SQL PROJECT -

PROPERTY LISTING ANALYSIS FOR PROPERTY RENTAL COMPANY

a. Analyze different metrics to draw the distinction between the different types of property along

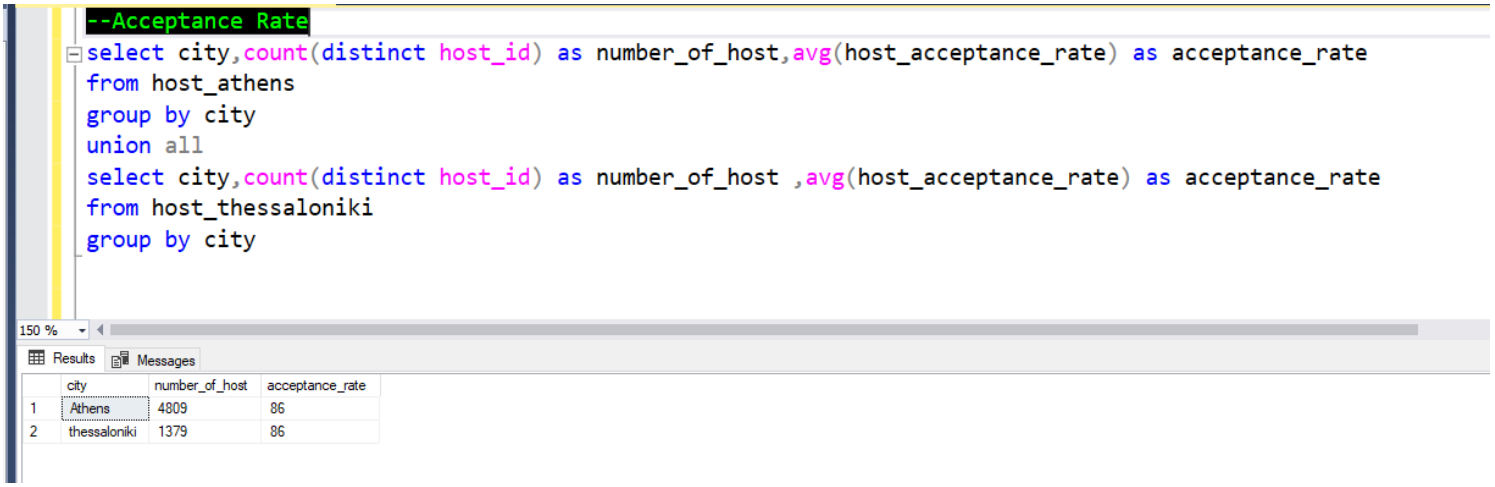
with their price listings(bucketize them within 3-4 categories basis your understanding):

To achieve this, you can use the following metrics and explore a few yourself as well.

Availability within 15,30,45,etc. days, Acceptance Rate, Average no of bookings, reviews, etc.

--Acceptance Rate:-

```
select city,count(distinct host_id) as
number_of_host,avg(host_acceptance_rate) as acceptance_rate
from host_athens
group by city
union all
select city,count(distinct host_id) as number_of_host
,avg(host_acceptance_rate) as acceptance_rate
from host_thessaloniki
group by city
```



--bookings:-

```
select city,year(date) AS YEAR,count(available) AS NO_AVAILABLE
from Athens_availability
where available=1
group by year(date),city
union
select city,year(date)AS YEAR,count(available) AS NO_AVAILABLE
from thessaloniki_availability
where available=1
group by year(date),city
```

```
---availability

select city,year(date) AS YEAR,count(available) AS NO_AVAILABLE
from Athens_availability
where available=1
group by year(date),city
union
select city,year(date)AS YEAR,count(available) AS NO_AVAILABLE
from thessaloniki_availability
where available=1
group by year(date),city
```

150 %

Results | Messages

	city	YEAR	NO_AVAILABLE
1	Athens	2021	7337
2	Athens	2022	641322
3	Thessaloniki	2021	5069
4	Thessaloniki	2022	589973

--reviews:-

(1)Athens-

```
select top 10 property_type,avg(review_scores_rating) AS
'AVG_RATING(1-5)'
from listing_athens_df
group by  property_type
order by avg(review_scores_rating) desc
```

```
--reviews
select top 10 property_type,avg(review_scores_rating) AS 'AVG_RATING(1-5)'
from listing_athens_df
group by  property_type
order by avg(review_scores_rating) desc
```

150 %

Results | Messages

	property_type	AVG_RATING(1-5)
1	Entire cottage	5
2	Entire vacation home	5
3	Shared room in condominium (condo)	5
4	Boat	5
5	Camper/RV	4.97499990463257
6	Floor	4.94000005722046
7	Cycladic house	4.90999984741211
8	Entire villa	4.90799999237061
9	Earth house	4.90666659673055
10	Tiny house	4.86285720552717

(2) thessaloniki:-

```
select top 10 property_type,avg(review_scores_rating)  AS
'AVG_RATING(1-5)'
from listing_thessaloniki
group by  property_type
order by avg(review_scores_rating) desc
```

```
select top 10 property_type,avg(review_scores_rating)  AS 'AVG_RATING(1-5)'
from listing_thessaloniki
group by  property_type
order by avg(review_scores_rating) desc
```

150 %

Results | Messages

	property_type	AVG_RATING(1-5)
1	Private room in guesthouse	5
2	Room in hotel	5
3	Boat	5
4	Entire guest suite	4.9300000667572
5	Private room in loft	4.92000007629395
6	Room in serviced apartment	4.91000008583069
7	Room in aparthotel	4.90363632548939
8	Entire guesthouse	4.89750003814697
9	Dome house	4.88000011444092
10	Earth house	4.8700000445048

---b. Study the trends of the different categories and provide insights on same

(1)Athens-

```
select l.property_type,count(a.available) AS CATEGORY_AVAILABLITY
from listing_athens_df  as l
inner join Athens_availability as a
on l.id=a.listing_id
where a.available=1
```

```
group by  l.property_type
```

```
---b. Study the trends of the different categories and provide insights on same
select l.property_type,count(a.available) AS CATEGORY_AVAILABLITY
from listing_athens_df  as l
inner join Athens_availability as a
on l.id=a.listing_id
where a.available=1
group by  l.property_type
```

150 %

Results | Messages

	property_type	CATEGORY_AVAILABLITY
1	Boat	365
2	Earth house	1123
3	Entire bed and breakfast	365
4	Entire condominium (condo)	29612
5	Entire cottage	341
6	Entire guest suite	528
7	Entire guesthouse	833
8	Entire loft	18206
9	Entire place	340
10	Entire rental unit	505479
11	Entire residential home	22339
12	Entire serviced apartment	4186
13	Entire townhouse	1597
14	Entire villa	2926
15	Floor	429

--thessaloniki:-

```
select l.property_type,count(a.available) AS CATEGORY_AVAILABLITY
from listing_thessaloniki  as l
inner join thessaloniki_availability as a
on l.id=a.listing_id
where a.available=1
group by  l.property_type
```

```sql
--thessaloniki
select l.property_type,count(a.available) AS CATEGORY_AVAILABLITY
from listing_thessaloniki  as l
inner join thessaloniki_availability as a
on l.id=a.listing_id
where a.available=1
group by  l.property_type
```

150 %

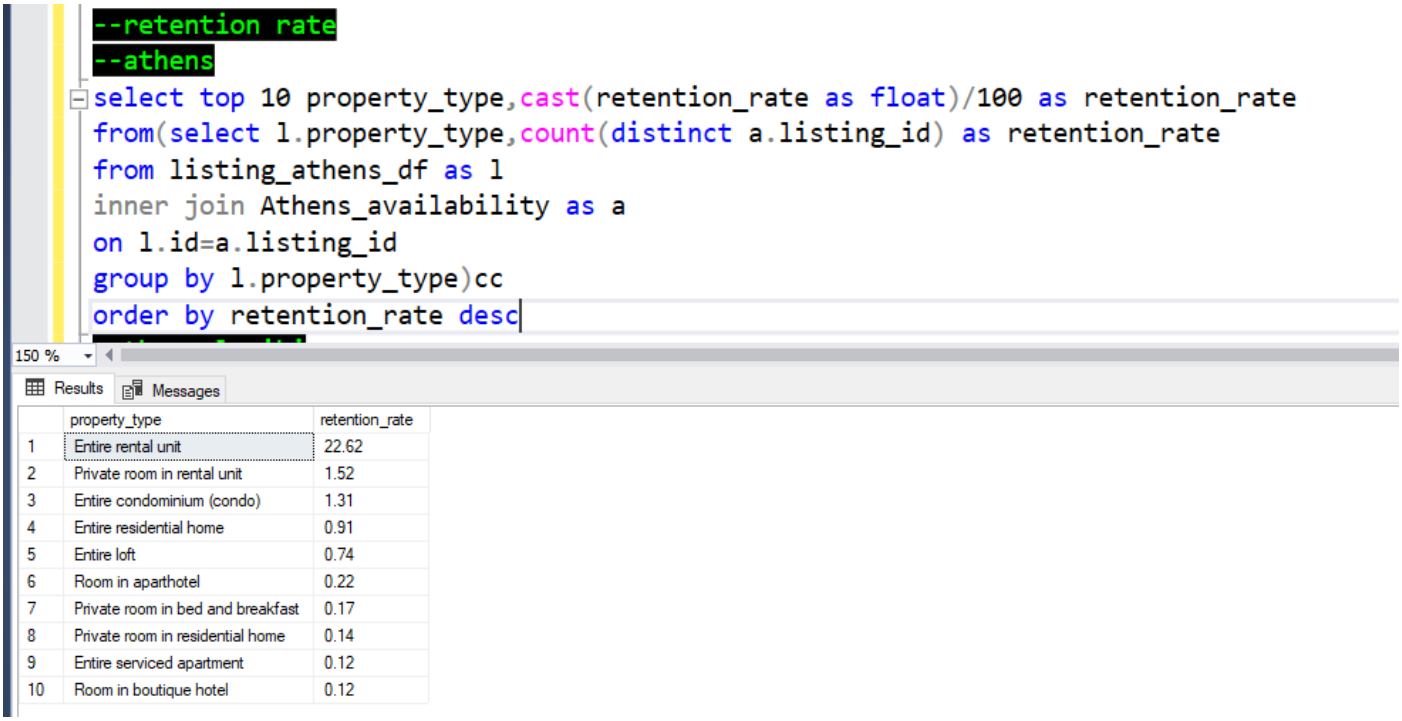
Results | Messages

	property_type	CATEGORY_AVAILABLITY
1	Entire loft	2588
2	Entire condominium (condo)	123456
3	Entire cabin	362
4	Camper/RV	11931
5	Dome house	723
6	Entire villa	2338
7	Private room in bed and breakfast	2908
8	Tower	1077
9	Entire serviced apartment	3380
10	Shared room in hotel	179
11	Earth house	628
12	Entire rental unit	402423
13	Private room in rental unit	8506
14	Tiny house	1466
15	Private room in loft	78
16	Entire guesthouse	1053
17	Private room in guesthouse	359
18	Private room in tiny house	3240
19	Room in boutique hotel	1196

--c. Using the above analysis, identify top 2 crucial metrics which --makes different property types along their listing price stand ahead of other categories

--retention rate:-

```
--athens:-
select top 10 property_type,cast(retention_rate as float)/100 as
retention_rate
from(select l.property_type,count(distinct a.listing_id) as
retention_rate
from listing_athens_df as l
inner join Athens_availability as a
on l.id=a.listing_id
group by l.property_type)cc
order by retention_rate desc
```



```
--retention rate
--athens
select top 10 property_type,cast(retention_rate as float)/100 as retention_rate
from(select l.property_type,count(distinct a.listing_id) as retention_rate
from listing_athens_df as l
inner join Athens_availability as a
on l.id=a.listing_id
group by l.property_type)cc
order by retention_rate desc
```

150 %

Results | Messages

	property_type	retention_rate
1	Entire rental unit	22.62
2	Private room in rental unit	1.52
3	Entire condominium (condo)	1.31
4	Entire residential home	0.91
5	Entire loft	0.74
6	Room in aparthotel	0.22
7	Private room in bed and breakfast	0.17
8	Private room in residential home	0.14
9	Entire serviced apartment	0.12
10	Room in boutique hotel	0.12

```
--thessaloniki
select top 10 property_type,cast(retention_rate as float)/100 as
retention_rate
from(select l.property_type,count(distinct a.listing_id) as
retention_rate
from listing_thessaloniki  as l
inner join thessaloniki_availability as a
on l.id=a.listing_id
group by l.property_type)cc
order by retention_rate desc
```

```
--thessaloniki
select top 10 property_type,cast(retention_rate as float)/100 as retention_rate
from(select l.property_type,count(distinct a.listing_id) as retention_rate
from listing_thessaloniki  as l
inner join thessaloniki_availability as a
on l.id=a.listing_id
group by l.property_type)cc
order by retention_rate desc
```

150 %

Results | Messages

	property_type	retention_rate
1	Entire rental unit	17.63
2	Entire condominium (condo)	4.91
3	Entire residential home	0.67
4	Private room in rental unit	0.47
5	Camper/RV	0.34
6	Entire loft	0.21
7	Private room in condominium (condo)	0.15
8	Entire serviced apartment	0.13
9	Private room in tiny house	0.12
10	Room in aparthotel	0.12

---avg_price_category:-

--athens:-

```
select property_type,room_type,avg(price) as avg_price
from listing_athens_df
group by property_type,room_type
```

```
--athens

select property_type,room_type,avg(price) as avg_price
from listing_athens_df
group by property_type,room_type
```

150 %

Results | Messages

	property_type	room_type	avg_price
1	Boat	Entire home/apt	450
2	Camper/RV	Entire home/apt	76
3	Cycladic house	Entire home/apt	64
4	Earth house	Entire home/apt	69
5	Entire bed and breakfast	Entire home/apt	120
6	Entire condominium (condo)	Entire home/apt	72
7	Entire cottage	Entire home/apt	35
8	Entire guest suite	Entire home/apt	72
9	Entire guesthouse	Entire home/apt	36
10	Entire home/apt	Entire home/apt	40
11	Entire loft	Entire home/apt	110
12	Entire place	Entire home/apt	153
13	Entire rental unit	Entire home/apt	82
14	Entire residential home	Entire home/apt	109
15	Entire serviced apartment	Entire home/apt	147
16	Entire townhouse	Entire home/apt	118
17	Entire vacation home	Entire home/apt	27
18	Entire villa	Entire home/apt	356
19	Farm stay	Entire home/apt	70
20	Floor	Entire home/apt	172
21	Room in aparthotel	Entire home/apt	104

```
--thessaloniki
select property_type,room_type,avg(price) as avg_price
from listing_thessaloniki
group by property_type,room_type
```

```
--thessaloniki
select property_type,room_type,avg(price) as avg_price
from listing_thessaloniki
group by property_type,room_type
```

150 %

Results | Messages

	property_type	room_type	avg_price
1	Private room in tiny house	Private room	198
2	Tower	Entire home/apt	27
3	Room in hotel	Private room	125
4	Boat	Entire home/apt	60
5	Entire townhouse	Entire home/apt	225
6	Private room in condominium (condo)	Private room	47
7	Entire residential home	Entire home/apt	69
8	Dome house	Entire home/apt	37
9	Entire rental unit	Entire home/apt	61
10	Room in serviced apartment	Hotel room	71
11	Shared room in rental unit	Shared room	35
12	Entire cabin	Entire home/apt	250
13	Private room in bed and breakfast	Private room	174
14	Private room in loft	Private room	61
15	Earth house	Entire home/apt	34
16	Room in boutique hotel	Private room	87
17	Entire villa	Entire home/apt	137
18	Entire serviced apartment	Entire home/apt	57
19	Private room in residential home	Private room	27
20	Tiny house	Entire home/apt	52
21	Shared room in residential home	Shared room	48
22	Entire condominium (condo)	Entire home/apt	59
23	Entire guest suite	Entire home/apt	121

--d. Analyze how does the comments of reviewers vary for listings of distinct categories
--(Extract words from the comments provided by the reviewers)

```
--athens
select l.city,l.property_type, r.listing_id,
case when r.comments like '%wonderful%' then 'moderate'
when r.comments like '%fantastic%' then 'good'
when r.comments like '%amazing%' then 'good'
when r.comments like '%Excellent%' then 'very good'
else 'nice'
end as reviewers_comments
from listing_athens_df as l
inner join review_athens_df as r
on l.id=r.listing_id
```

```sql
--athens
select l.city,l.property_type, r.listing_id,
case when r.comments like '%wonderful%' then 'moderate'
when r.comments like '%fantastic%' then 'good'
when r.comments like '%amazing%' then 'good'
when r.comments like '%Excellent%' then 'very good'
else 'nice'
end as reviewers_comments
from listing_athens_df as l
inner join review_athens_df as r
on l.id=r.listing_id
```

150 %

Results | Messages

	city	property_type	listing_id	reviewers_comments
1	Athens	Entire rental unit	10595	moderate
2	Athens	Entire rental unit	10595	good
3	Athens	Entire rental unit	10595	nice
4	Athens	Entire rental unit	10595	nice
5	Athens	Entire rental unit	10595	good
6	Athens	Entire rental unit	10595	nice
7	Athens	Entire rental unit	10595	good
8	Athens	Entire rental unit	10595	nice
9	Athens	Entire rental unit	10595	nice
10	Athens	Entire rental unit	10595	nice
11	Athens	Entire rental unit	10595	nice
12	Athens	Entire rental unit	10595	nice
13	Athens	Entire rental unit	10595	nice
14	Athens	Entire rental unit	10595	very good
15	Athens	Entire rental unit	10595	nice

```sql
--thessaloniki
select  l.city,l.property_type,r.listing_id,
case when r.comments like '%wonderful%' then 'moderate'
when r.comments like '%fantastic%' then 'good'
when r.comments like '%amazing%' then 'good'
when r.comments like '%Excellent%' then 'very good'
else 'nice'
end as reviewers_comments
from listing_thessaloniki as l
inner join review_thessaloniki as r
on l.id=r.listing_id
```

```sql
--thessaloniki
select  l.city,l.property_type,r.listing_id,
case when r.comments like '%wonderful%' then 'moderate'
when r.comments like '%fantastic%' then 'good'
when r.comments like '%amazing%' then 'good'
when r.comments like '%Excellent%' then 'very good'
else 'nice'
end as reviewers_comments
from listing_thessaloniki as l
inner join review_thessaloniki as r
on l.id=r.listing_id
```

150 %

Results | Messages

	city	property_type	listing_id	reviewers_comments
1	thessaloniki	Entire rental unit	176307	nice
2	thessaloniki	Entire rental unit	176307	moderate
3	thessaloniki	Entire rental unit	176307	nice
4	thessaloniki	Entire rental unit	176307	moderate
5	thessaloniki	Entire rental unit	176307	good
6	thessaloniki	Entire rental unit	176307	nice
7	thessaloniki	Entire rental unit	176307	good
8	thessaloniki	Entire rental unit	176307	nice
9	thessaloniki	Entire rental unit	176307	good
10	thessaloniki	Entire rental unit	176307	nice
11	thessaloniki	Entire rental unit	176307	nice
12	thessaloniki	Entire rental unit	176307	nice
13	thessaloniki	Entire rental unit	176307	nice
14	thessaloniki	Entire rental unit	176307	nice
15	thessaloniki	Entire rental unit	176307	good

--e. Analyze if there is any correlation between property type and their availability across the months

```sql
--athens
select l.property_type,count(a.available) as
availability,datename(month,a.date) as month
from listing_athens_df as l
inner join Athens_availability as a
on l.id=a.listing_id
where a.available=1
group by l.property_type,datename(month,a.date)
order by datename(month,a.date)
```

```
--athens
select l.property_type,count(a.available) as availability,datename(month,a.date) as month
from listing_athens_df as l
inner join Athens_availability as a
on l.id=a.listing_id
where a.available=1
group by l.property_type,datename(month,a.date)
order by datename(month,a.date)
```

150 %

Results | Messages

	property_type	availability	month
1	Tiny house	149	April
2	Private room in residential home	120	April
3	Room in aparthotel	293	April
4	Room in boutique hotel	115	April
5	Entire loft	203	April
6	Entire guest suite	120	April
7	Shared room in rental unit	30	April
8	Entire condominium (condo)	10964	April
9	Camper/RV	1020	April
10	Entire villa	172	April
11	Shared room in hotel	30	April
12	Entire guesthouse	90	April
13	Boat	60	April
14	Private room in guesthouse	28	April
15	Private room in condominium (condo)	263	April
16	Private room in rental unit	671	April
17	Entire townhouse	60	April
18	Room in hotel	240	April
19	Entire serviced apartment	247	April

--thessaloniki

```
select l.property_type,count(a.available) as
availability,datename(month,a.date) as month
from listing_thessaloniki as l
inner join thessaloniki_availability as a
on l.id=a.listing_id
where a.available=1
group by l.property_type,datename(month,a.date)
order by datename(month,a.date)
```

```sql
--thessaloniki
select l.property_type,count(a.available) as availability,datename(month,a.date) as month
from listing_thessaloniki as l
inner join thessaloniki_availability as a
on l.id=a.listing_id
where a.available=1
group by l.property_type,datename(month,a.date)
order by datename(month,a.date)
```

150 %

Results | Messages

	property_type	availability	month
1	Tiny house	149	April
2	Private room in residential home	120	April
3	Room in aparthotel	293	April
4	Room in boutique hotel	115	April
5	Entire loft	203	April
6	Entire guest suite	120	April
7	Shared room in rental unit	30	April
8	Entire condominium (condo)	10964	April
9	Camper/RV	1020	April
10	Entire villa	172	April
11	Shared room in hotel	30	April
12	Entire guesthouse	90	April
13	Boat	60	April
14	Private room in guesthouse	28	April
15	Private room in condominium (condo)	263	April
16	Private room in rental unit	671	April
17	Entire townhouse	60	April
18	Room in hotel	240	April
19	Entire serviced apartment	247	April

--f. Analyze what are the peak and off-peak time for the different categories
of property type and their listings. Do we see some commonalities in the trend
or is it dependent on the category

```sql
select h.city,l.property_type,sum(h.host_listings_count) as
no_booking,datename(month,a.date) as months
from host_athens as h
inner join listing_athens_df as l
on h.host_id=l.host_id
inner join Athens_availability as a
on l.id=a.listing_id
group by h.city,datename(month,a.date),l.property_type
order by datename(month,a.date)
```

```sql
select h.city,l.property_type,sum(h.host_listings_count) as no_booking,datename(month,a.date) as months
from host_athens as h
inner join listing_athens_df as l
on h.host_id=l.host_id
inner join Athens_availability as a
on l.id=a.listing_id
group by h.city,datename(month,a.date),l.property_type
order by datename(month,a.date)
```

150 %

Results | Messages

	city	property_type	no_booking	months
1	Athens	Entire guest suite	210	April
2	Athens	Shared room in rental unit	120	April
3	Athens	Entire bed and breakfast	300	April
4	Athens	Private room in bed and breakfast	3450	April
5	Athens	Private room in guest suite	120	April
6	Athens	Entire rental unit	927300	April
7	Athens	Entire serviced apartment	3720	April
8	Athens	Entire place	330	April
9	Athens	Entire townhouse	180	April
10	Athens	Tiny house	180	April
11	Athens	Private room	480	April
12	Athens	Private room in hostel	390	April
13	Athens	Entire loft	19920	April
14	Athens	Entire villa	1410	April
15	Athens	Entire guesthouse	240	April
16	Athens	Private room in serviced apartm...	180	April
17	Athens	Earth house	630	April
18	Athens	Room in serviced apartment	4350	April

--g. Using the above analysis, suggest what is the best performing category for the company

```sql
--athens
select top 1 h.city,l.property_type,sum(h.host_listings_count) as no_booking
from host_athens as h
inner join listing_athens_df as l
on h.host_id=l.host_id
inner join Athens_availability as a
on l.id=a.listing_id
group by h.city,l.property_type
order by  sum(h.host_listings_count)  desc
```

```sql
--athens
select top 1 h.city,l.property_type,sum(h.host_listings_count) as no_booking
from host_athens as h
inner join listing_athens_df as l
on h.host_id=l.host_id
inner join Athens_availability as a
on l.id=a.listing_id
group by h.city,l.property_type
order by  sum(h.host_listings_count)  desc
```

150 %

Results | Messages

	city	property_type	no_booking
1	Athens	Entire rental unit	11282004

```sql
----thessaloniki
select top 1 h.city,l.property_type,sum(h.host_listings_count) as
no_booking
from host_thessaloniki as h
inner join listing_thessaloniki as l
on h.host_id=l.host_id
inner join thessaloniki_availability as a
on l.id=a.listing_id
group by h.city,l.property_type
order by  sum(h.host_listings_count)  desc
```