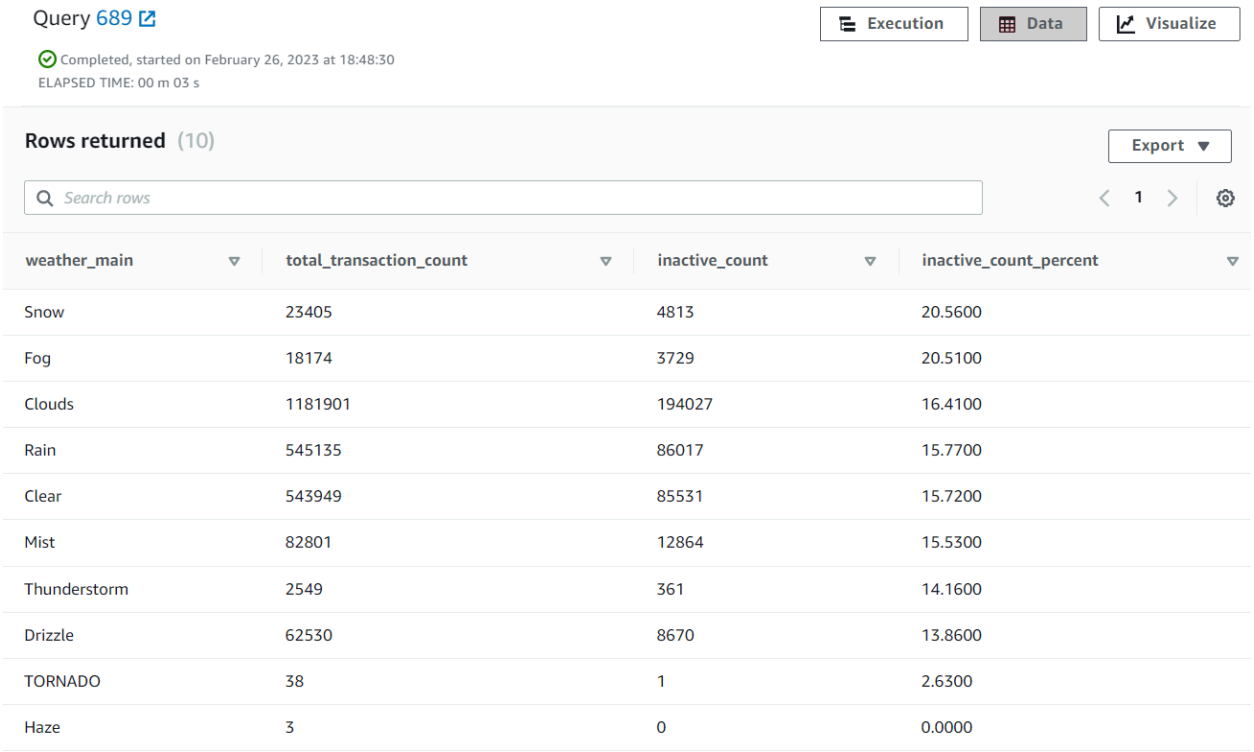
```
select      a.atm_number,
            a.atm_manufacturer,
            l.location,
            count(trans_id) as total_transaction_count,
            sum(case when atm_status = 'Inactive' then 1 else 0 end) as inactive_count,
            (inactive_count/total_transaction_count)*100 as count_percent
from        atm_data.fact_atm_trans f,
            atm_data.dim_atm a,
            atm_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
having      count_percent > 50
order by    inactive_count desc
limit       10;
```




| atm_number | atm_manufacturer | location | total_transaction_count | inactive_count | count_percent |
|---|---|---|---|---|---|
| 16 | NCR | Skive | 44043 | 44043 | 100 |
| 12 | NCR | ÃƒÆ’Ã†Â¸ Duus | 33982 | 33982 | 100 |
| 2 | NCR | Vejgaard | 33725 | 33725 | 100 |
| 88 | NCR | Storcenter indg. A | 32183 | 32183 | 100 |
| 30 | NCR | NykÃƒÂ¸bing Mors | 30883 | 30883 | 100 |
| 52 | NCR | FarsÃƒÂ¸ | 27361 | 27361 | 100 |
| 50 | NCR | Aarhus | 23416 | 23416 | 100 |
| 29 | NCR | Skelagervej 15 | 20773 | 20773 | 100 |
| 81 | NCR | Spar KÃƒÂ¸bmand TornhÃƒÂ¸j | 20148 | 20148 | 100 |
| 102 | NCR | Aalborg Storcenter Afd | 18297 | 18297 | 100 |

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

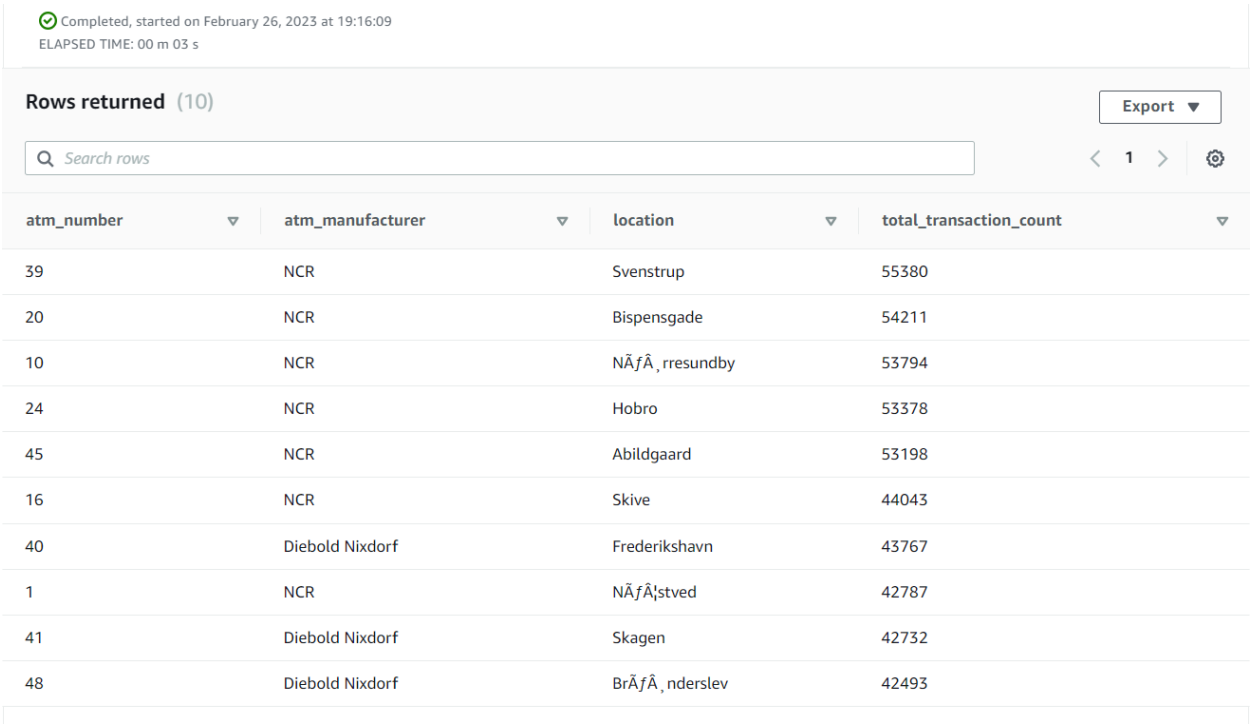
```
select     f.weather_main,
           count(trans_id) as total_transaction_count,
           sum(case when atm_status = 'Inactive' then 1 else 0 end) as inactive_count,
           case
              when coalesce(inactive_count, 0) = 0 then 0.0000
              else trunc((cast(inactive_count as numeric(10,4))/total_transaction_count)*100, 2)
           end as inactive_count_percent
from       atm_data.fact_atm_trans f
where      f.weather_main != ''
group by f.weather_main
order by  inactive_count_percent desc
limit 10;
```




| weather_main | total_transaction_count | inactive_count | inactive_count_percent |
|---|---|---|---|
| Snow | 23405 | 4813 | 20.5600 |
| Fog | 18174 | 3729 | 20.5100 |
| Clouds | 1181901 | 194027 | 16.4100 |
| Rain | 545135 | 86017 | 15.7700 |
| Clear | 543949 | 85531 | 15.7200 |
| Mist | 82801 | 12864 | 15.5300 |
| Thunderstorm | 2549 | 361 | 14.1600 |
| Drizzle | 62530 | 8670 | 13.8600 |
| TORNADO | 38 | 1 | 2.6300 |
| 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.location,
            count(trans_id) as total_transaction_count
from        atm_data.fact_atm_trans f,
            atm_data.dim_atm a,
            atm_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;
```



Completed, started on February 26, 2023 at 19:16:09
ELAPSED TIME: 00 m 03 s

**Rows returned** (10)

Export

Search rows

1

| atm_number | atm_manufacturer | location | total_transaction_count |
|---|---|---|---|
| 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_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 f
           inner join atm_data.dim_date d
              on f.date_id = d.date_id
group by d.year,
           d.month
order by  d.year,
           d.month;
```

Rows returned (12)

Export

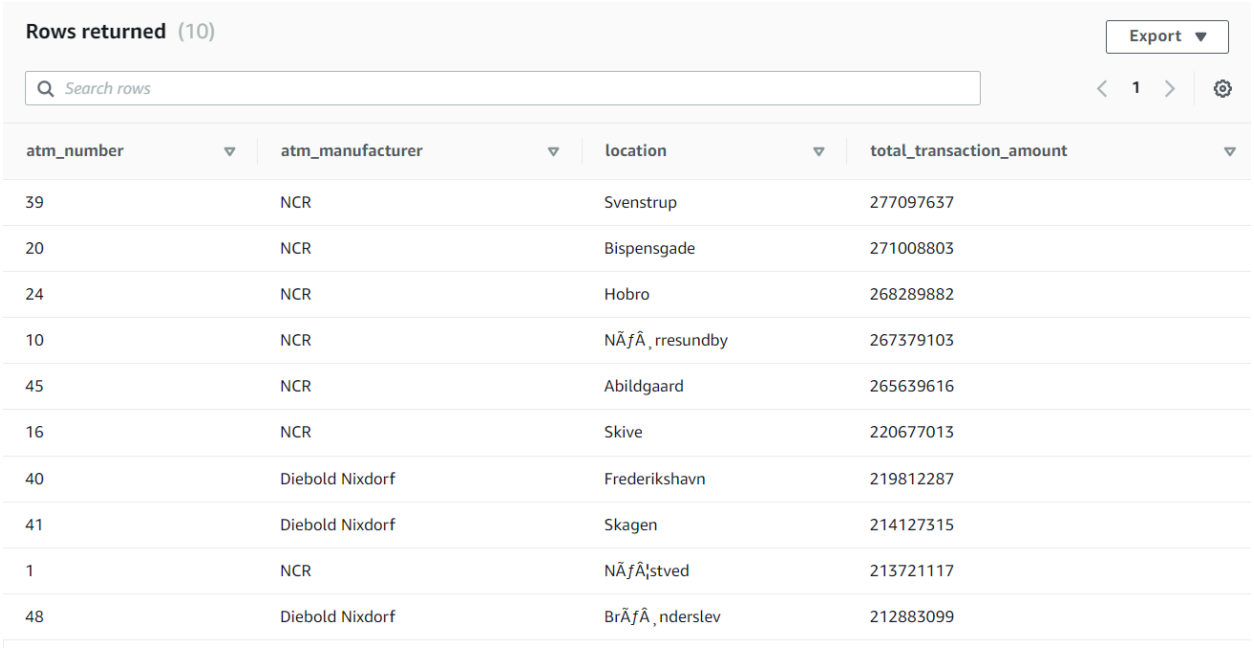
Search rows

1

| year | month | total_transaction_count | inactive_count | inactive_count_percent |
|---|---|---|---|---|
| 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 |
| 2017 | October | 191667 | 21780 | 11.3600 |
| 2017 | September | 202101 | 28913 | 14.3000 |

## 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            atm_data.fact_atm_trans f,
                atm_data.dim_atm a,
                atm_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;
```



**Rows returned** (10)

Export

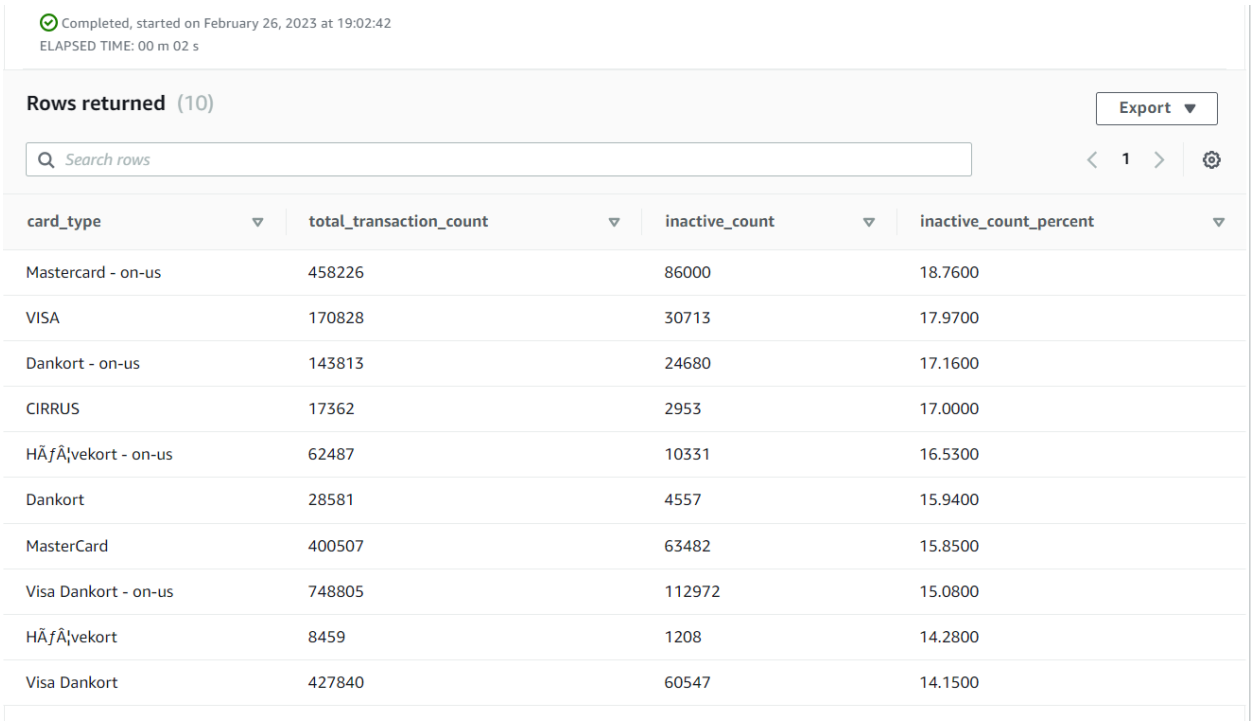
Search rows

1

| atm_number | atm_manufacturer | location | total_transaction_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

```
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        atm_data.fact_atm_trans f,
            atm_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;
```



Completed, started on February 26, 2023 at 19:02:42
ELAPSED TIME: 00 m 02 s

**Rows returned** (10)

Export

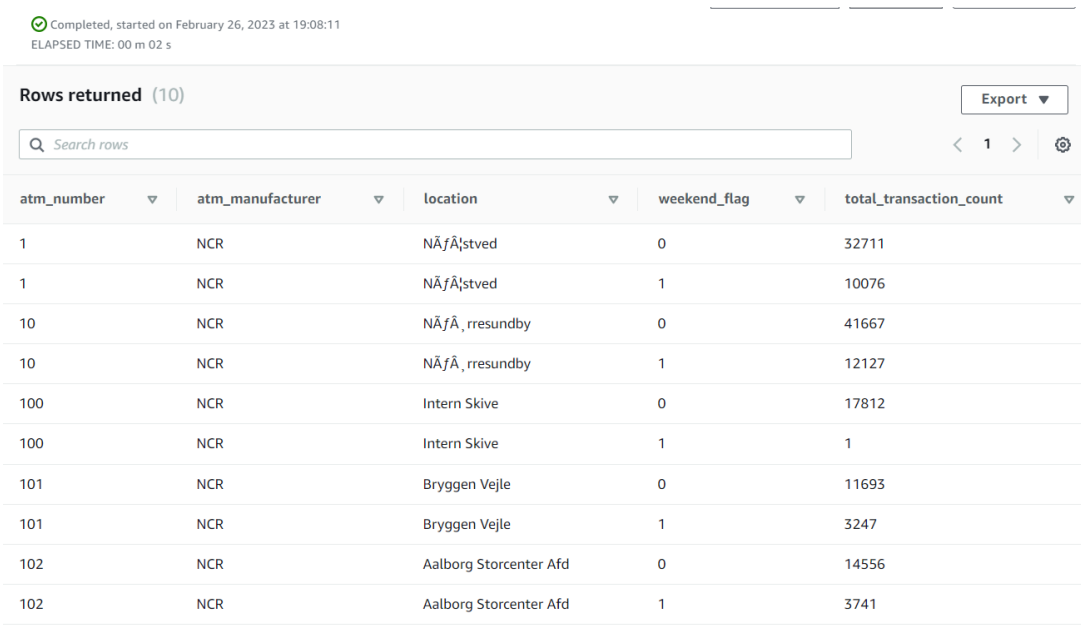
Search rows

1

| card_type | total_transaction_count | inactive_count | inactive_count_percent |
|---|---|---|---|
| Mastercard - on-us | 458226 | 86000 | 18.7600 |
| VISA | 170828 | 30713 | 17.9700 |
| Dankort - on-us | 143813 | 24680 | 17.1600 |
| CIRRUS | 17362 | 2953 | 17.0000 |
| HÃƒÂ¦vekort - on-us | 62487 | 10331 | 16.5300 |
| Dankort | 28581 | 4557 | 15.9400 |
| MasterCard | 400507 | 63482 | 15.8500 |
| Visa Dankort - on-us | 748805 | 112972 | 15.0800 |
| HÃƒÂ¦vekort | 8459 | 1208 | 14.2800 |
| Visa Dankort | 427840 | 60547 | 14.1500 |

**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            atm_data.fact_atm_trans f,
                atm_data.dim_atm a,
                atm_data.dim_location l,
                atm_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;
```



Completed, started on February 26, 2023 at 19:08:11
ELAPSED TIME: 00 m 02 s

**Rows returned** (10)

Export

Search rows

1

| atm_number | atm_manufacturer | 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          a.atm_number,
                a.atm_manufacturer,
                l.location,
                d.weekday,
                count(trans_id) as total_transaction_count
from            atm_data.fact_atm_trans f
                inner join atm_data.dim_atm a
                      on f.atm_id = a.atm_id
                inner join atm_data.dim_location l
                      on a.atm_location_id = l.location_id
                inner join atm_data.dim_date d
                      on f.date_id = d.date_id
where           l.location = 'Vejgaard' and
                d.weekday in
                (
                      select          d.weekday
                      from            atm_data.fact_atm_trans f
                      inner join      atm_data.dim_date d
                                      on f.date_id = d.date_id
                      inner join      atm_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;
```