Sql Case Study

OYO Business Room Sales Analysis

Presented by Amit Patel

Solutions are Coded in - Microsoft Sql Server

Introduction

There are 2 datasets. The First dataset contains information on Hotel booking details by various customers in different cities. The following attributes on the datasets are as follows:

- Booking Id: Id by which a particular booking has been made.
- Customer Id: Id by which the customer made a booking, here customer had made a booking multiple times.
- status: shown the status of booking
- check_in: Date when the user checks-in into the hotel
- check_out: Date when the user checksout from the hotel
- no_of_rooms: Total Rooms booked by each booking

Introduction

- hotel_id: It is the hotel_id in which we had booked the Room
- amount: Amount paid by the customer.
- Discount: Discount is given while booking
- date_of_booking: it is the date when the booking has been created, Here we have the booking data for 1st quarter of year 2022.

The Second dataset contains information on Hotel_id and city where it is located.

Tables & Charts are developed in - Microsoft Excel

OBJECTIVES

- Analyse the bookings for the given time period
- Derived the insights based on Analysis.

Some Business Questions

- Average rates of different cities
- No of hotels in different cities
- Cancellation rate
- No. of Bookings in a given
- Discount offered
- No. of nights stayed by customers
- How many days prior bookings are made
- Revenue

Datasets

City Table:

357 records

hotel_id	city
3	Gurgaon
13	Gurgaon
16	Gurgaon
21	Gurgaon
25	Delhi
29	Gurgaon
31	Delhi
33	Gurgaon
37	Gurgaon
44	Noida
45	Delhi
48	Delhi
49	Delhi
50	Gurgaon
56	Bangalore
58	Gurgaon
59	Noida
62	Delhi
68	Mumbai
69	Noida

Hotel_Sales Table:

2889 records

booking_id	customer_id	status	check_in	check_out	no_of_rooms	hotel_id	amount	discount	date_of_booking
170	9197	Cancelled	2022-01-14 00:00:00.000	2022-01-15 00:00:00.000	1	757	3137	796	2022-01-01 00:00:00.000
171	9197	Cancelled	2022-01-16 00:00:00.000	2022-01-17 00:00:00.000	1	757	3137	663	2022-01-01 00:00:00.000
583	11659	Stayed	2022-01-01 00:00:00.000	2022-01-02 00:00:00.000	2	16	6237	1320	2022-01-01 00:00:00.000
642	14499	Cancelled	2022-01-16 00:00:00.000	2022-01-18 00:00:00.000	10	346	59254	12535	2022-01-01 00:00:00.000
569	15037	No Show	2022-01-02 00:00:00.000	2022-01-03 00:00:00.000	1	207	1884	398	2022-01-01 00:00:00.000
882	22257	Cancelled	2022-01-01 00:00:00.000	2022-01-02 00:00:00.000	1	800	3444	875	2022-01-01 00:00:00.000
419	29124	Cancelled	2022-01-02 00:00:00.000	2022-01-03 00:00:00.000	1	380	2144	453	2022-01-01 00:00:00.000
436	33021	No Show	2022-01-01 00:00:00.000	2022-01-02 00:00:00.000	1	62	2252	476	2022-01-01 00:00:00.000
889	65208	Stayed	2022-01-01 00:00:00.000	2022-01-02 00:00:00.000	1	117	5589	1419	2022-01-01 00:00:00.000
17	66762	Stayed	2022-01-07 00:00:00.000	2022-01-08 00:00:00.000	1	109	3509	743	2022-01-01 00:00:00.000
153	77179	Stayed	2022-01-02 00:00:00.000	2022-01-06 00:00:00.000	1	106	11887	2515	2022-01-01 00:00:00.000
545	81709	Cancelled	2022-01-02 00:00:00.000	2022-01-03 00:00:00.000	1	449	2192	464	2022-01-01 00:00:00.000
416	86098	Stayed	2022-01-01 00:00:00.000	2022-01-02 00:00:00.000	1	579	2599	550	2022-01-01 00:00:00.000
641	86311	Stayed	2022-01-01 00:00:00.000	2022-01-02 00:00:00.000	1	346	3199	677	2022-01-01 00:00:00.000
491	102430	Cancelled	2022-01-02 00:00:00.000	2022-01-03 00:00:00.000	1	3	2469	523	2022-01-01 00:00:00.000
149	112913	Stayed	2022-01-29 00:00:00.000	2022-02-02 00:00:00.000	1	409	26255	5554	2022-01-01 00:00:00.000
799	118118	Stayed	2022-01-01 00:00:00.000	2022-01-02 00:00:00.000	1	689	4224	893	2022-01-01 00:00:00.000
445	145486	No Show	2022-01-03 00:00:00.000	2022-01-04 00:00:00.000	1	378	4939	1045	2022-01-01 00:00:00.000
798	159297	Cancelled	2022-01-09 00:00:00.000	2022-01-13 00:00:00.000	1	164	14815	3134	2022-01-01 00:00:00.000
895	166300	Stayed	2022-01-01 00:00:00.000	2022-01-02 00:00:00.000	1	501	5004	1058	2022-01-01 00:00:00.000

Start with some basic EDA - total records , No of Hotels & Total Cities etc.

```sql
select count(1) [total records]
from OYO.Hotel_Sales;

select count(1) [no of hotels]
from OYO.City;

select count(distinct city) [total cities]
from OYO.City;
```

Results | Messages

	total records
1	2889

	no of hotels
1	357

	total cities
1	10

Add New Columns to the tables and derived all the details from Hotel_Sales tables as you can see below.....

```sql
-- add new columns

alter table [OYO].[Hotel_Sales]
add Price float null;

update [OYO].[Hotel_Sales]
set Price = amount + discount;

alter table [OYO].[Hotel_Sales]
add no_of_nights int null;

update [OYO].[Hotel_Sales]
set no_of_nights = DATEDIFF(day,check_in,check_out);

alter table [OYO].[Hotel_Sales]
add rate float null;

update [OYO].[Hotel_Sales]
set rate = ROUND( case when no_of_rooms = 1 then
                    Price/no_of_nights
                else Price/no_of_nights/no_of_rooms end,2)
```

```sql
select * from [OYO].[Hotel_Sales];
```

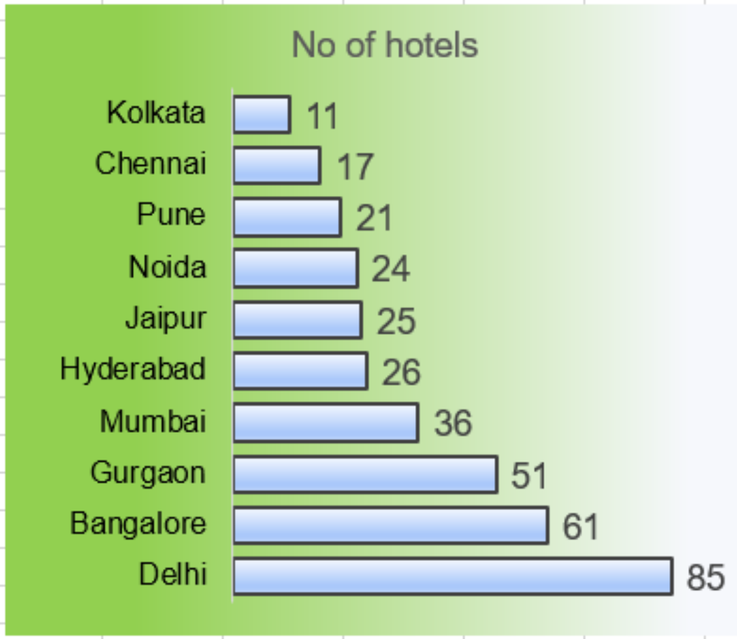
Results | Messages

booking_id	customer_id	status	check_in	check_out	no_of_rooms	hotel_id	amount	discount	date_of_booking	Price	no_of_nights	rate
170	9197	Cancelled	2022-01-14 00:00:00.000	2022-01-15 00:00:00.000	1	757	3137	796	2022-01-01 00:00:00.000	3933	1	3933
171	9197	Cancelled	2022-01-16 00:00:00.000	2022-01-17 00:00:00.000	1	757	3137	663	2022-01-01 00:00:00.000	3800	1	3800
583	11659	Stayed	2022-01-01 00:00:00.000	2022-01-02 00:00:00.000	2	16	6237	1320	2022-01-01 00:00:00.000	7557	1	3778.5
642	14499	Cancelled	2022-01-16 00:00:00.000	2022-01-18 00:00:00.000	10	346	59254	12535	2022-01-01 00:00:00.000	71789	2	3589.45
569	15037	No Show	2022-01-02 00:00:00.000	2022-01-03 00:00:00.000	1	207	1884	398	2022-01-01 00:00:00.000	2282	1	2282
882	22257	Cancelled	2022-01-01 00:00:00.000	2022-01-02 00:00:00.000	1	800	3444	875	2022-01-01 00:00:00.000	4319	1	4319

-- No of hotels in different cities

```
select city, COUNT (hotel_id) [no of hotels]
from OYO.City
group by city
order by 2 desc;
```

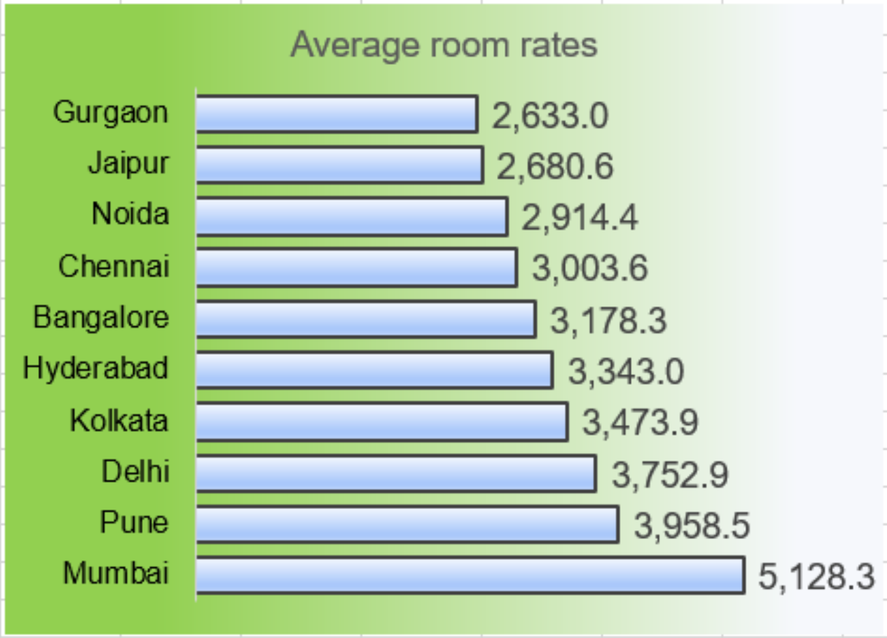
city	no of hotels
Delhi	85
Bangalore	61
Gurgaon	51
Mumbai	36
Hyderaba	26
Jaipur	25
Noida	24
Pune	21
Chennai	17
Kolkata	11



-- average room rates of different cities

```sql
select b.city ,ROUND( AVG(a.rate),2) [average room rates]
from OYO.Hotel_Sales as a
inner join OYO.City as b
on a.hotel_id  = b.hotel_id
group by b.city
order by 2 desc;
```

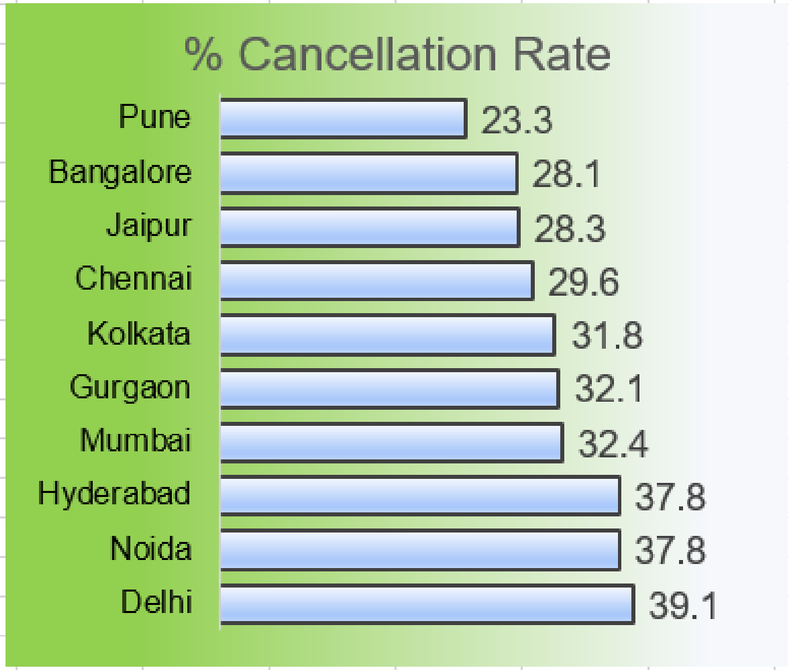
city	average room rates
Mumbai	5128.27
Pune	3958.48
Delhi	3752.94
Kolkata	3473.89
Hyderabad	3343
Bangalore	3178.3
Chennai	3003.58
Noida	2914.35
Jaipur	2680.55
Gurgaon	2632.99



-- Cancellation rates of different cities

```sql
select b.city as City,
       format(100.0* sum(case when status = 'Cancelled' then 1 else 0 end)
       /count(date_of_booking),'f1') [% Cancellation Rate]
from   [OYO].[Hotel_Sales] as a
inner join OYO.City as b
on a.hotel_id=b.hotel_id
group by b.city
order by 2 desc;
```

City	% Cancellation Rate
Delhi	39.1
Noida	37.8
Hyderabad	37.8
Mumbai	32.4
Gurgaon	32.1
Kolkata	31.8
Chennai	29.6
Jaipur	28.3
Bangalore	28.1
Pune	23.3

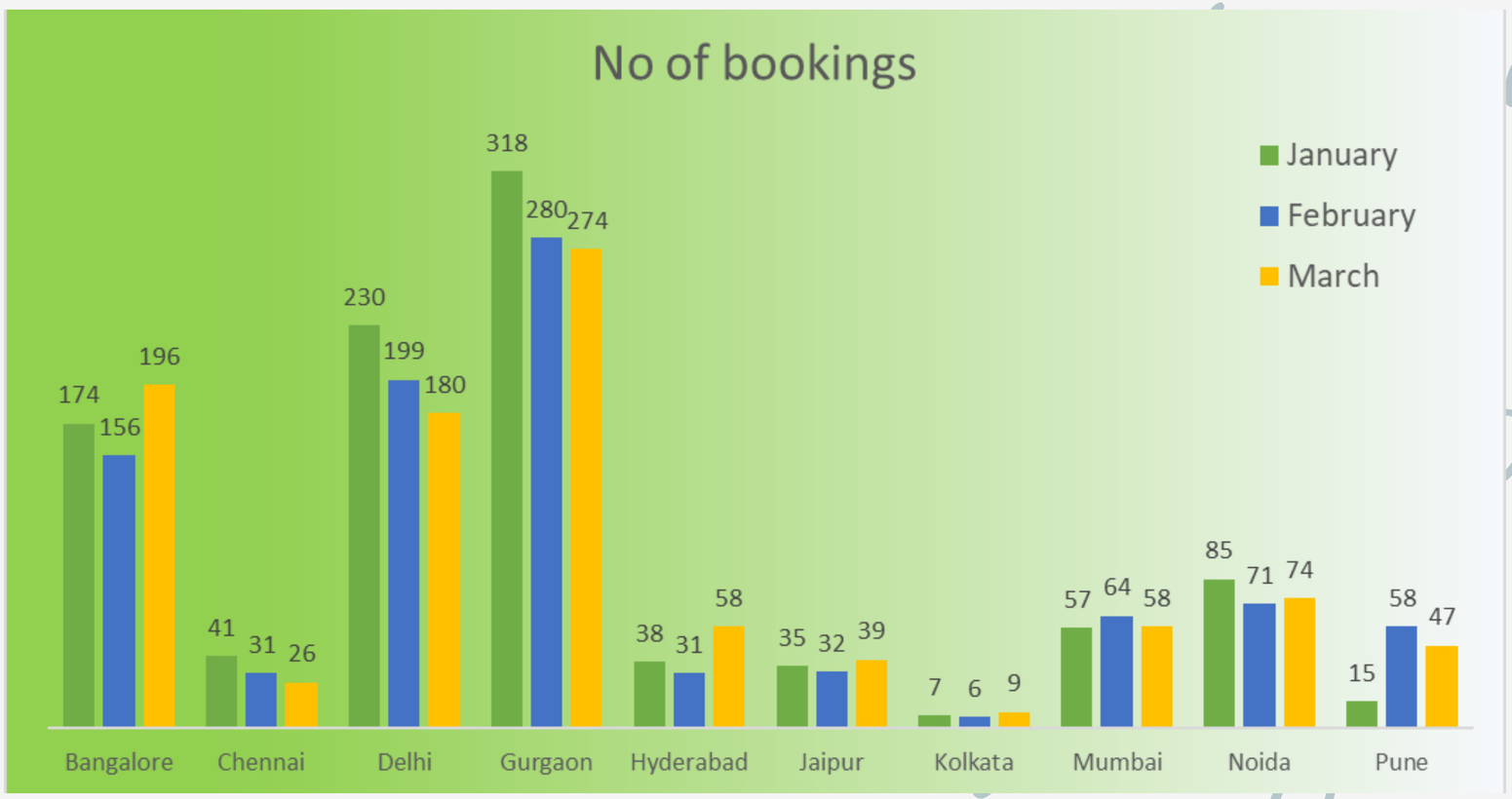


-- No of bookings of different cities in Jan Feb Mar Months.

```
select  b.city [City], datename(month,date_of_booking) [Months], count(date_of_booking) [No of bookings]
from    [OYO].[Hotel_Sales] as a
inner join OYO.City as b
on a.hotel_id=b.hotel_id
group by b.city,datename(month,date_of_booking)
order by 1,2 ;
```

I USED POWER QUERY HERE

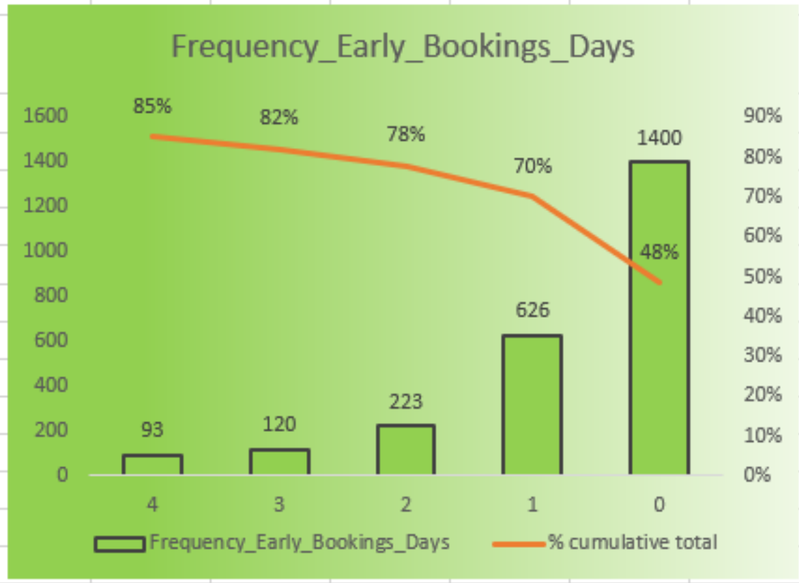
City	January	February	March
Bangalore	174	156	196
Chennai	41	31	26
Delhi	230	199	180
Gurgaon	318	280	274
Hyderabad	38	31	58
Jaipur	35	32	39
Kolkata	7	6	9
Mumbai	57	64	58
Noida	85	71	74
Pune	15	58	47



-- Frequency of early bookings prior to check-in the hotel

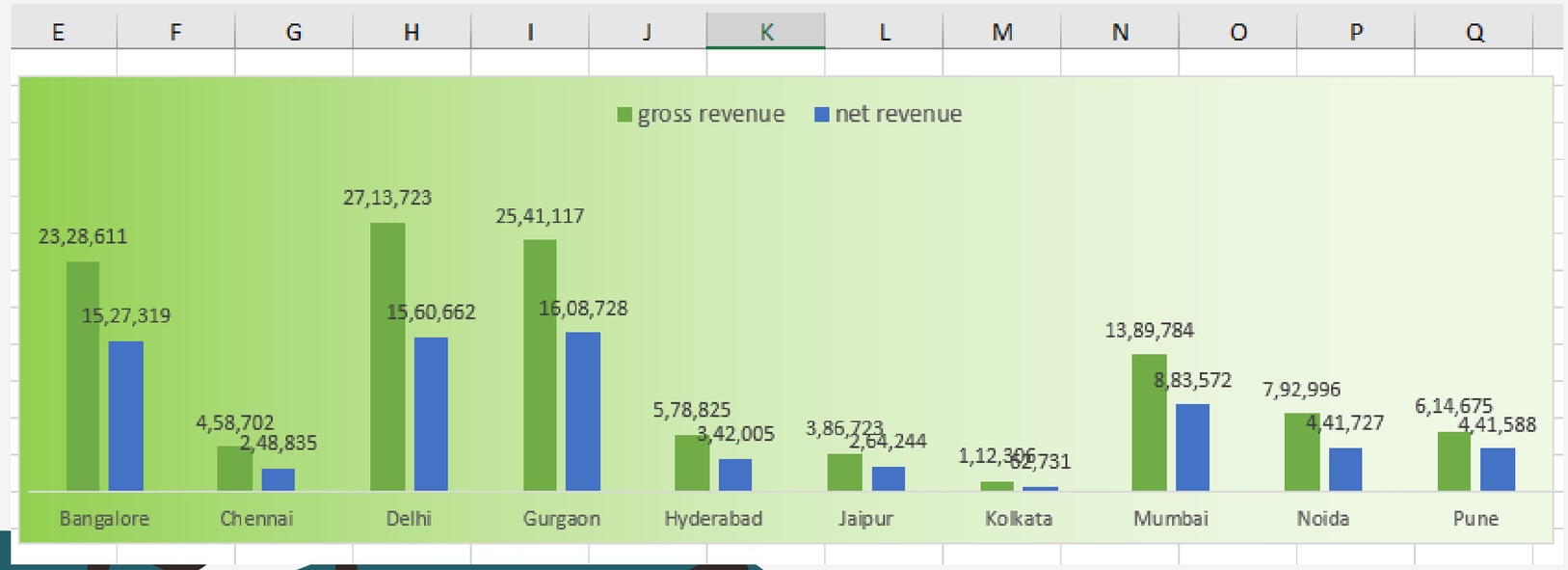
```
select  DATEDIFF(day,date_of_booking,check_in)[Days before check-in]
        , count(1)[Frequency_Early_Bookings_Days]
from    OYO.Hotel_Sales
group by DATEDIFF( day,date_of_booking,check_in);
```

Days before check-in	Frequency_Early_Bookings_Da	% relative	% cumulative total
4	93	3%	85%
3	120	4%	82%
2	223	8%	78%
1	626	22%	70%
0	1400	48%	48%



-- Net revenue & Gross revenue to company

```sql
select  city, sum(amount) [gross revenue] ,
        sum(case when status in ('No Show' ,'Stayed') then amount end) as [net revenue]
from    OYO.Hotel_Sales as a
inner join OYO.City as b
on      a.hotel_id = b.hotel_id
group by city
order by 1;
```



city	gross revenue	net revenue
Bangalore	23,28,611	15,27,319
Chennai	4,58,702	2,48,835
Delhi	27,13,723	15,60,662
Gurgaon	25,41,117	16,08,728
Hyderabad	5,78,825	3,42,005
Jaipur	3,86,723	2,64,244
Kolkata	1,12,306	62,731
Mumbai	13,89,784	8,83,572
Noida	7,92,996	4,41,727
Pune	6,14,675	4,41,588

-- Frequency of bookings of no of rooms in Hotel

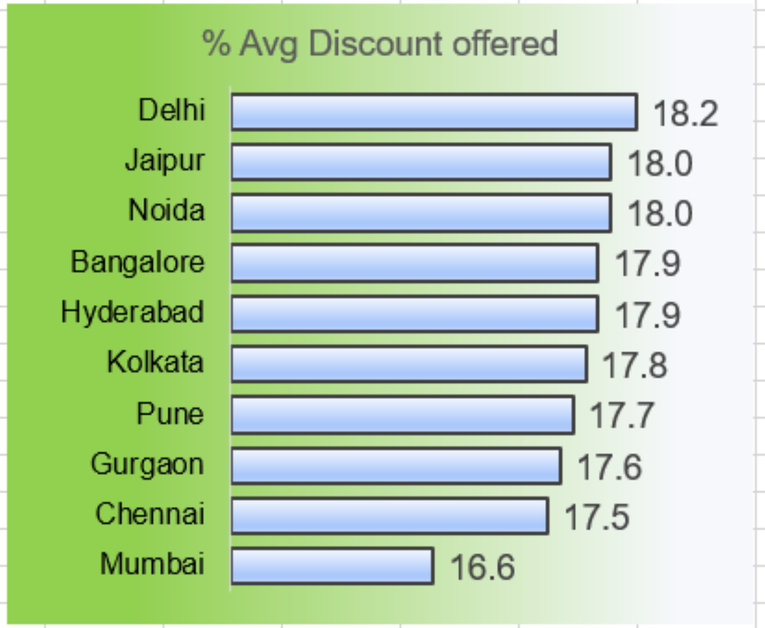
```sql
select no_of_rooms, count(1) [frequency_of_bookings]
from oyo.Hotel_Sales
group by no_of_rooms
order by no_of_rooms;
```

no_of_rooms	frequency_of_bookings	% relative
1	2725	94%
2	134	5%
3	19	1%
4	4	0%
5	2	0%
6	2	0%
7	1	0%
10	1	0%
12	1	0%

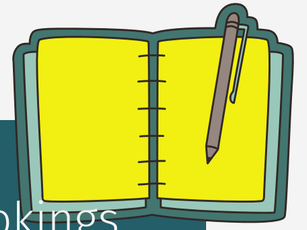
-- Discount offered by different cities

```sql
select  city, format(AVG(100.0*discount/Price),'f1') [% Discount offered]
from    OYO.Hotel_Sales as a
inner join OYO.City as b
on      a.hotel_id = b.hotel_id
group by city
order by 2;
```

city	% Avg Discount offered
Mumbai	16.6
Chennai	17.5
Gurgaon	17.6
Pune	17.7
Kolkata	17.8
Hyderabad	17.9
Bangalore	17.9
Noida	18
Jaipur	18
Delhi	18.2



Insights



1. Banglore, Gurgaon & Delhi were popular in the bookings, whereas Kolkata is less popular in bookings
2. Banglore, Gurgaon & Delhi have more hotels, whereas Kolkata, Pune & Jaipur have fewer hotels.
3. Mumbai was the costliest city and Gurgaon was the cheapest city in terms of Average room rates.
4. Nature of Bookings:
   A) Nearly 50 % of the bookings were made only on the day of check-in.
   B) Nearly 85 % of the bookings were made with less than 4 days prior to the date of check-in.
   C) Very few no.of bookings were made in advance(i.e over a 1 month or 2 months).
   D) Nearly 94% of the bookings involved only a single room.
   E) Nearly 80% of the bookings involved a stay of 1 night only.
5. Gurgaon was highest and Kolkata was lowest in terms of Net Revenue.
6. Oyo should acquire more hotels in the cities of Pune, Kolkata & Mumbai. Because their average room rates are comparatively higher so more revenue will come.
7. The % cancellation Rate is high in all 9 cities except Pune, so Oyo should focus on finding reasons about cancellation.
8. The discounts offered in all cities were nearly 16 to 18%. More discounts should offer to those cities where more no of hotels like Banglore ,Gurgaon & Delhi.

THANK YOU SO MUCH!