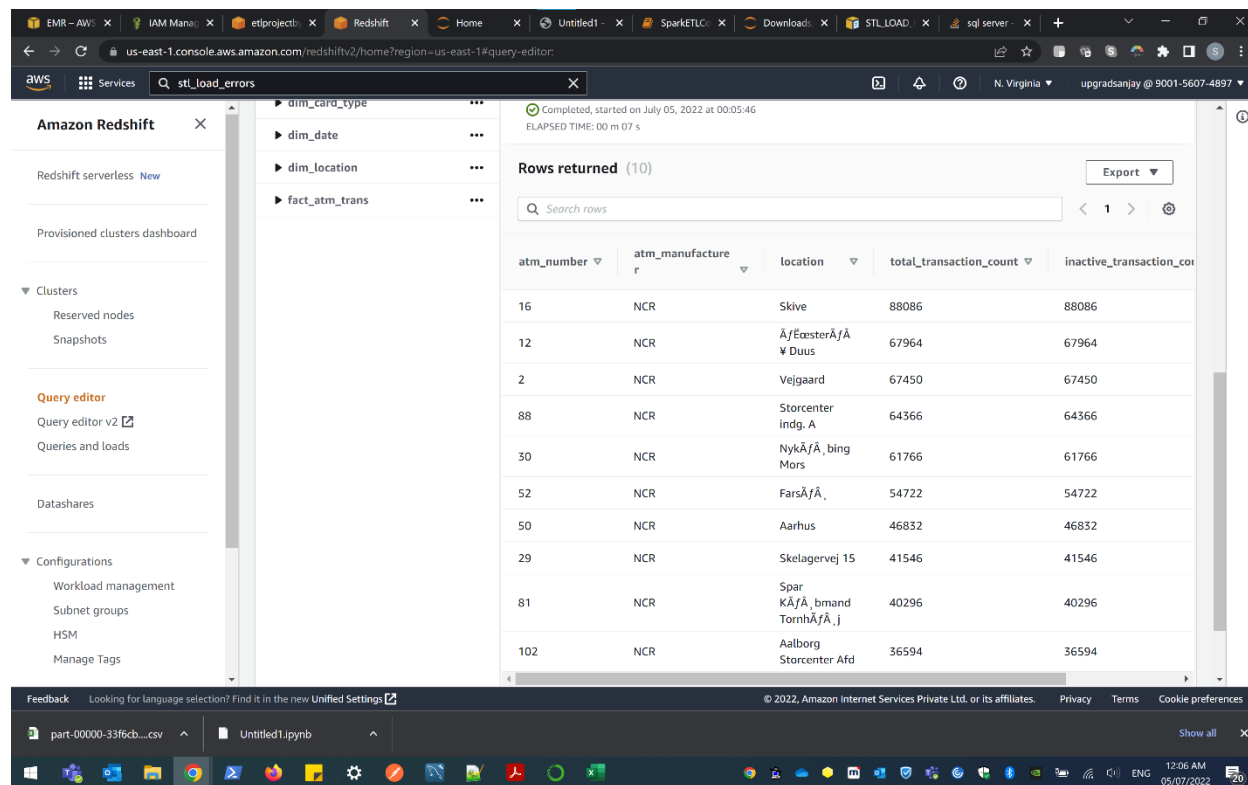


Solving analytical queries on Redshift Cluster

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;
```

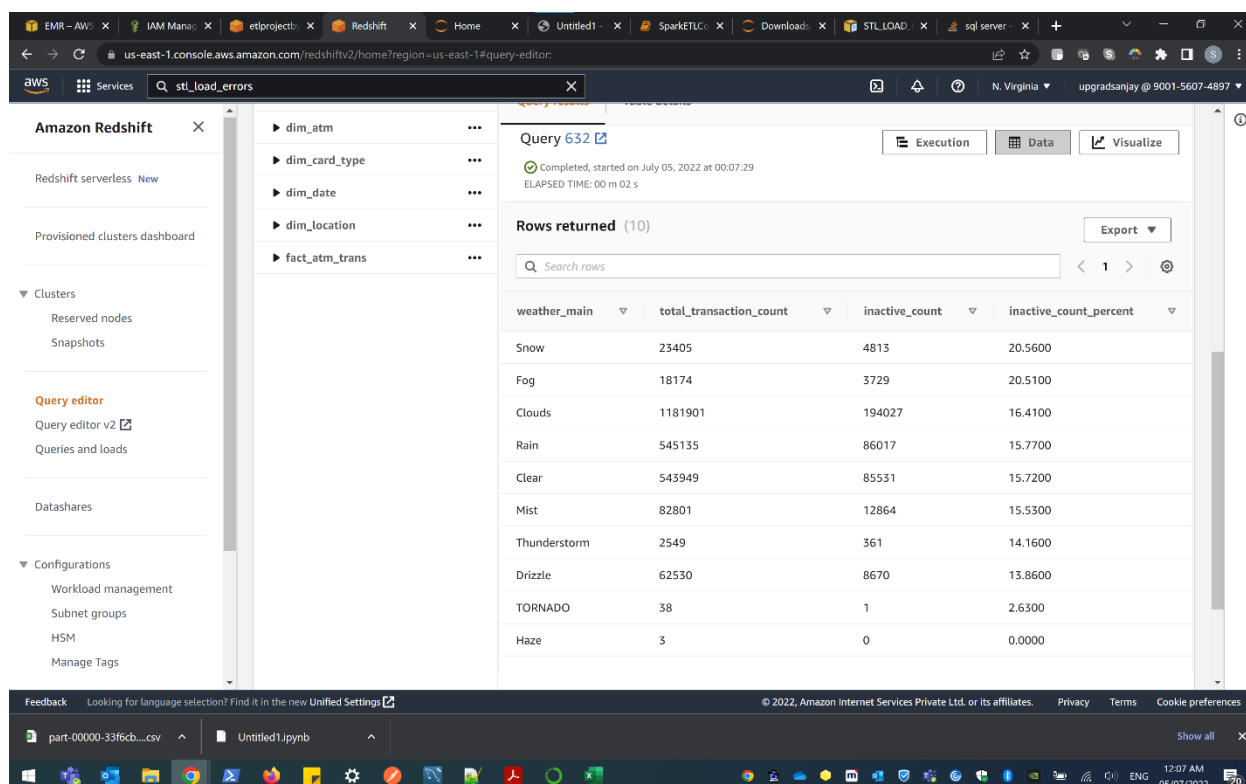


The screenshot shows the AWS Redshift Query Editor interface. The query has been executed successfully, and the results are displayed in a table. The table has 5 columns: atm_number, atm_manufacturer, location, total_transaction_count, and inactive_transaction_count. The results are sorted by inactive_transaction_count in descending order, showing the top 10 ATMs.

atm_number	atm_manufacturer	location	total_transaction_count	inactive_transaction_count
16	NCR	Skive	88086	88086
12	NCR	ÅfEørsterÅfÅ V Duus	67964	67964
2	NCR	Vejgaard	67450	67450
88	NCR	Storcenter indg. A	64366	64366
30	NCR	NykÅfÅ, bing Mors	61766	61766
52	NCR	FarsÅfÅ,	54722	54722
50	NCR	Aarhus	46832	46832
29	NCR	Skelagervej 15	41546	41546
81	NCR	Spar KÅfÅ, bmand TørnhÅfÅ, j	40296	40296
102	NCR	Aalborg Storcenter Afd	36594	36594

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;
```



Query 632

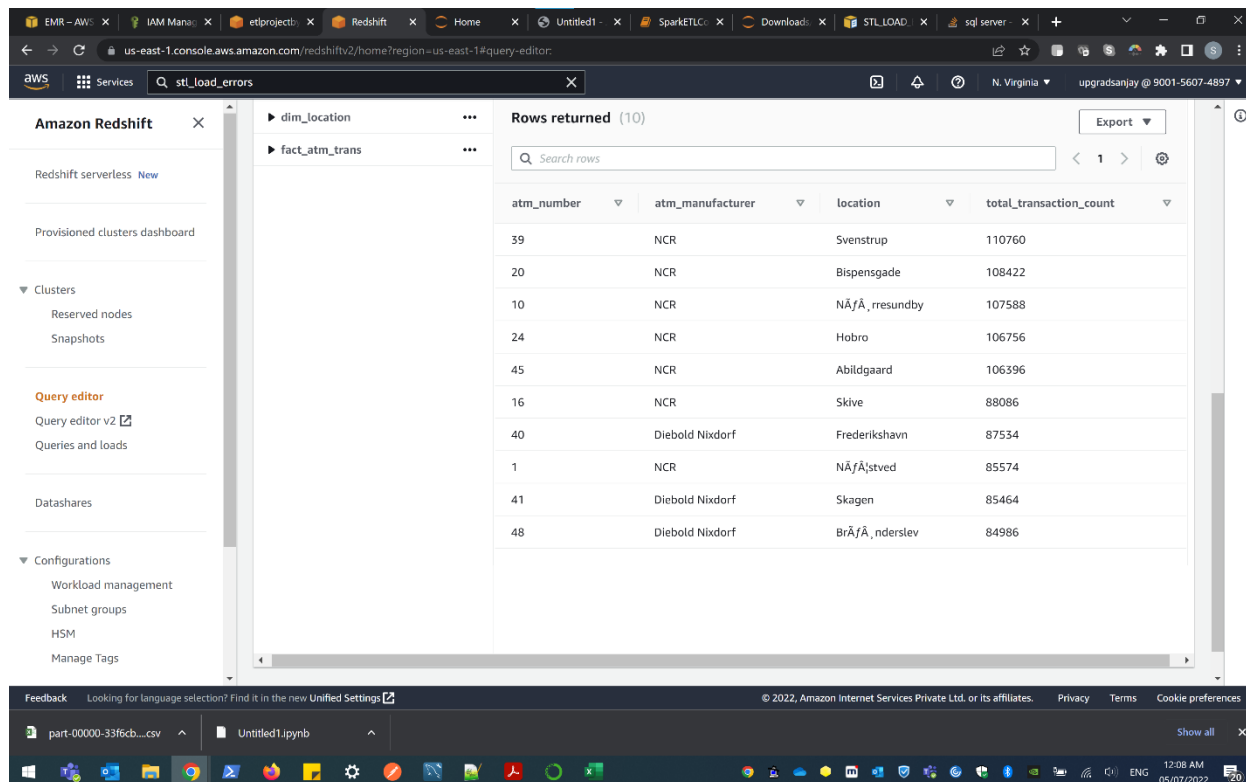
Completed, started on July 05, 2022 at 00:07:29
ELAPSED TIME: 00 m 02 s

Rows returned (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;
```

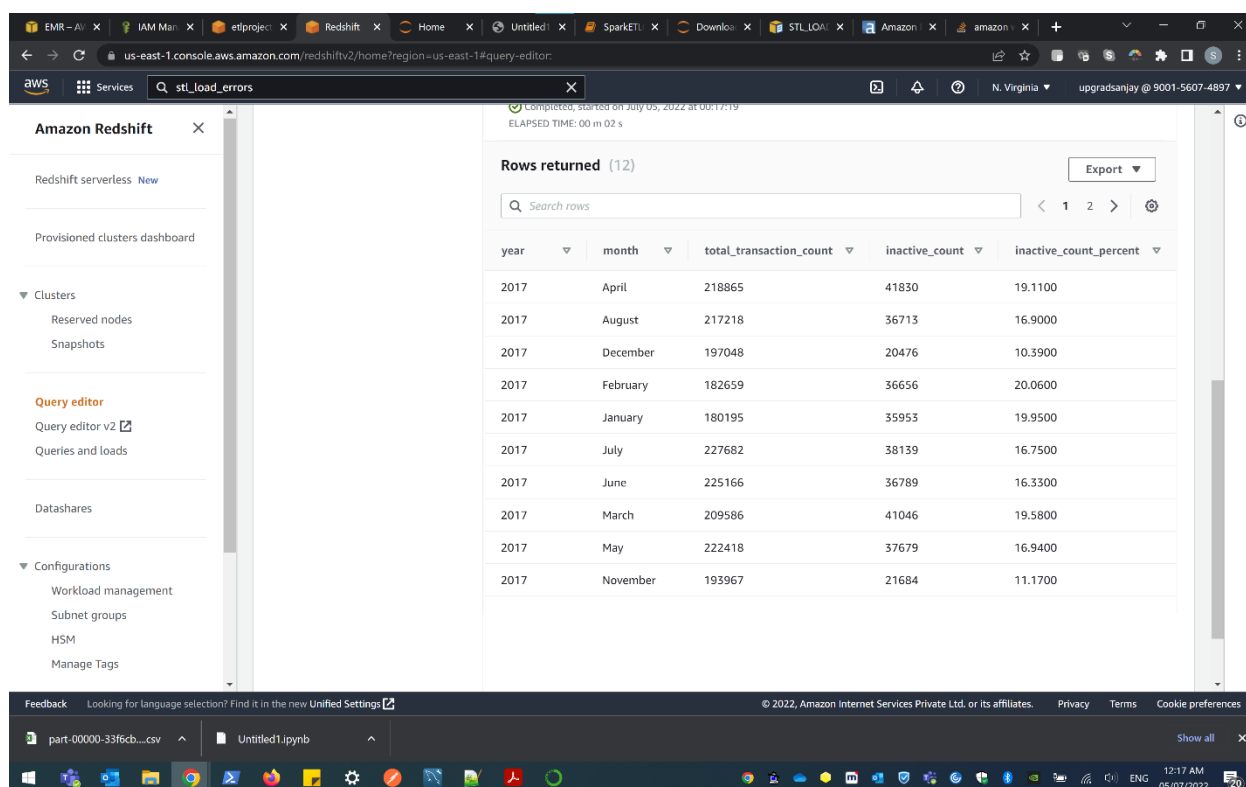


The screenshot shows the Amazon Redshift console interface. The left sidebar contains navigation options like 'Amazon Redshift', 'Clusters', 'Query editor', and 'Configurations'. The main panel displays the results of a query, showing 10 rows of data. The columns are 'atm_number', 'atm_manufacturer', 'location', and 'total_transaction_count'. The data is sorted in descending order of transaction count.

atm_number	atm_manufacturer	location	total_transaction_count
39	NCR	Svenstrup	110760
20	NCR	Bispensgade	108422
10	NCR	NÃfÃ, resundby	107588
24	NCR	Hobro	106756
45	NCR	Abildgaard	106396
16	NCR	Skive	88086
40	Diebold Nixdorf	Frederikshavn	87534
1	NCR	NÃfÃstved	85574
41	Diebold Nixdorf	Skagen	85464
48	Diebold Nixdorf	BrÃfÃ, nderslev	84986

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
```

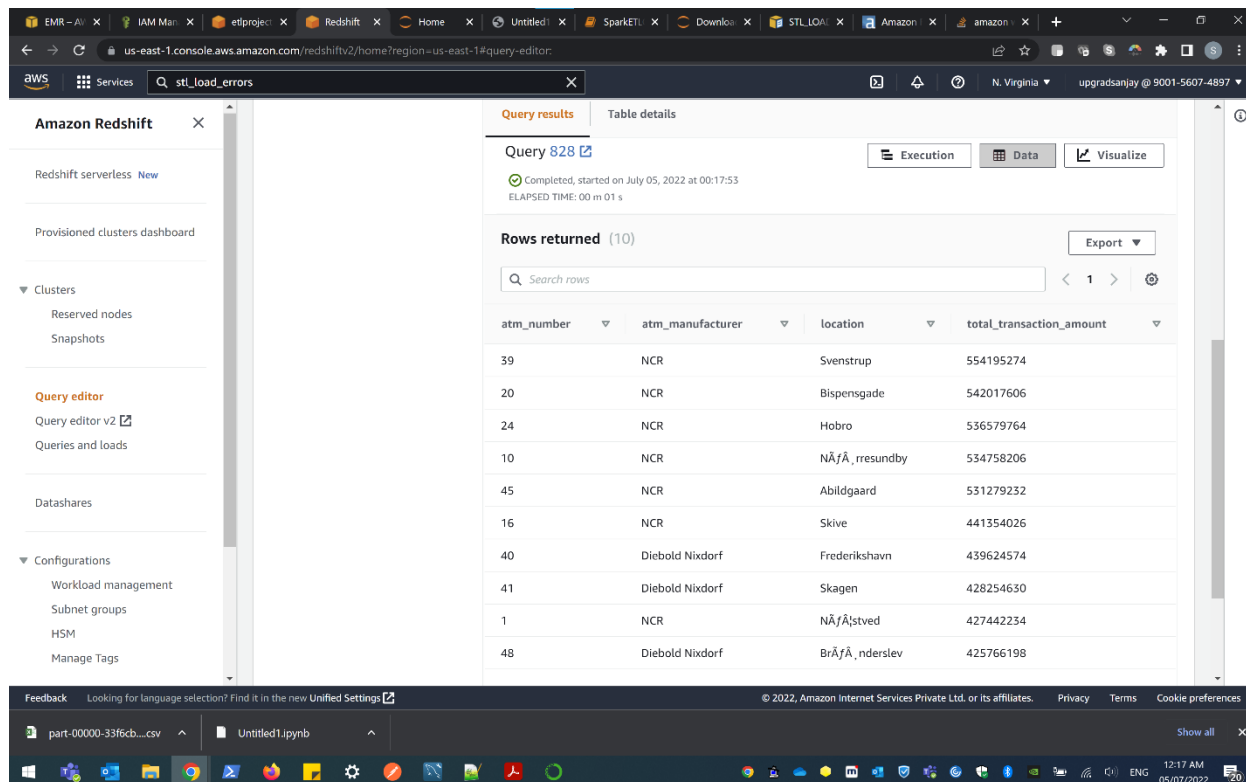


The screenshot shows the Amazon Redshift console interface. The query editor on the left contains the SQL query. The results pane on the right displays the output of the query, which is a table with 12 rows. The table has five columns: year, month, total_transaction_count, inactive_count, and inactive_count_percent. The data is grouped by year and month, showing the number of transactions and the percentage of inactive transactions for each month in 2017.

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

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;
```

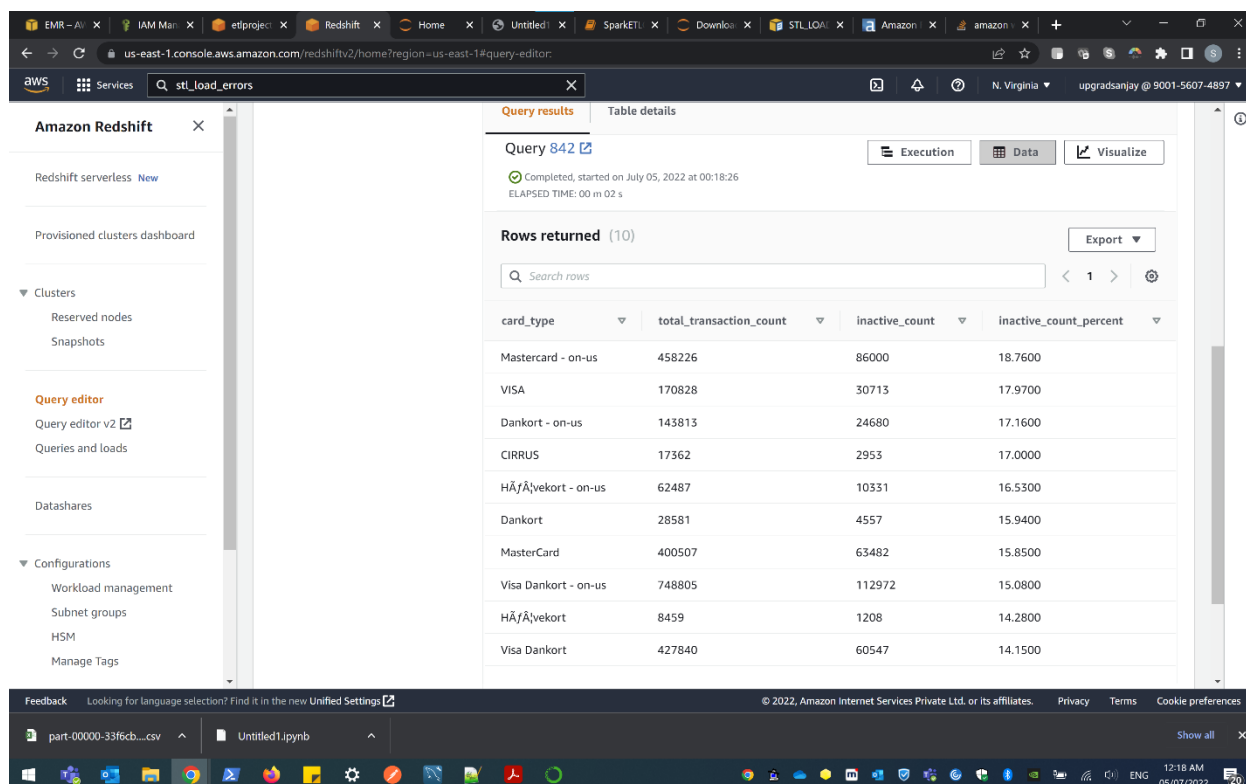


The screenshot shows the Amazon Redshift Query Editor interface. The query is 'Query 828' and it has completed. The results show the top 10 ATMs with the highest total withdrawn amount.

atm_number	atm_manufacturer	location	total_transaction_amount
39	NCR	Svenstrup	554195274
20	NCR	Bispensgade	542017606
24	NCR	Hobro	536579764
10	NCR	NÅfÅ, rresundby	534758206
45	NCR	Abildgaard	531279232
16	NCR	Skive	441354026
40	Diebold Nixdorf	Frederikshavn	439624574
41	Diebold Nixdorf	Skagen	428254650
1	NCR	NÅfÅstved	427442234
48	Diebold Nixdorf	BrÅfÅ, nderslev	425766198

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;
```

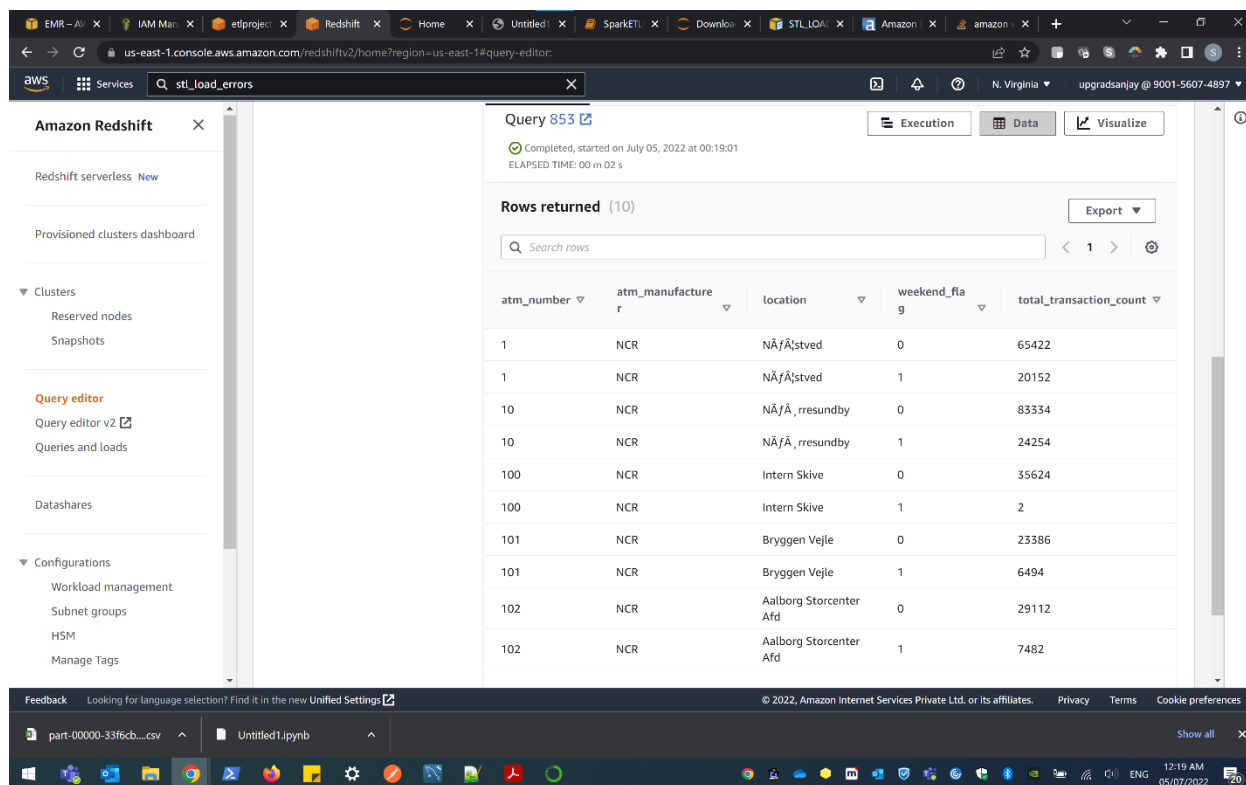


The screenshot shows the AWS Redshift console interface. The left sidebar contains navigation options like 'Redshift serverless', 'Provisioned clusters dashboard', 'Clusters', 'Query editor', and 'Configurations'. The main area displays the 'Query results' for 'Query 842', which is completed. Below the query status, there is a table titled 'Rows returned (10)' showing the results of the SQL query. The table has four columns: 'card_type', 'total_transaction_count', 'inactive_count', and 'inactive_count_percent'. The data is sorted by 'inactive_count_percent' in descending order.

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
H&A\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
H&A\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;
```



Amazon Redshift

Query 853

Completed, started on July 05, 2022 at 00:19:01
ELAPSED TIME: 00 m 02 s

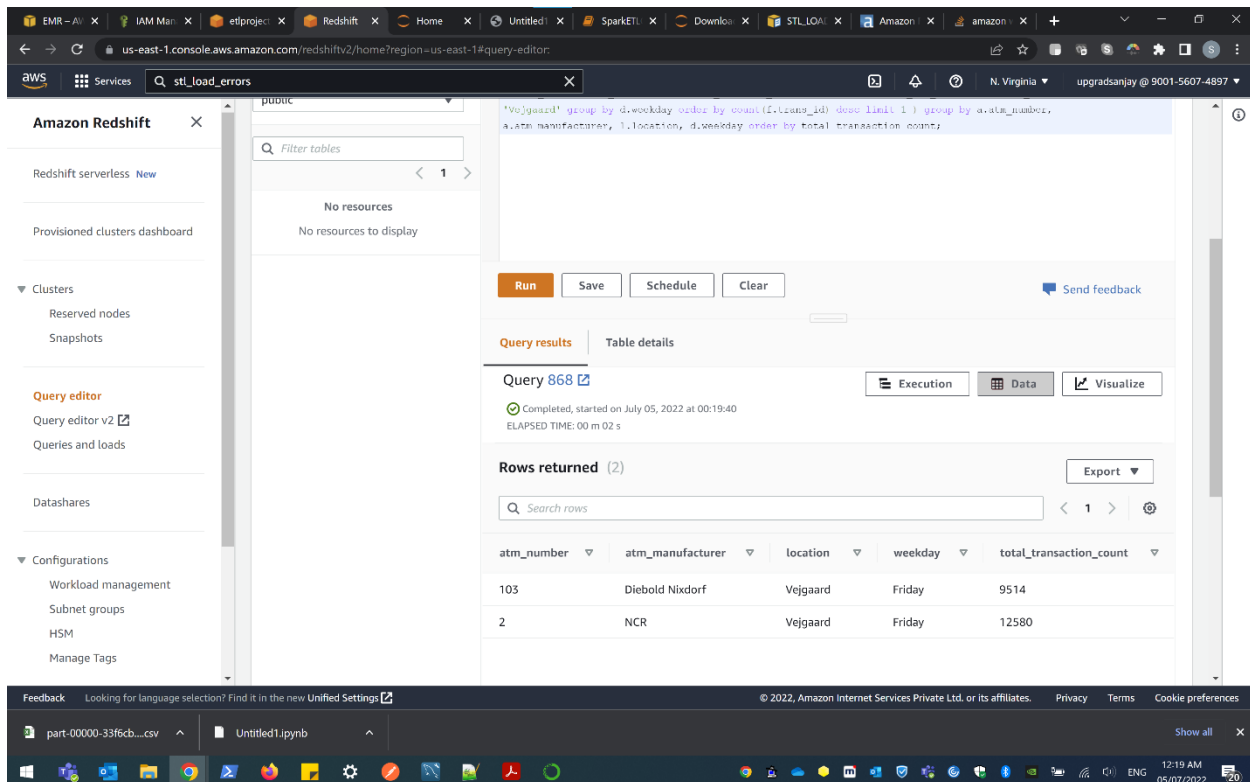
Rows returned (10)

Search rows

atm_number	atm_manufacturer	location	weekend_flag	total_transaction_count
1	NCR	NÅfÅstved	0	65422
1	NCR	NÅfÅstved	1	20152
10	NCR	NÅfÅ, rresundby	0	83334
10	NCR	NÅfÅ, rresundby	1	24254
100	NCR	Intern Skive	0	35624
100	NCR	Intern Skive	1	2
101	NCR	Bryggen Vejle	0	23386
101	NCR	Bryggen Vejle	1	6494
102	NCR	Aalborg Storcenter Afd	0	29112
102	NCR	Aalborg Storcenter Afd	1	7482

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.location_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;
```



The screenshot shows the Amazon Redshift console interface. The query editor on the right contains the SQL query to find the most active day in each ATM from the location "Vejgaard". The query has been executed successfully, and the results are displayed in a table with 2 rows returned. The table columns are: atm_number, atm_manufacturer, location, weekday, and total_transaction_count. The results show that for location "Vejgaard", the most active day is Friday, with a total transaction count of 12580 for ATM number 2 (NCR) and 9514 for ATM number 103 (Diebold Nixdorf).

atm_number	atm_manufacturer	location	weekday	total_transaction_count
103	Diebold Nixdorf	Vejgaard	Friday	9514
2	NCR	Vejgaard	Friday	12580