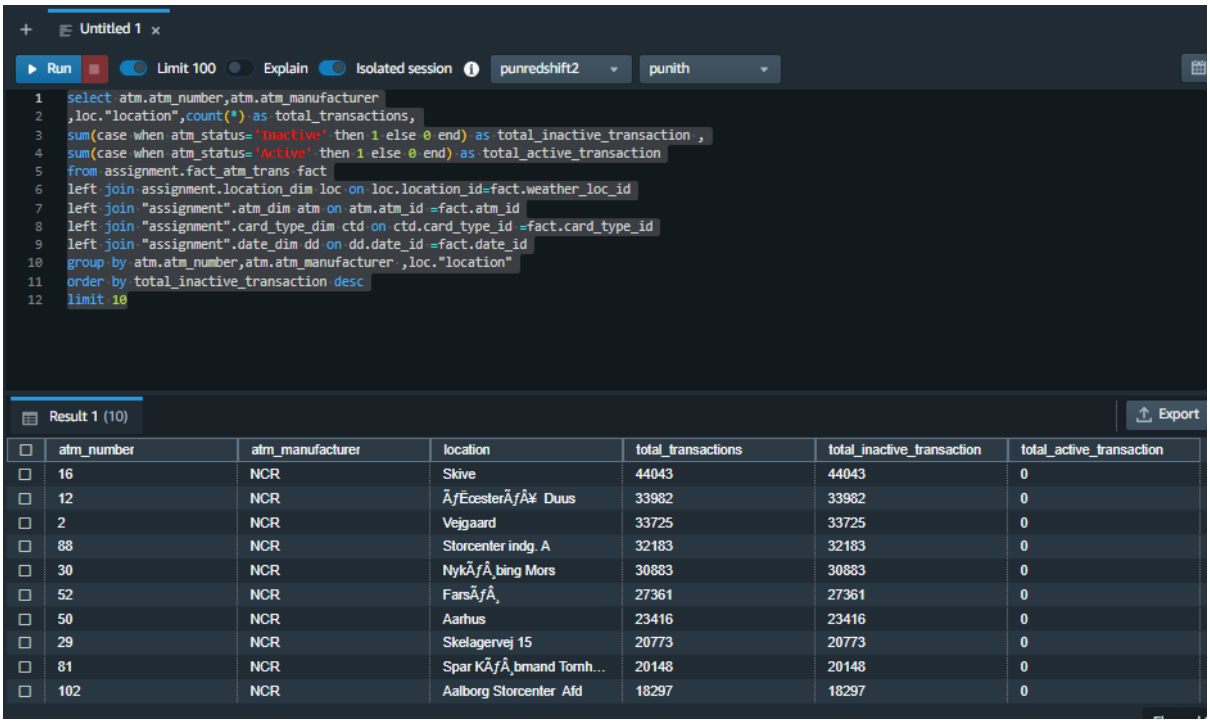
Solving analytical queries on Redshift Cluster

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

Query : select atm.atm_number,atm.atm_manufacturer
,loc."location",count(*) as total_transactions,
sum(case when atm_status='Inactive' then 1 else 0 end) as
total_inactive_transaction ,
sum(case when atm_status='Active' then 1 else 0 end) as total_active_transaction
from assignment.fact_atm_trans fact
left join assignment.location_dim loc on loc.location_id=fact.weather_loc_id
left join "assignment".atm_dim atm on atm.atm_id =fact.atm_id
left join "assignment".card_type_dim ctd on ctd.card_type_id =fact.card_type_id
left join "assignment".date_dim dd on dd.date_id =fact.date_id
group by atm.atm_number,atm.atm_manufacturer ,loc."location"
order by total_inactive_transaction desc
limit 10

Screenshot :



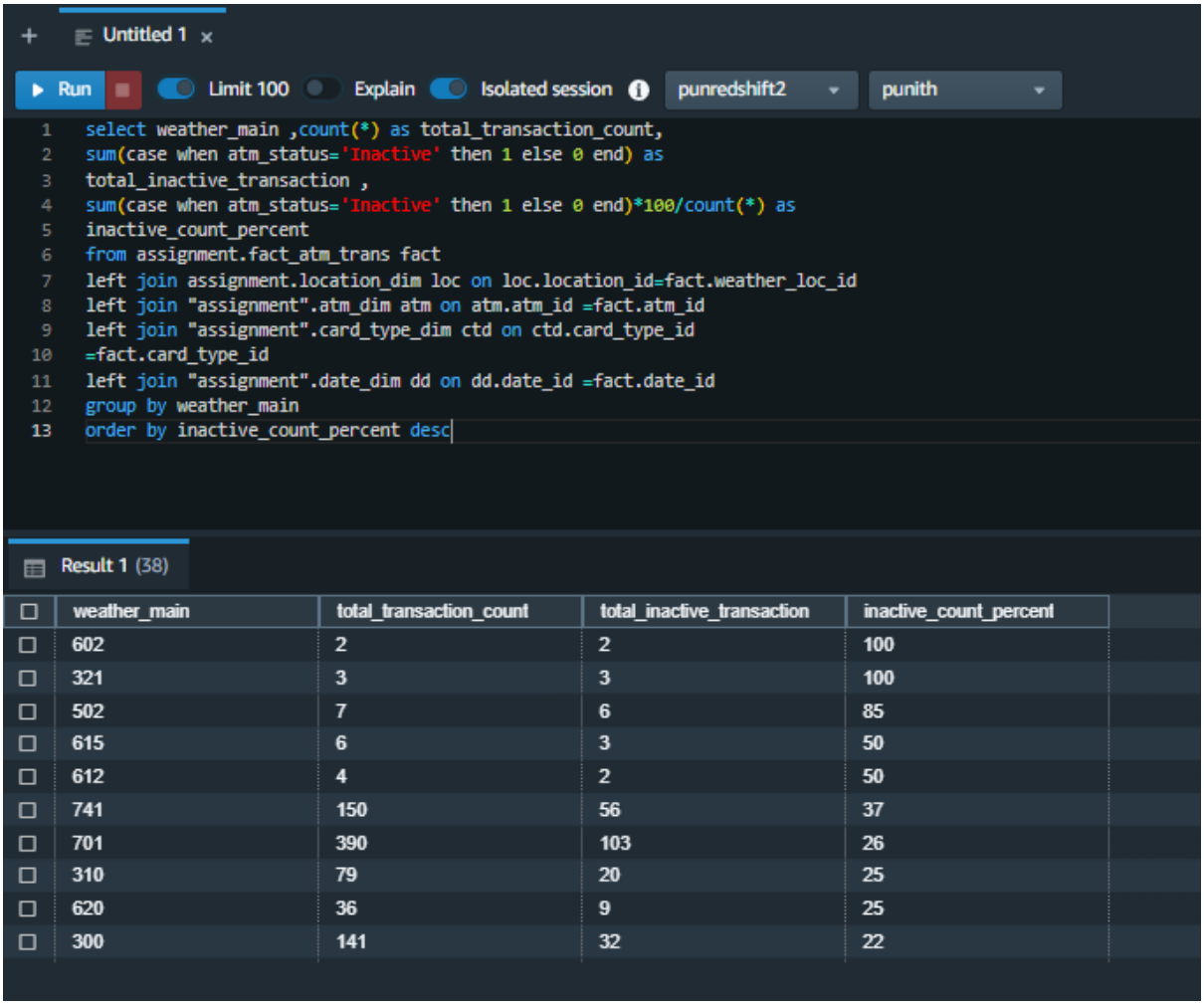
atm_number	atm_manufacturer	location	total_transactions	total_inactive_transaction	total_active_transaction
16	NCR	Skive	44043	44043	0
12	NCR	ÃƒËcesterÃƒÂ¥ Duus	33982	33982	0
2	NCR	Vejgaard	33725	33725	0
88	NCR	Storcenter indg. A	32183	32183	0
30	NCR	NykÃƒÂ¸bing Mors	30883	30883	0
52	NCR	FarsÃƒÂ¸	27361	27361	0
50	NCR	Aarhus	23416	23416	0
29	NCR	Skelagervej 15	20773	20773	0
81	NCR	Spar KÃƒÂ¸bmand Tornh...	20148	20148	0
102	NCR	Aalborg Storcenter Afd	18297	18297	0

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

Query : select weather_main ,count(*) as total_transaction_count,
sum(case when atm_status='Inactive' then 1 else 0 end) as
total_inactive_transaction ,
sum(case when atm_status='Inactive' then 1 else 0 end)*100/count(*) as
inactive_count_percent

from assignment.fact_atm_trans fact
left join assignment.location_dim loc on loc.location_id=fact.weather_loc_id
left join "assignment".atm_dim atm on atm.atm_id =fact.atm_id
left join "assignment".card_type_dim ctd on ctd.card_type_id
=fact.card_type_id
left join "assignment".date_dim dd on dd.date_id =fact.date_id
group by weather_main
order by inactive_count_percent desc

Screenshot :

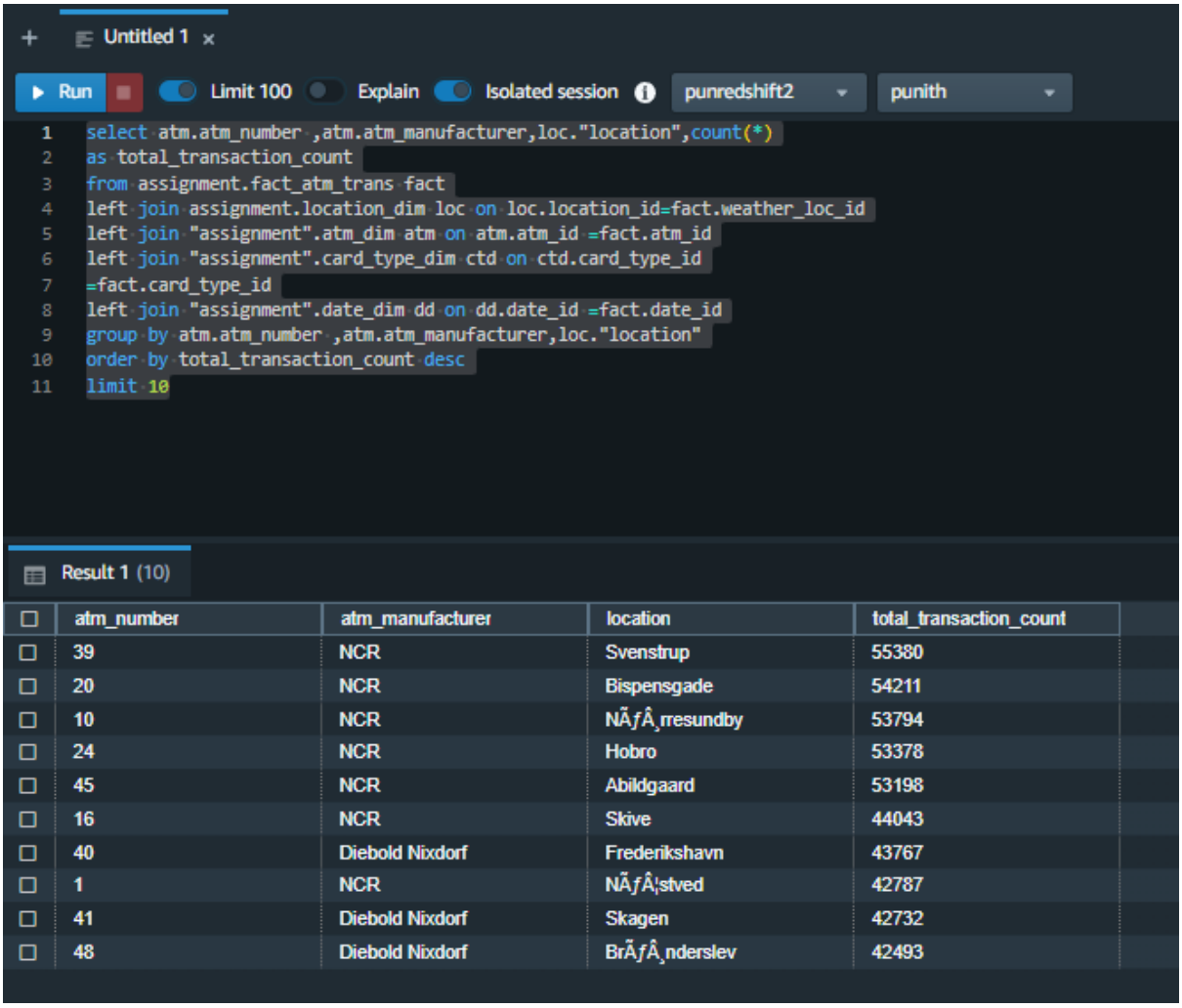


weather_main	total_transaction_count	total_inactive_transaction	inactive_count_percent
602	2	2	100
321	3	3	100
502	7	6	85
615	6	3	50
612	4	2	50
741	150	56	37
701	390	103	26
310	79	20	25
620	36	9	25
300	141	32	22

3. **Top 10 ATMs with the most number of transactions throughout the year**
Query : select atm.atm_number ,atm.atm_manufacturer,loc."location",count(*)
as total_transaction_count
from assignment.fact_atm_trans fact
left join assignment.location_dim loc on loc.location_id=fact.weather_loc_id
left join "assignment".atm_dim atm on atm.atm_id =fact.atm_id
left join "assignment".card_type_dim ctd on ctd.card_type_id

=fact.card_type_id
left join "assignment".date_dim dd on dd.date_id =fact.date_id
group by atm.atm_number ,atm.atm_manufacturer,loc."location"
order by total_transaction_count desc
limit 10

Screenshot :

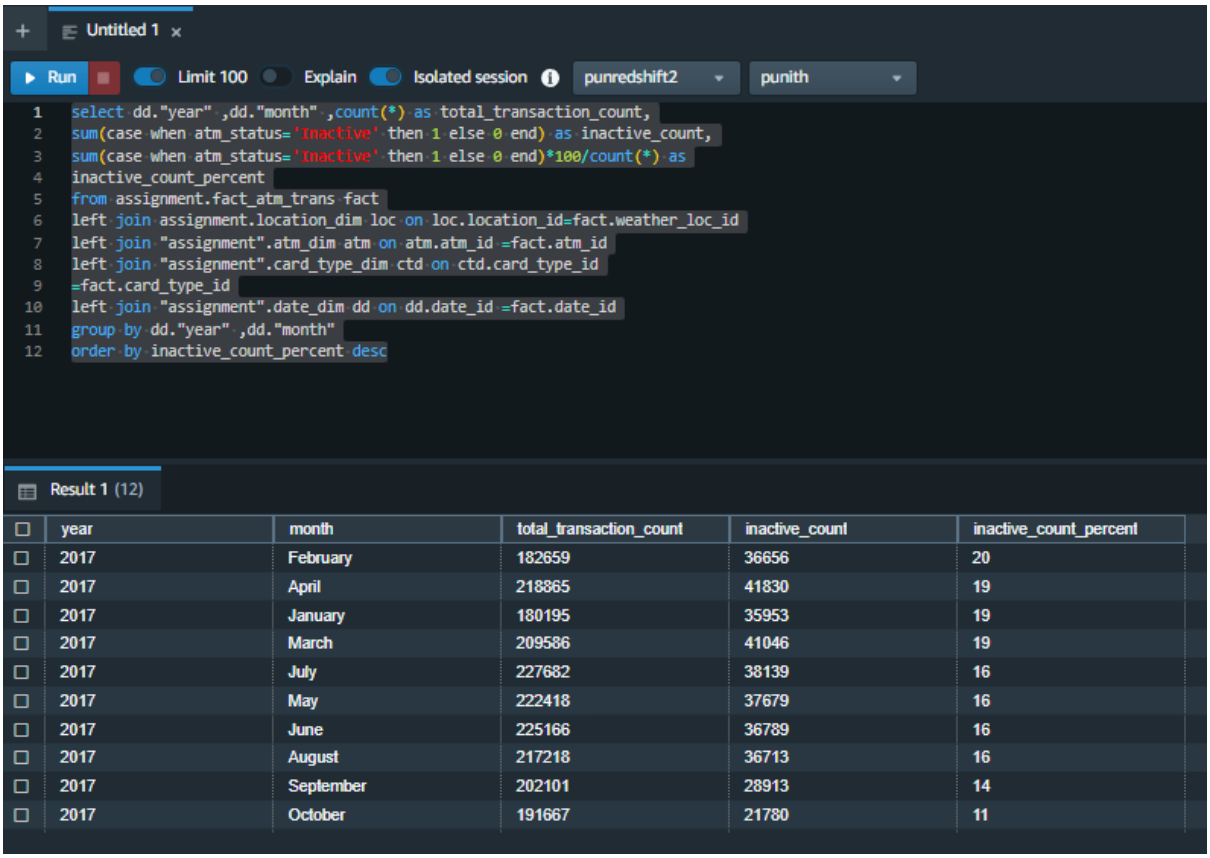


atm_number	atm_manufacturer	location	total_transaction_count
39	NCR	Svenstrup	55380
20	NCR	Bispensgade	54211
10	NCR	NÃƒÂ¸rresundby	53794
24	NCR	Hobro	53378
45	NCR	Abildgaard	53198
16	NCR	Skive	44043
40	Diebold Nixdorf	Frederikshavn	43767
1	NCR	NÃƒÂ¦stved	42787
41	Diebold Nixdorf	Skagen	42732
48	Diebold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

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

Query : select dd."year" ,dd."month" ,count(*) as total_transaction_count,
sum(case when atm_status='Inactive' then 1 else 0 end) as inactive_count,
sum(case when atm_status='Inactive' then 1 else 0 end)*100/count(*) as inactive_count_percent
from assignment.fact_atm_trans fact
left join assignment.location_dim loc on loc.location_id=fact.weather_loc_id
left join "assignment".atm_dim atm on atm.atm_id =fact.atm_id
left join "assignment".card_type_dim ctd on ctd.card_type_id

=fact.card_type_id
left join "assignment".date_dim dd on dd.date_id =fact.date_id
group by dd."year" ,dd."month"
order by inactive_count_percent desc
Screenshot :

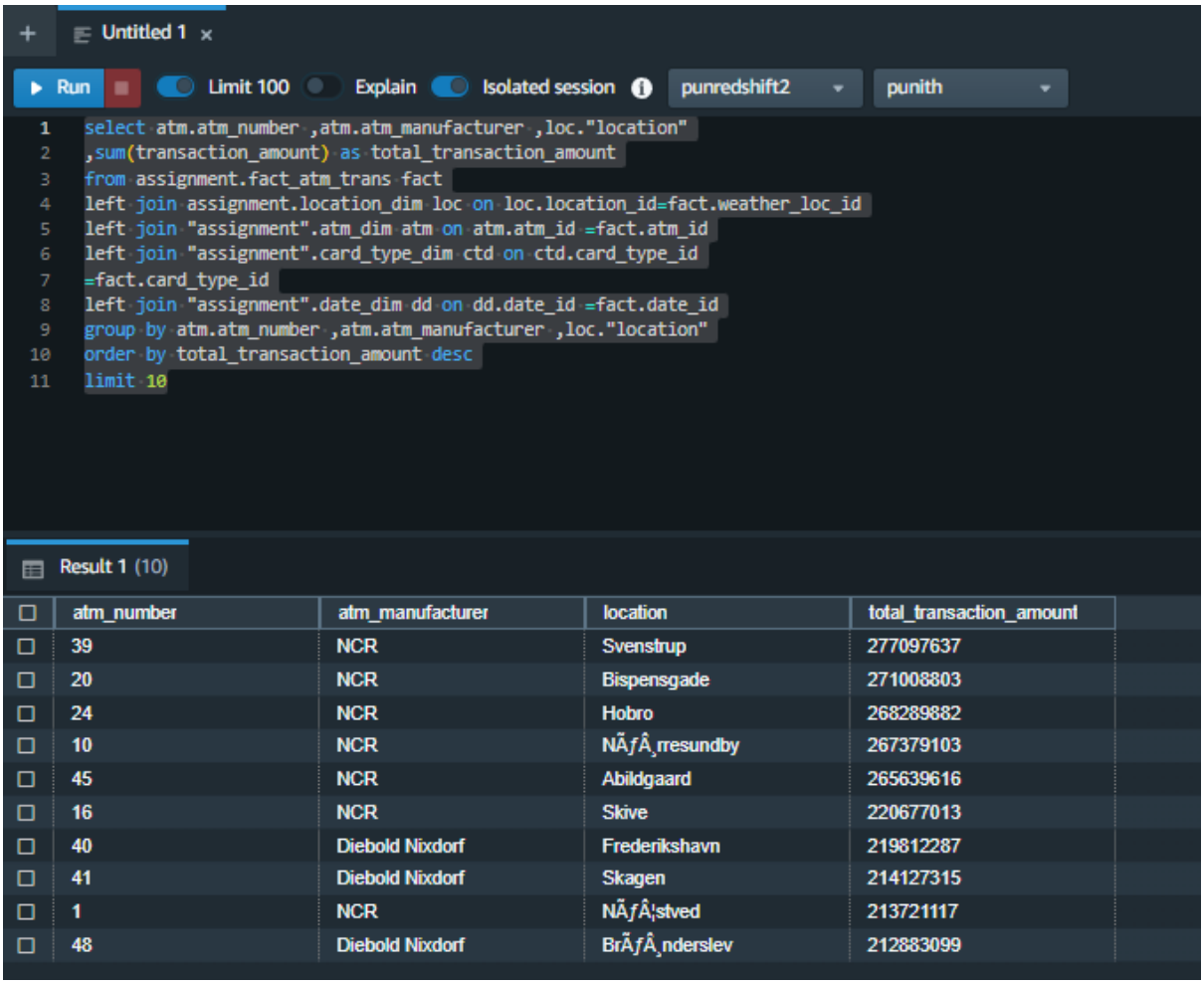


year	month	total_transaction_count	inactive_count	inactive_count_percent
2017	February	182659	36656	20
2017	April	218865	41830	19
2017	January	180195	35953	19
2017	March	209586	41046	19
2017	July	227682	38139	16
2017	May	222418	37679	16
2017	June	225166	36789	16
2017	August	217218	36713	16
2017	September	202101	28913	14
2017	October	191667	21780	11

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

Query : select atm.atm_number ,atm.atm_manufacturer ,loc."location"
,sum(transaction_amount) as total_transaction_amount
from assignment.fact_atm_trans fact
left join assignment.location_dim loc on loc.location_id=fact.weather_loc_id
left join "assignment".atm_dim atm on atm.atm_id =fact.atm_id
left join "assignment".card_type_dim ctd on ctd.card_type_id
=fact.card_type_id
left join "assignment".date_dim dd on dd.date_id =fact.date_id
group by atm.atm_number ,atm.atm_manufacturer ,loc."location"
order by total_transaction_amount desc
limit 10

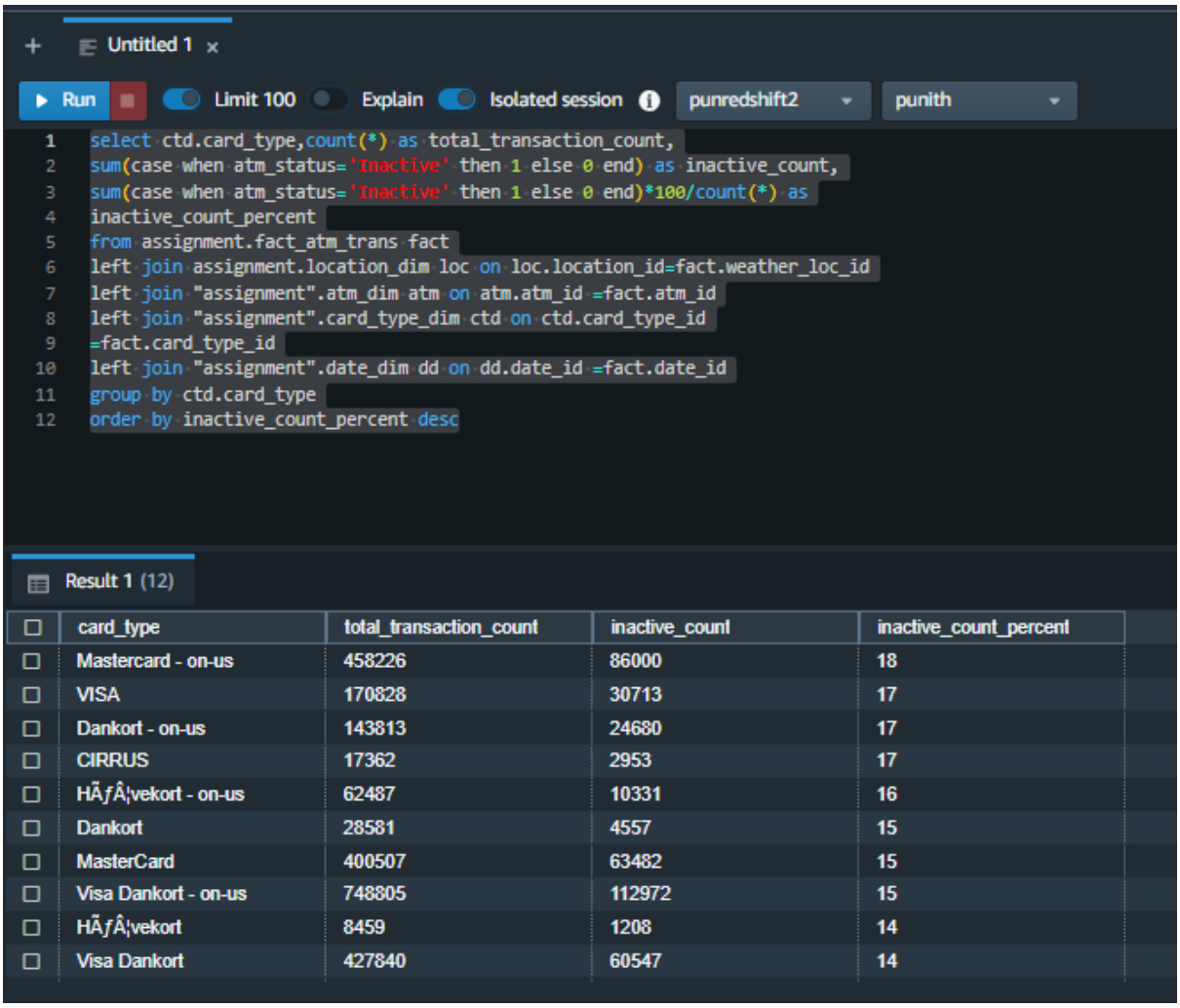
Screenshot :



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

Query : select ctd.card_type,count(*) as total_transaction_count,
sum(case when atm_status='Inactive' then 1 else 0 end) as inactive_count,
sum(case when atm_status='Inactive' then 1 else 0 end)*100/count(*) as
inactive_count_percent
from assignment.fact_atm_trans fact
left join assignment.location_dim loc on loc.location_id=fact.weather_loc_id
left join "assignment".atm_dim atm on atm.atm_id =fact.atm_id
left join "assignment".card_type_dim ctd on ctd.card_type_id
=fact.card_type_id
left join "assignment".date_dim dd on dd.date_id =fact.date_id
group by ctd.card_type
order by inactive_count_percent desc

Screenshot :



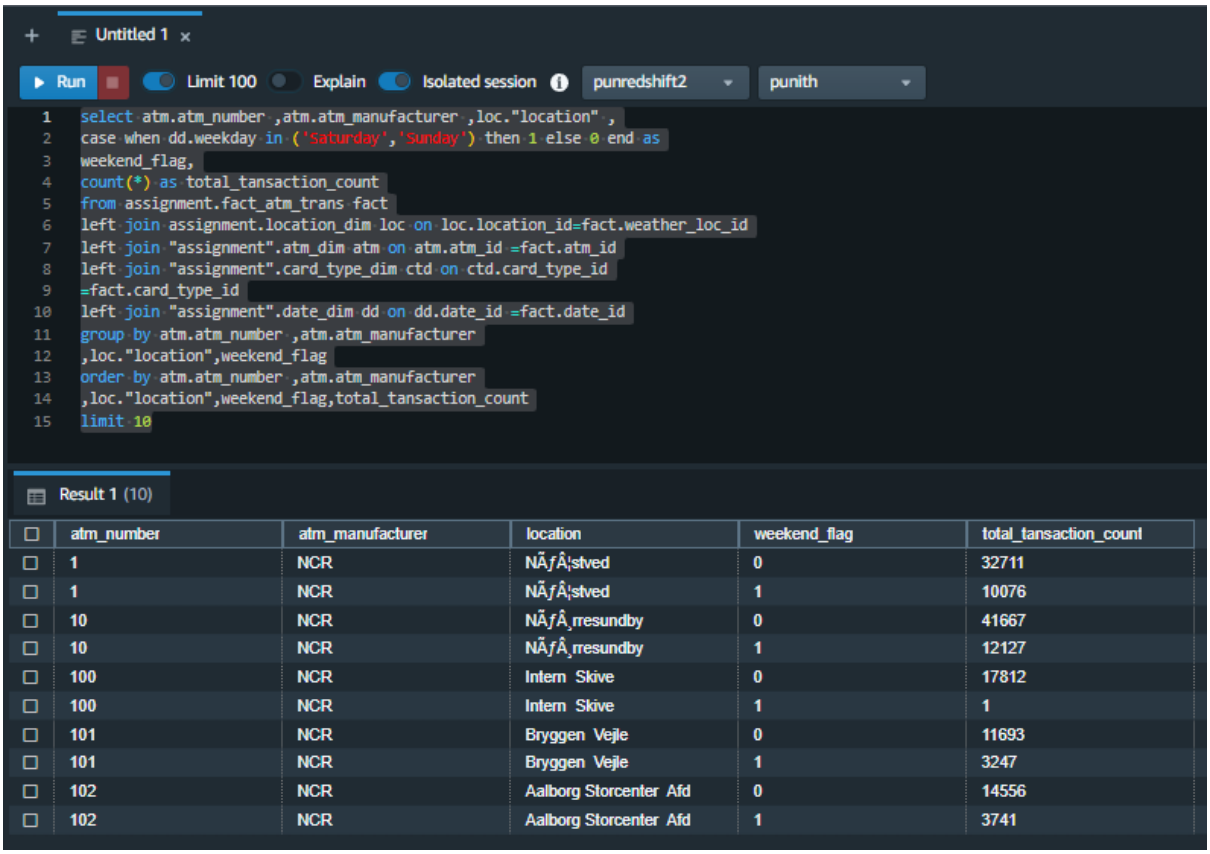
card_type	total_transaction_count	inactive_count	inactive_count_percent
Mastercard - on-us	458226	86000	18
VISA	170828	30713	17
Dankort - on-us	143813	24680	17
CIRRUS	17362	2953	17
HÃƒÂ¦vekort - on-us	62487	10331	16
Dankort	28581	4557	15
MasterCard	400507	63482	15
Visa Dankort - on-us	748805	112972	15
HÃƒÂ¦vekort	8459	1208	14
Visa Dankort	427840	60547	14

7. **Top 10 records with the number of transactions ordered by the ATM_number, ATM_manufacturer, location, weekend_flag and then total_transaction_count, on weekdays and on weekends throughout the year**

Query : select atm.atm_number ,atm.atm_manufacturer ,loc."location" ,
case when dd.weekday in ('Saturday','Sunday') then 1 else 0 end as weekend_flag,
count(*) as total_tansaction_count
from assignment.fact_atm_trans fact
left join assignment.location_dim loc on loc.location_id=fact.weather_loc_id
left join "assignment".atm_dim atm on atm.atm_id =fact.atm_id
left join "assignment".card_type_dim ctd on ctd.card_type_id
=fact.card_type_id
left join "assignment".date_dim dd on dd.date_id =fact.date_id
group by atm.atm_number ,atm.atm_manufacturer

,loc."location",weekend_flag
order by atm.atm_number ,atm.atm_manufacturer
,loc."location",weekend_flag,total_tansaction_count
limit 10

Screenshot :



atm_number	atm_manufacturer	location	weekend_flag	total_tansaction_count
1	NCR	NÃƒÂ¦stved	0	32711
1	NCR	NÃƒÂ¦stved	1	10076
10	NCR	NÃƒÂ¸resundby	0	41667
10	NCR	NÃƒÂ¸resundby	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 : select atm_number,atm_manufacturer ,"location",weekday
,total_transaction_count
from (
select atm.atm_number,atm.atm_manufacturer ,loc."location",dd.weekday
,count(*) as total_transaction_count,
row_number() over (partition by atm_number order by count(*) desc) as
row_num
from assignment.fact_atm_trans fact
left join assignment.location_dim loc on loc.location_id=fact.weather_loc_id
left join "assignment".atm_dim atm on atm.atm_id =fact.atm_id
left join "assignment".card_type_dim ctd on ctd.card_type_id
=fact.card_type_id
left join "assignment".date_dim dd on dd.date_id =fact.date_id
where "location"='Vejgaard'

group by atm.atm_number,atm.atm_manufacturer ,loc."location",dd.weekday
) a where row_num=1

Screenshot :