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_id,l.location,a.atm_manufacturer,count(a.atm_id) as inactive_count
FROM etl.FACT_ATM_TRANS d
left join etl.DIM_ATM a
on d.atm_id = a.atm_id
left join etl.DIM_LOCATION l
on l.location_id = a.atm_location_id
where d.atm_status = 'Inactive'
group by a.atm_id,l.location,a.atm_manufacturer
order by inactive_count desc limit 10;

atm_id	location	atm_manufacturer	inactive_count
16	LÃƒÂ¸gstÃƒÂ¸r	NCR	44043
12	Ikast	NCR	33982
2	Vejgaard	NCR	33725
88	Storcenter indg. A	NCR	32183
30	Svogerslev	NCR	30883
52	NÃƒÂ¦stved	NCR	27361
50	Aarhus	NCR	23416
29	Skelagervej 15	NCR	20773
81	Hirtshals	NCR	20148
102	Aalborg Storcenter Afd	NCR	18297

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

```
select a.*,b.Inactive_count,(b.Inactive_count * 100 / a.total_transaction_count)
 as Inactive_count_percent from
(SELECT weather_main,count(atm_id) as total_transaction_count
from  etl.FACT_ATM_TRANS
group by weather_main) a left join
(SELECT weather_main,count(atm_id) as Inactive_count
from etl.FACT_ATM_TRANS
where atm_status = 'Inactive'
group by weather_main) b
 on a.weather_main = b.weather_main;
```

weather_main	total_transaction_count	inactive_count	inactive_count_percent
Snow	23405	4813	20
Clear	543949	85531	15
Drizzle	62530	8670	13
Rain	545135	86017	15
Clouds	1181901	194027	16
Mist	82801	12864	15
	8087	1645	20
Fog	18174	3729	20
Thunderstorm	2549	361	14
TORNADO	38	1	2

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

SELECT a.atm_id,a.atm_manufacturer,l.location,count(a.atm_id) as total_transaction_count
FROM etl.FACT_ATM_TRANS d
left join etl.DIM_ATM a
on d.atm_id = a.atm_id
left outer join etl.DIM_LOCATION l
on l.location_id = a.atm_location_id
group by a.atm_id,a.atm_manufacturer,l.location
order by total_transaction_count desc limit 10;

weather_main	total_transaction_count	inactive_count	inactive_count_percent
Snow	23405	4813	20
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4. Number of overall ATM transactions going inactive per month for each month

```
select a.*,b.Inactive_count,(b.Inactive_count  * 100 / a.total_transaction_count)
 as Inactive_percent from
(SELECT d.year,d.month,count(atm_id) as total_transaction_count
from etl.dim_date d
join etl.FACT_ATM_TRANS  f
on f.date_id = d.date_id
group by d.year,d.month) a join
(SELECT d.month,count(atm_id) as Inactive_count
from etl.dim_date d
join etl.FACT_ATM_TRANS  f
on f.date_id = d.date_id
where f.atm_status = 'Inactive'
group by d.month) b
 on a.month = b.month;
```

weather_main ▽	total_transaction_count ▽	inactive_count ▽	inactive_count_percent ▽
Snow	23405	4813	20
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year	month	total_transaction_count	inactive_count	inactive_percent
2017	July	199873	35463	17
2017	February	183510	32353	17

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

SELECT a.atm_id,a.atm_manufacturer,l.location,sum(d.transaction_amount) as total_transaction_amount
FROM etl.FACT_ATM_TRANS d join etl.DIM_ATM a
on d.atm_id = a.atm_id
join etl.DIM_LOCATION l
on l.location_id = a.atm_location_id
where d.service = 'Withdrawal'
group by a.atm_id,a.atm_manufacturer,l.location
order by total_transaction_amount desc limit 10;

atm_id	atm_manufacturer	location	total_transaction_amount
39	NCR	Svenstrup	277097637
20	NCR	Nyborg	271008803
24	NCR	Hobro	268289882
10	NCR	NÃƒÂ¸rresundby	267379103
45	NCR	Abildgaard	265639616
16	NCR	LÃƒÂ¸gstÃƒÂ¸r	220677013
40	Diebold Nixdorf	Frederikshavn	219812287
41	Diebold Nixdorf	Skagen	214127315
1	NCR	FarsÃƒÂ¸	213721117
48	Diebold Nixdorf	Jebjerg	212883099

6. Number of failed ATM transactions across various card types

```
select m.*,b.Inactive_count,(b.Inactive_count * 100 / m.total_transaction_count)
 as Inactive_percent from
 (SELECT c.card_type,count(f.atm_id) as total_transaction_count
 FROM etl.DIM_CARD_TYPE  c
 join etl.FACT_ATM_TRANS  f
 on c.card_type_id = f.card_type_id
 group by c.card_type) m
 join
 (SELECT c.card_type,count(f.atm_id) as Inactive_count
 FROM etl.DIM_CARD_TYPE  c
 join etl.FACT_ATM_TRANS  f
 on c.card_type_id = f.card_type_id
 where f.atm_status = 'Inactive'
 group by c.card_type) b
 on m.card_type =b.card_type;
```

card_type	total_transaction_count	inactive_count	inactive_percent
Mastercard - on-us	458226	86000	18
Dankort - on-us	143813	24680	17
MasterCard	400507	63482	15
Maestro	530	65	12
Dankort	28581	4557	15
Visa Dankort - on-us	748805	112972	15
Visa Dankort	427840	60547	14
VISA	170828	30713	17
HÃƒÂ¦vekort	8459	1208	14
HÃƒÂ¦vekort - on-us	62487	10331	16
CIRRUS	17362	2953	17
VisaPlus	1134	150	13

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_id,a.atm_manufacturer,l.location,
 CASE
    When day in (2,3,4,5,6) then 0
    ELSE 1
 END as weekend_flag,count(a.atm_id) as total_transaction_count
 from etl.FACT_ATM_TRANS  f
 join  etl.DIM_ATM  a
 on f.atm_id = a.atm_id
 join etl.DIM_Date  d
 on d.date_id = f.date_id
 join etl.DIM_Location  l
 on l.location_id = f.weather_loc_id
 group by a.atm_id,a.atm_manufacturer,l.location,weekend_flag
 order by a.atm_id,a.atm_manufacturer,l.location,weekend_flag,total_transaction_count  desc
limit 10;
```

atm_id	atm_manufacturer	location	weekend_flag	total_transaction_count
1	NCR	FarsÃƒÂ¸	0	6636
1	NCR	FarsÃƒÂ¸	1	36151
2	NCR	Vejgaard	0	5267
2	NCR	Vejgaard	1	28458
3	NCR	Ikast	0	2061
3	NCR	Ikast	1	11579
4	NCR	Brugsen i Breum	0	5428
4	NCR	Brugsen i Breum	1	28676
5	NCR	NykÃƒÂ¸bing Mors	0	2861
5	NCR	NykÃƒÂ¸bing Mors	1	15880

8. Most active day in each ATMs from location "Vejgaard"

```
SELECT a.atm_id,a.atm_manufacturer,l.location,d.weekday,count(a.atm_id) as
total_transaction_count
from etl.FACT_ATM_TRANS  f
 join etl.DIM_ATM  a
 on f.atm_id = a.atm_id
join etl.DIM_Date  d
 on d.date_id = f.date_id
join etl.DIM_Location  l
 on l.location_id = f.weather_loc_id
 where l.location = 'Vejgaard'
 group by a.atm_id,a.atm_manufacturer,l.location,d.weekday
 order by weekday, total_transaction_count limit 2;
```

atm_id	atm_manufacturer	location	weekday	total_transaction_count
103	Diebold Nixdorf	Vejgaard	Friday	3088
2	NCR	Vejgaard	Friday	4754