

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,
       ( inactive_transaction_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_transaction_count DESC
LIMIT 10;
```

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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;
```

Question 2 Screenshot Below ↓

aws

Services

Search

[Alt+S]

N. Virginia

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Amazon Redshift

Query editor

Editor

Query history

Saved queries

Scheduled queries

Resources

Info

Select database

upgrad

Select schema

atm_data

Filter tables

dim_atm_pkey

dim_card_type_pkey

dim_date_pkey

dim_location_pkey

fact_atm_trans_pkey

dim_atm

dim_card_type

dim_date

dim_location

fact_atm_trans

Status

Connected

database

upgrad

user

awsuser

Change connection

Query 1

```

1 SELECT f.weather_main,
2        Count(trans_id) AS total_transaction_count,
3        Sum(
4          CASE
5            WHEN atm_status = 'Inactive' THEN 1
6            ELSE 0
7          END) AS inactive_count,
8          CASE
9            WHEN COALESCE(inactive_count, 0) = 0 THEN 0.0000
10           ELSE Trunc((Cast(inactive_count AS NUMERIC(10,4))/total_transaction_count)*100, 2)
11           END AS inactive_count_percent
12 FROM   atm_data.fact_atm_trans f
13 WHERE  f.weather_main != ''
14 GROUP BY f.weather_main
15 ORDER BY inactive_count_percent DESC limit 10;

```

Run

Save

Schedule

Clear

Send feedback

Query results

Table details

Query 400335

Execution

Data

Visualize

Completed, started on December 17, 2022 at 14:47:28

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	20.5600
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

Feedback

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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;
```

Question 3 Screenshot Below ↓

aws

Services

Search

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Amazon Redshift

Query editor

Editor

Query history

Saved queries

Scheduled queries

Resources

Info

Select database

Info

To view schemas, select a database.

upgrad

Select schema

Info

To view tables, select a schema.

atm_data

Filter tables

1

dim_atm_pkey

dim_card_type_pkey

dim_date_pkey

dim_location_pkey

fact_atm_trans_pkey

dim_atm

dim_card_type

dim_date

dim_location

fact_atm_trans

Status

Connected

database

upgrad

user

awsuser

Change connection

Query 1

+

```

1 SELECT a.atm_number,
2       a.atm_manufacturer,
3       l.location,
4       Count(trans_id) AS total_transaction_count
5 FROM   atm_data.fact_atm_trans f,
6       atm_data.dim_atm a,
7       atm_data.dim_location l
8 WHERE  f.atm_id = a.atm_id
9       AND a.atm_location_id = l.location_id
10 GROUP BY a.atm_number,
11          a.atm_manufacturer,
12          l.location
13 ORDER BY total_transaction_count DESC
14 LIMIT 10;

```

Run

Save

Schedule

Clear

Send feedback

Query results

Table details

Query 400365

Execution

Data

Visualize

Completed, started on December 17, 2022 at 14:49:27

ELAPSED TIME: 00 m 02 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	NÃfÃ, rresundby	53794
24	NCR	Hobro	53378
45	NCR	Abildgaard	53198
16	NCR	Skive	44043
40	Diebold Nixdorf	Frederikshavn	43767
1	NCR	NÃfÃ, stved	42787
41	Diebold Nixdorf	Skagen	42732
48	Diebold Nixdorf	BrÃfÃ, nderslev	42493

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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)
            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;
```

Question 4 Screenshot Below ↓

Services

[Alt+S]
N. Virginia ▾
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Amazon Redshift > Query editor
(?)

Editor
Query history
Saved queries
Scheduled queries

Resources Info ↻ ✕

Select database **Info**
To view schemas, select a database.

upgrad ▾

Select schema **Info**
To view tables, select a schema.

atm_data ▾

- ▶ dim_atm_pkey ...
- ▶ dim_card_type_pkey ...
- ▶ dim_date_pkey ...
- ▶ dim_location_pkey ...
- ▶ fact_atm_trans_pkey ...
- ▶ dim_atm ...
- ▶ dim_card_type ...
- ▶ dim_date ...
- ▶ dim_location ...
- ▶ fact_atm_trans ...

Status ✔ Connected
database upgrad user awsuser
Change connection

✔ Query 1 +

```

1 SELECT d.year,
2         d.month,
3         Count(trans_id) AS total_transaction_count,
4         Sum(CASE
5             WHEN atm_status = 'Inactive' THEN 1
6             ELSE 0
7           END) AS inactive_count,
8         CASE
9             WHEN COALESCE(inactive_count, 0) = 0 THEN 0.0000
10            ELSE Trunc(( Cast(inactive_count AS NUMERIC(10, 4)) /
11                          total_transaction_count
12                        ) * 100
13                      , 2)
14          END AS inactive_count_percent
15 FROM   atm_data.fact_atm_trans f
16       INNER JOIN atm_data.dim_date d
17              ON f.date_id = d.date_id
18 GROUP BY d.year,
19          d.month
20 ORDER BY d.year,
21          d.month;
```

Run
Save
Schedule
Clear

[Send feedback](#)

Query results
Table details

Query 400402 [🔗](#)

✔ Completed, started on December 17, 2022 at 14:51:57
ELAPSED TIME: 00 m 03 s

Execution
Data
Visualize

Rows returned (12) Export ▾

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

Feedback
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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;
```

Question 5 Screenshot Below ↓

aws

Services

Search

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Amazon Redshift > Query editor

Editor

Query history

Saved queries

Scheduled queries

Resources Info

Select database Info

To view schemas, select a database.

upgrad

Select schema Info

To view tables, select a schema.

atm_data

Filter tables

1

dim_atm_pkey

dim_card_type_pkey

dim_date_pkey

dim_location_pkey

fact_atm_trans_pkey

dim_atm

dim_card_type

dim_date

dim_location

fact_atm_trans

Status Connected

database upgrad user awsuser

Change connection

Query 1

```

1 SELECT a.atm_number,
2       a.atm_manufacturer,
3       l.location,
4       Sum(transaction_amount) AS total_transaction_amount
5 FROM   atm_data.fact_atm_trans f,
6       atm_data.dim_atm a,
7       atm_data.dim_location l
8 WHERE  f.atm_id = a.atm_id
9       AND a.atm_location_id = l.location_id
10 GROUP BY a.atm_number,
11          a.atm_manufacturer,
12          l.location
13 ORDER BY total_transaction_amount DESC
14 LIMIT 10;

```

Run

Save

Schedule

Clear

Send feedback

Query results

Table details

Query 400432

Execution

Data

Visualize

Completed, started on December 17, 2022 at 14:53:47

ELAPSED TIME: 00 m 02 s

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	NÅfÅ, resundby	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

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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;
```

Question 6 Screenshot Below ↓

aws

Services

Search

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Amazon Redshift > Query editor

Editor | Query history | Saved queries | Scheduled queries

Resources Info

Select database Info

upgrad

Select schema Info

atm_data

Filter tables

dim_atm_pkey

dim_card_type_pkey

dim_date_pkey

dim_location_pkey

fact_atm_trans_pkey

dim_atm

dim_card_type

dim_date

dim_location

fact_atm_trans

Status Connected

database upgrad user awsuser

Change connection

Query 1

```

1 SELECT ct.card_type,
2        Count(trans_id) AS total_transaction_count,
3        Sum(
4          CASE
5            WHEN atm_status = 'Inactive' THEN 1
6            ELSE 0
7          END) AS inactive_count,
8          CASE
9            WHEN COALESCE(inactive_count, 0) = 0 THEN 0.0000
10           ELSE Trunc((Cast(inactive_count AS NUMERIC(10,4))/total_transaction_count)*100, 2)
11           END AS inactive_count_percent
12 FROM   atm_data.fact_atm_trans f,
13        atm_data.dim_card_type ct
14 WHERE  f.card_type_id = ct.card_type_id
15 GROUP BY ct.card_type
16 ORDER BY inactive_count_percent DESC limit 10;

```

Run | Save | Schedule | Clear

Send feedback

Query results | Table details

Query 400457

Execution | Data | Visualize

Completed, started on December 17, 2022 at 14:55:06
ELAPSED TIME: 00 m 02 s

Rows returned (10)

Export

Search rows

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
HÃfÃ\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
HÃfÃ\vekort	8459	1208	14.2800
Visa Dankort	427840	60547	14.1500

Feedback

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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;
```

Question 7 Screenshot Below ↓

aws

Services

Search

[Alt+S]

N. Virginia

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Amazon Redshift > Query editor

Editor

Query history

Saved queries

Scheduled queries

Resources Info

Select database Info

To view schemas, select a database.

upgrad

Select schema Info

To view tables, select a schema.

atm_data

Filter tables

dim_atm_pkey

dim_card_type_pkey

dim_date_pkey

dim_location_pkey

fact_atm_trans_pkey

dim_atm

dim_card_type

dim_date

dim_location

fact_atm_trans

Status Connected

database upgrad

user awsuser

Change connection

Query 1

```

1 SELECT a.atm_number,
2       a.atm_manufacturer,
3       l.location,
4       CASE
5         WHEN d.weekday IN ( 'Saturday', 'Sunday' ) THEN 1
6         ELSE 0
7       end AS weekend_flag,
8       Count(trans_id) AS total_transaction_count
9 FROM   atm_data.fact_atm_trans f,
10        atm_data.dim_atm a,
11        atm_data.dim_location l,
12        atm_data.dim_date d
13 WHERE  f.atm_id = a.atm_id
14        AND a.atm_location_id = l.location_id
15        AND f.date_id = d.date_id
16 GROUP BY a.atm_number,
17          a.atm_manufacturer,
18          l.location,
19          weekend_flag
20 ORDER BY a.atm_number,
21          a.atm_manufacturer,
22          l.location,
23          weekend_flag,
24          total_transaction_count
25 LIMIT 10;

```

Run

Save

Schedule

Clear

Send feedback

Query results

Table details

Query 400479

Execution

Data

Visualize

Completed, started on December 17, 2022 at 14:56:48

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	NÅfÅstved	0	32711
1	NCR	NÅfÅstved	1	10076
10	NCR	NÅfÅ, rresundby	0	41667
10	NCR	NÅfÅ, 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

Feedback

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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;

```

Question 8 Screenshot Below ↓

Amazon Redshift > Query editor

Editor | Query history | Saved queries | Scheduled queries

Resources Info

Select database Info
To view schemas, select a database.
upgrad ▼

Select schema Info
To view tables, select a schema.
atm_data ▼

Filter tables

- dim_atm_pkey ...
- dim_card_type_pkey ...
- dim_date_pkey ...
- dim_location_pkey ...
- fact_atm_trans_pkey ...
- dim_atm ...
- dim_card_type ...
- dim_date ...
- dim_location ...
- fact_atm_trans ...

Status ✔ Connected database upgrad user awsuser Change connection

✔ **Query 1** +

```

1 SELECT a.atm_number,
2       a.atm_manufacturer,
3       l.location,
4       d.weekday,
5       Count(trans_id) AS total_transaction_count
6 FROM   atm_data.fact_atm_trans f
7 INNER JOIN atm_data.dim_atm a
8         ON f.atm_id = a.atm_id
9 INNER JOIN atm_data.dim_location l
10        ON a.atm_location_id = l.location_id
11 INNER JOIN atm_data.dim_date d
12        ON f.date_id = d.date_id
13 WHERE l.location = 'Vejsgaard'
14      AND d.weekday IN (SELECT d.weekday
15                        FROM   atm_data.fact_atm_trans f
16                        INNER JOIN atm_data.dim_date d
17                              ON f.date_id = d.date_id
18                        INNER JOIN atm_data.dim_location l
19                              ON f.weather_loc_id = l.location_id
20                        WHERE l.location = 'Vejsgaard')
21 GROUP BY d.weekday
22 ORDER BY Count(f.trans_id) DESC
23 LIMIT 1)
24 GROUP BY a.atm_number,
25          a.atm_manufacturer,
26          l.location,
27          d.weekday
28 ORDER BY total_transaction_count;
```

Run Save Schedule Clear Send feedback

Query results | Table details

Query **400506** [🔗](#) Execution Data Visualize

✔ Completed, started on December 17, 2022 at 14:58:24
ELAPSED TIME: 00 m 02 s

Rows returned (2) Export ▼

Search rows

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