## Solving analytical queries on Redshift Cluster

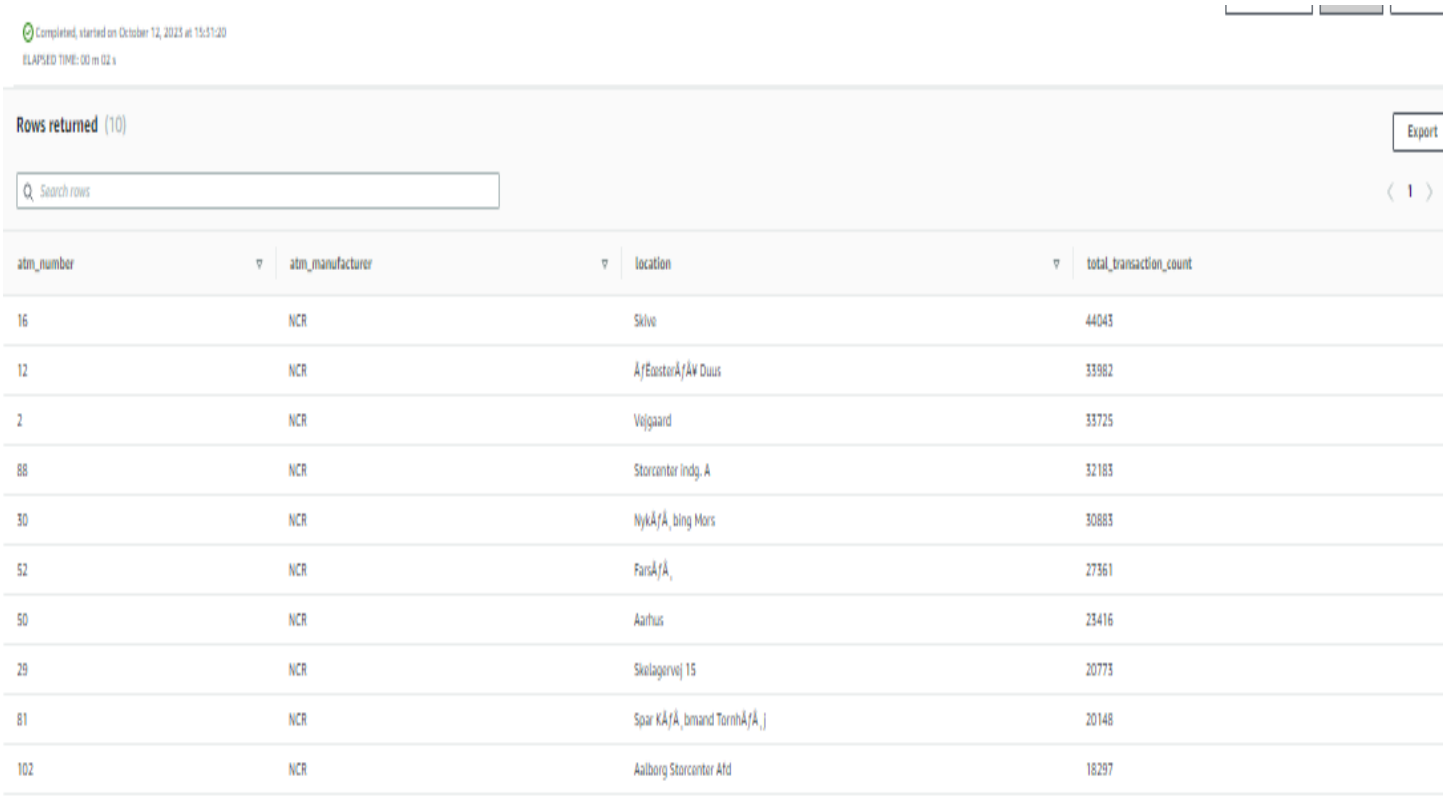
Here, you have to write the query used for solving the question and the screenshots of the table which is outputted after the query is run on the AWS Redshift Query editor UI.

1. **Top 10 ATMs where most transactions are in the ’inactive’ state**

**Query**

```
SELECT
        atm_number,
        atm_manufacturer,
        location,
        COUNT(trans_id) as total_transaction_count
FROM
        sparnodebankdata.fact_atm_trans T
        INNER JOIN
        sparnodebankdata.dim_atm A on A.atm_id = T.atm_id
        INNER JOIN
        sparnodebankdata.dim_location L on L.location_id = A.atm_location_id
WHERE
        atm_status = 'Inactive'
GROUP BY
        atm_number,
        atm_manufacturer,
        location
ORDER BY
        total_transaction_count desc
LIMIT
        10;
```

**Screenshot of the resultant table**



Completed, started on October 12, 2023 at 15:51:20

ELAPSED TIME: 00 m 02 s

Rows returned (10)

Export

Search rows

1

| atm_number | atm_manufacturer | location | total_transaction_count |
|---|---|---|---|
| 16 | NCR | Skive | 44043 |
| 12 | NCR | Ã†sterÃ¥Ã¥ Duus | 33982 |
| 2 | NCR | Vejgaard | 33725 |
| 88 | NCR | Storcenter indg. A | 32183 |
| 30 | NCR | NykÃ¦bing Mors | 30883 |
| 52 | NCR | FarsÃ¦Ã¸ | 27361 |
| 50 | NCR | Aarhus | 23416 |
| 29 | NCR | Skolagervej 15 | 20773 |
| 81 | NCR | Spar KÃ¦Ã¸bmand TornhÃ¦Ã¸j | 20148 |
| 102 | NCR | Aalborg Storcenter Afd | 18297 |

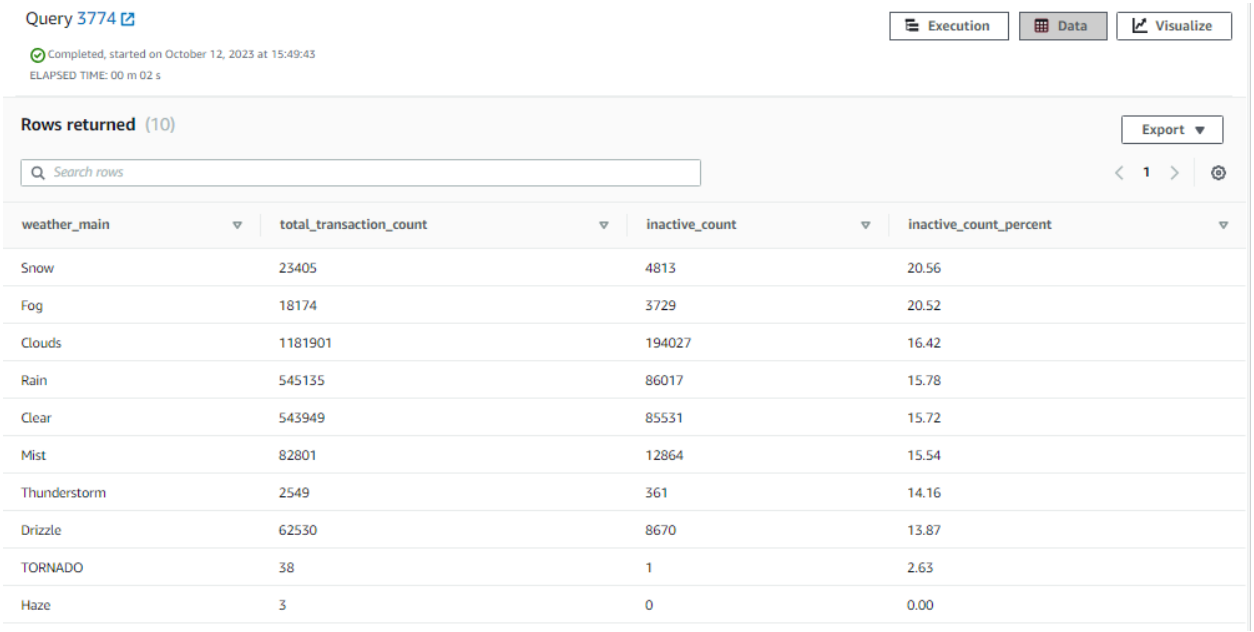
2. **Number of ATM failures corresponding to the different weather conditions recorded at the time of the transactions**

**Query**

```
WITH weather_detail AS
(
SELECT
        weather_main,
        COUNT(trans_id) AS total_transaction_count,
        SUM(CASE WHEN atm_status = 'Inactive' THEN 1 ELSE 0 END) AS inactive_count
FROM
        sparnodebankdata.fact_atm_trans T
WHERE
        weather_main <> ' '
GROUP BY
        weather_main
)
SELECT
        *,
```

```
        ROUND(CAST(inactive_count AS NUMERIC(10,2))/total_transaction_count * 100 ,2) AS
inactive_count_percent
FROM
        weather_detail
ORDER BY
        inactive_count_percent DESC;
```

**Screenshot of the resultant table**



Query 3774

Completed, started on October 12, 2023 at 15:49:43

ELAPSED TIME: 00 m 02 s

Execution | Data | Visualize

Rows returned (10)

Export

Search rows

1

| weather_main | total_transaction_count | inactive_count | inactive_count_percent |
|---|---|---|---|
| Snow | 23405 | 4813 | 20.56 |
| Fog | 18174 | 3729 | 20.52 |
| Clouds | 1181901 | 194027 | 16.42 |
| Rain | 545135 | 86017 | 15.78 |
| Clear | 543949 | 85531 | 15.72 |
| Mist | 82801 | 12864 | 15.54 |
| Thunderstorm | 2549 | 361 | 14.16 |
| Drizzle | 62530 | 8670 | 13.87 |
| TORNADO | 38 | 1 | 2.63 |
| Haze | 3 | 0 | 0.00 |

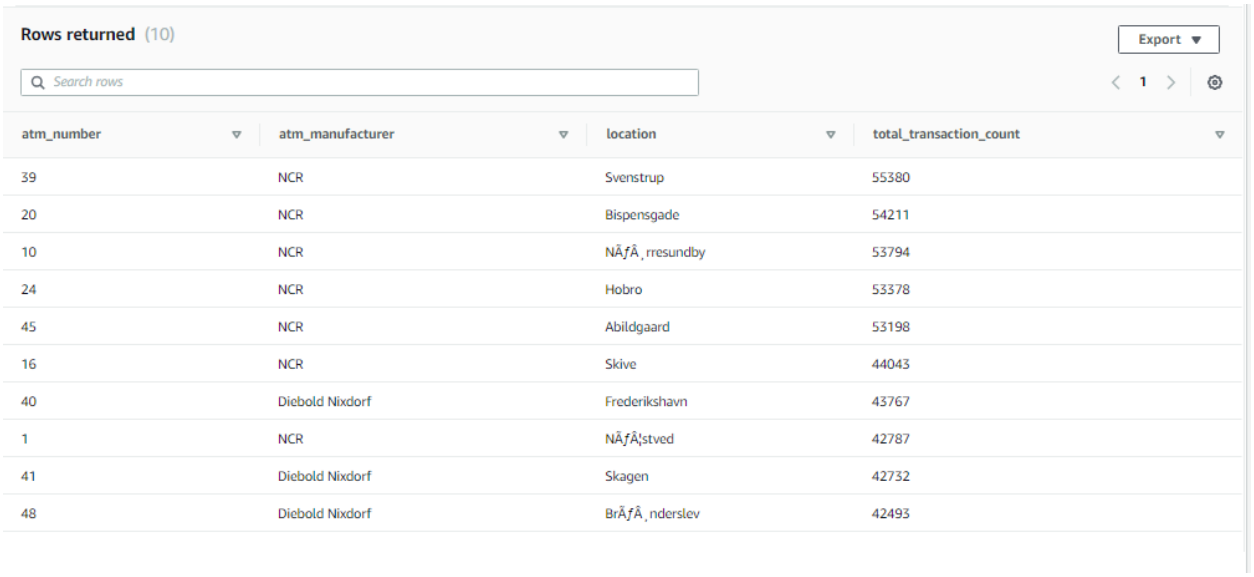
3. **Top 10 ATMs with the most number of transactions throughout the year**

**Query**

```
SELECT
        atm_number,
        atm_manufacturer,
        location,
        COUNT(trans_id) as total_transaction_count
FROM
        sparnodebankdata.fact_atm_trans T
        INNER JOIN
        sparnodebankdata.dim_atm A on A.atm_id = T.atm_id
        INNER JOIN
        sparnodebankdata.dim_location L on L.location_id = A.atm_location_id
GROUP BY
        atm_number,
        atm_manufacturer,
```

```
        location
ORDER BY
        total_transaction_count desc
LIMIT
        10;
```

**Screenshot of the resultant table**



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 |

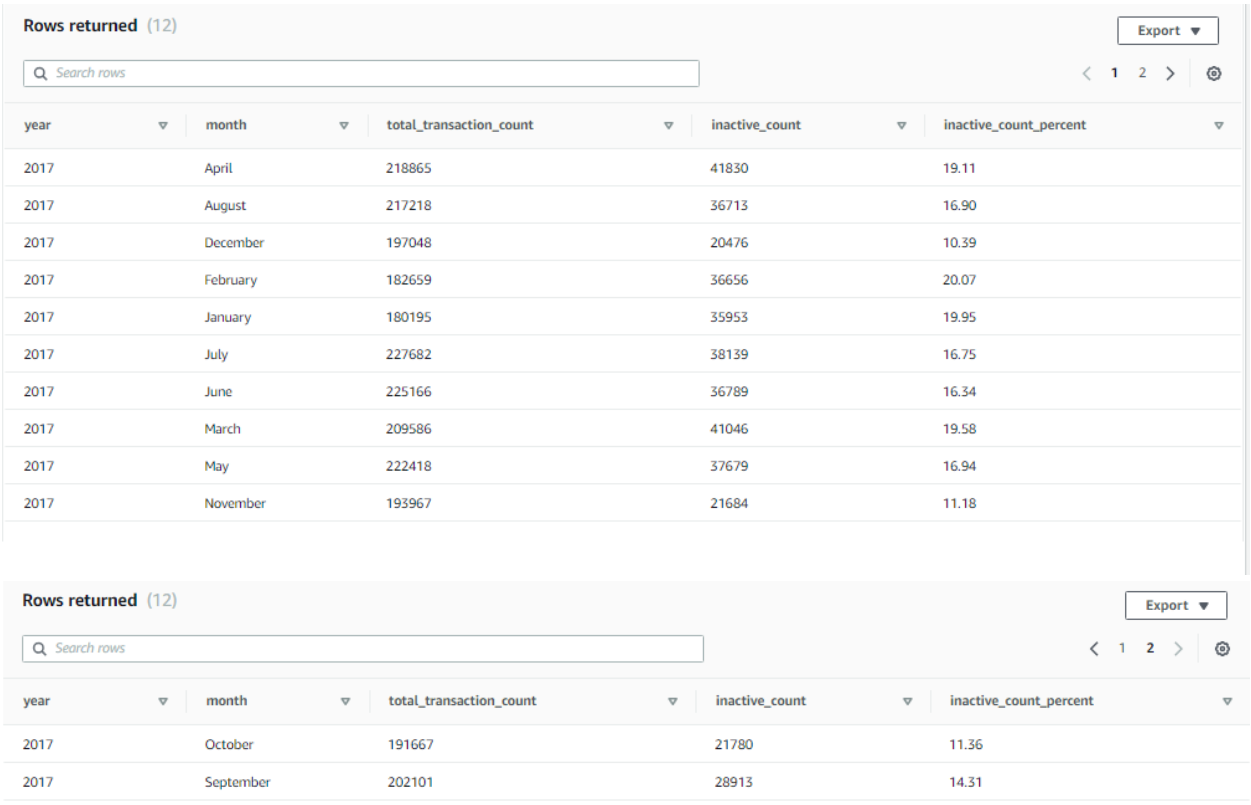
4. **Number of overall ATM transactions going inactive per month for each month**

**Query**

```
WITH monthly_detail AS
(
SELECT
        year,
        month,
        COUNT(trans_id) AS total_transaction_count,
        SUM(CASE WHEN atm_status = 'Inactive' THEN 1 ELSE 0 END) AS inactive_count
FROM
        sparnodebankdata.fact_atm_trans T
        INNER JOIN
        sparnodebankdata.dim_date D
        ON D.date_id = T.date_id
GROUP BY
        year,
        month
)
```

```
SELECT
	*,
	ROUND(CAST(inactive_count AS NUMERIC(10,2))/total_transaction_count * 100 ,2) AS
inactive_count_percent
FROM
	monthly_detail
ORDER BY
	year,
	month
```

**Screenshot of the resultant table**



Rows returned (12)

Export

Search rows

1 2

| year | month | total_transaction_count | inactive_count | inactive_count_percent |
|---|---|---|---|---|
| 2017 | April | 218865 | 41830 | 19.11 |
| 2017 | August | 217218 | 36713 | 16.90 |
| 2017 | December | 197048 | 20476 | 10.39 |
| 2017 | February | 182659 | 36656 | 20.07 |
| 2017 | January | 180195 | 35953 | 19.95 |
| 2017 | July | 227682 | 38139 | 16.75 |
| 2017 | June | 225166 | 36789 | 16.34 |
| 2017 | March | 209586 | 41046 | 19.58 |
| 2017 | May | 222418 | 37679 | 16.94 |
| 2017 | November | 193967 | 21684 | 11.18 |



Rows returned (12)

Export

Search rows

1 2

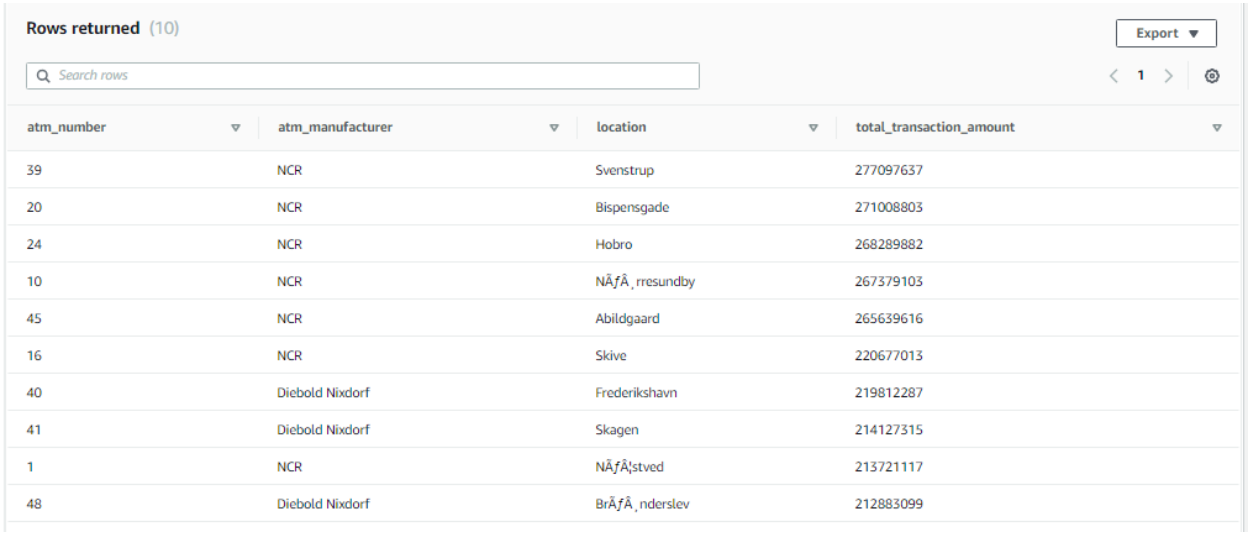
| year | month | total_transaction_count | inactive_count | inactive_count_percent |
|---|---|---|---|---|
| 2017 | October | 191667 | 21780 | 11.36 |
| 2017 | September | 202101 | 28913 | 14.31 |

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

**Query**

```
SELECT
        atm_number,
        atm_manufacturer,
        location,
        SUM(transaction_amount) as total_transaction_amount
FROM
        sparnodebankdata.fact_atm_trans T
        INNER JOIN
        sparnodebankdata.dim_atm A on A.atm_id = T.atm_id
        INNER JOIN
        sparnodebankdata.dim_location L on L.location_id = A.atm_location_id
GROUP BY
        atm_number,
        atm_manufacturer,
        location
ORDER BY
        total_transaction_amount desc
LIMIT
        10;
```

**Screenshot of the resultant table**



Rows returned (10)

Export

Search rows

1

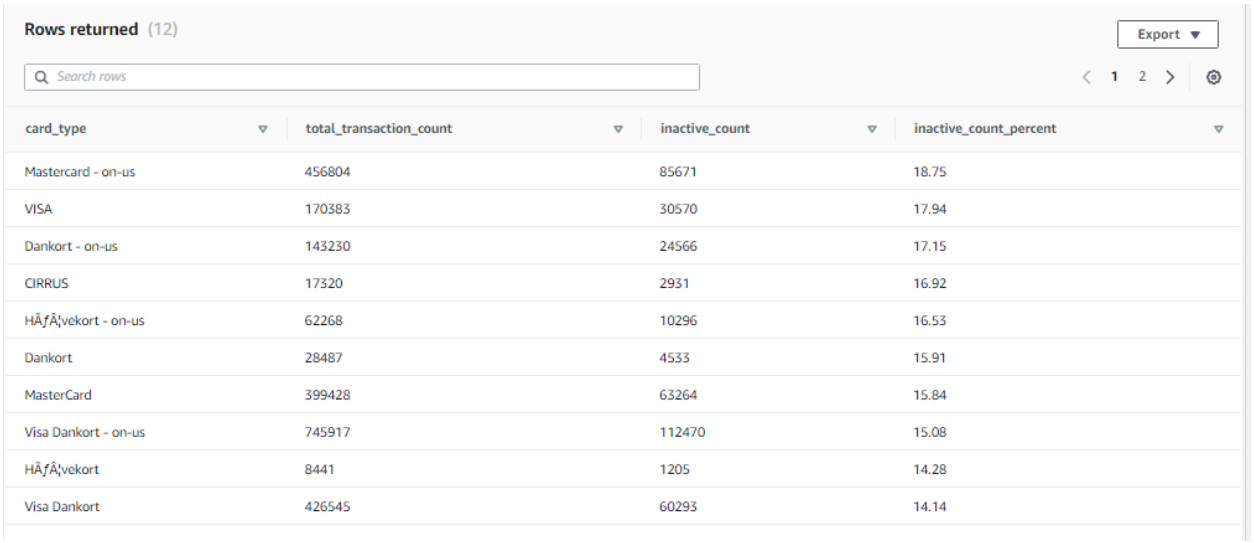
| atm_number | atm_manufacturer | location | total_transaction_amount |
|---|---|---|---|
| 39 | NCR | Svenstrup | 277097637 |
| 20 | NCR | Bispensgade | 271008803 |
| 24 | NCR | Hobro | 268289882 |
| 10 | NCR | NÃƒÂ¸rresundby | 267379103 |
| 45 | NCR | Abildgaard | 265639616 |
| 16 | NCR | Skive | 220677013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

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

**Query**

```
WITH card_detail AS
(
SELECT
        card_type,
        COUNT(trans_id) AS total_transaction_count,
        SUM(CASE WHEN atm_status = 'Inactive' THEN 1 ELSE 0 END) AS inactive_count
FROM
        sparnodebankdata.fact_atm_trans T
        INNER JOIN
        sparnodebankdata.dim_card_type C
        on C.card_type_id = T.card_type_id
WHERE
        weather_main <> ' '
GROUP BY
        card_type
)
SELECT
        *,
        ROUND(CAST(inactive_count AS NUMERIC(10,2))/total_transaction_count * 100 ,2) AS
inactive_count_percent
FROM
        card_detail
ORDER BY
        inactive_count_percent DESC;
```

**Screenshot of the resultant table**



Rows returned (12)

Export

Search rows

1 2

| card_type | total_transaction_count | inactive_count | inactive_count_percent |
|---|---|---|---|
| Mastercard - on-us | 456804 | 85671 | 18.75 |
| VISA | 170383 | 30570 | 17.94 |
| Dankort - on-us | 143230 | 24566 | 17.15 |
| CIRRUS | 17320 | 2931 | 16.92 |
| HÃƒÂ¦vekort - on-us | 62268 | 10296 | 16.53 |
| Dankort | 28487 | 4533 | 15.91 |
| MasterCard | 399428 | 63264 | 15.84 |
| Visa Dankort - on-us | 745917 | 112470 | 15.08 |
| HÃƒÂ¦vekort | 8441 | 1205 | 14.28 |
| Visa Dankort | 426545 | 60293 | 14.14 |


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**

## Query

```
SELECT
        atm_number,
        atm_manufacturer,
        location,
        CASE WHEN weekday IN ('Saturday', 'Sunday') THEN 1 ELSE 0 END AS
weekend_flag,
        COUNT(trans_id) as total_transaction_count
FROM
        sparnodebankdata.fact_atm_trans T
        INNER JOIN
        sparnodebankdata.dim_atm A on A.atm_id = T.atm_id
        INNER JOIN
        sparnodebankdata.dim_location L on L.location_id = A.atm_location_id
        INNER JOIN
        sparnodebankdata.dim_date D on D.date_id = T.date_id
GROUP BY
        atm_number,
        atm_manufacturer,
        location,
        weekend_flag
ORDER BY
        atm_number,
        atm_manufacturer,
        location,
        weekend_flag,
        total_transaction_count
```

## Screenshot of the resultant table

**Rows returned** (222)

Export

Search rows

1 2 3 4 5 6 7 ... 23

| 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"**

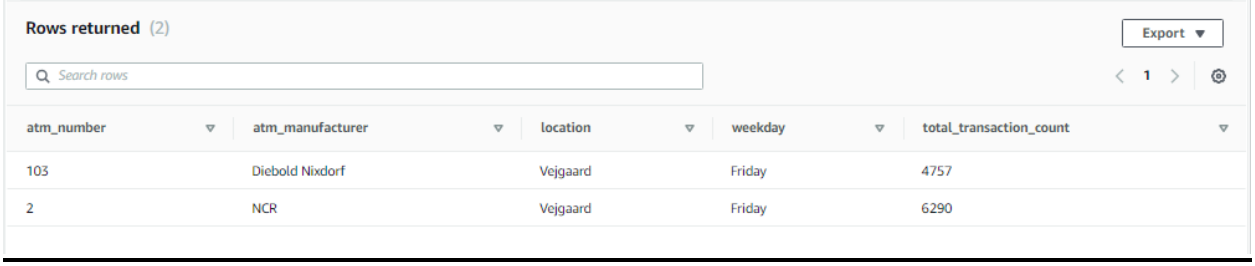
**Query**

```
WITH weekday_data AS
(
SELECT
	atm_number,
	atm_manufacturer,
	location,
	weekday,
	COUNT(trans_id) as total_transaction_count,
	ROW_NUMBER()
		OVER (
		PARTITION BY atm_number, atm_manufacturer, location
		ORDER BY atm_number, atm_manufacturer, location, weekday,
total_transaction_count) AS row_number
FROM
	sparnodebankdata.fact_atm_trans T
	INNER JOIN
	sparnodebankdata.dim_atm A on A.atm_id = T.atm_id
	INNER JOIN
	sparnodebankdata.dim_location L on L.location_id = A.atm_location_id
	INNER JOIN
	sparnodebankdata.dim_date D on D.date_id = T.date_id
WHERE
	location = 'Vejgaard'
GROUP BY
	atm_number,
	atm_manufacturer,
	location,
	weekday
ORDER BY
	atm_number,
	atm_manufacturer,
	location,
	weekday,
	total_transaction_count
)

SELECT
	atm_number,
	atm_manufacturer,
	location,
```

```
        weekday,
        total_transaction_count
FROM
        weekday_data
WHERE
        row_number = 1
```

**Screenshot of the resultant table**



Rows returned (2)

Export

Search rows

1

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