2024

Restaurant Performance Analysis Using SQL

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Data Files:

```sql
use cbchallange1;

-- Total Data Files

select *from dim_date
select *from dim_rooms
select *from dim_hotels
select *from fact_bookings
select *from fact_aggregated_bookings
```

Data Cleaning:

```sql
-- Data Cleaning

alter table fact_bookings alter column revenue_realized bigint
alter table fact_bookings alter column ratings_given int
alter table fact_aggregated_bookings alter column capacity int
alter table fact_aggregated_bookings alter column successful_bookings int
alter table dim_date alter column dates date
alter table fact_bookings alter column booking_date date
alter table fact_bookings alter column check_in_date date

exec sp_rename 'dim_date.date' , dates , 'column'
exec sp_rename 'dim_date.week no' , weeks , 'column'
```

Data Analysis & Visualization:

Problem Statement: What is the total revenue realized and the total number of bookings made across all hotels?

Query:

```
-- Total Revenue
select
sum("revenue_realized") as "Total Revenue"
from fact_bookings

-- Total Bookings
select
count(booking_id) as 'Total Bookings'
from fact_bookings
```

Output:

	Total Bookings
1	134590

	Total Revenue
1	1708771229

Problem Statement: What is the total room capacity of all hotels and the number of successful bookings across all hotels?

Query:

```
-- Total Capacity
select
sum(capacity) as "Total Capacity"
from fact_aggregated_bookings

-- Successful Bookings
select
sum(successful_bookings) as "Successful Bookings"
from fact_aggregated_bookings
```

Output:

	Total Capacity
1	232576

	Successful Bookings
1	134590

Problem Statement: What is the occupancy rate (total successful bookings to total room capacity) and the average customer ratings across all hotels?

Query:

```
-- Occupancey %
select
concat(cast(sum(successful_bookings)*100.0 /
sum(capacity) as int),' %') as "Occupancy %"
from fact_aggregated_bookings

-- Average Rating
select
avg(ratings_given) as "Average Rating"
from fact_bookings

-- Total Days
```

Output:

	Occupancy %
1	57 %

	Average Rating
1	1

Problem Statement: What is the total number of days, the total number of canceled bookings, and the cancellation percentage across all hotels?

Query:

```
-- Total Days
select
count(dates) as "Total Days"
from dim_date

-- Total Cancelled Bookings
select
count(*) as 'Total Cancelled Bookings'
from fact_bookings
where booking_status = 'Cancelled'

-- Total Cancelled Bookings %
select
concat(cast(round((count(case when
booking_status = 'Cancelled' then 1 end) * 100.0
/ count(*)),0) as int ),'%') as 'Total Cancelled Bookings %'
from fact_bookings
```

Output:

Total Days

	Total Days
1	92

Total Cancelled Bookings

	Total Cancelled Bookings
1	33420

Total Cancelled Bookings %

	Total Cancelled Bookings %
1	25%

Problem Statement: What is the total number of checked-out bookings and the percentage of checked-out bookings across all hotels?

Query:

```
-- Total Checked Out Bookings
select
count(*) as 'Total Checked Out Bookings'
from fact_bookings
where booking_status='Checked Out'


-- Total Checked Out Bookings %
select
concat(cast(round((count(case when
booking_status = 'Checked Out' then 1 end) * 100.0
/ count(*)),0) as int ),'%')
as 'Total Checked Out Bookings %'
from fact_bookings
```

Output:

Total Checked Out Bookings

1	94411

Total Checked Out Bookings %

1	70%

Problem Statement: What is the total number of no-show bookings and the no-show rate percentage across all hotels?

Query:

```sql
-- Total No Shows
select
count(*) as 'Total No Shows '
from fact_bookings
where booking_status = 'No Show'

-- Total No Shows %
select
concat(cast(count(case when
booking_status = 'No Show' then 1 end)* 100.0
/ count(*) as int), '%') as 'Total No Show'
from fact_bookings
```

Output:

Total No Shows

1	6759

Total No Show %

1	5%

Problem Statement: What is the booking percentage by platform across all hotels?

Query:

```sql
-- Booking Percentage by Platform
select
booking_platform as 'Platform',
concat(cast(round(count(booking_id)*100.0/
(select count(*) from fact_bookings) ,0) as int),'%')
as 'Booking Percentage'
from fact_bookings
group by booking_platform
```

Output:

	Platform	Booking Percentage
1	direct offline	5%
2	direct online	10%
3	others	41%
4	logtrip	11%
5	journey	6%
6	makeyourtrip	20%
7	tripster	7%

Problem Statement: What is the booking percentage by room class across all hotels?

Query:

```sql
-- Booking Percentage by Room class
select
room_class as 'Room Class',
concat(cast(round(count(booking_id)*100.0/
(select count(*) from fact_bookings),0) as int),'%')
as 'Booking Percentage'
from dim_rooms
join fact_bookings on
dim_rooms.room_id = fact_bookings.room_category
group by room_class
```

Output:

Room Class Booking Percentage

1	Elite	37%
2	Premium	23%
3	Presidential	12%
4	Standard	29%

Problem Statement: What is the Average Daily Rate (ADR) and the Revenue Per Available Room (RevPAR) across all hotels?

Query:

```
-- Average Daily Rate
select
sum(revenue_realized) / count(booking_id) as 'Average Daily Rate'
from fact_bookings

-- Revenue Per Available Room
select
room_class as 'Room Class',
sum(revenue_realized) 'Total Revenue'
from dim_rooms join fact_bookings
on dim_rooms.room_id=fact_bookings.room_category
group by room_class
```

Output:

	Average Daily Rate
1	12696

	Room Class	Total Revenue
1	Elite	560271204
2	Premium	462166344
3	Presidential	376752786
4	Standard	309580895

Problem Statement: What are the daily booked room nights, daily sellable room nights, and daily utilized room nights across all hotels?

Query:

```
-- Daily Booked Room Nights
select
count(booking_id) / count(distinct(check_in_date)) as 'Total Booking Per Day'
from fact_bookings


-- Daily Sellable Room Nights
select
sum(capacity) / count(distinct(check_in_date)) as 'Daily Sellable Room Nights '
from fact_aggregated_bookings

-- Daily Utilized Room Nights
select
count(case when booking_status = 'Checked Out' then 1 end) /
count(distinct(check_in_date)) as 'Daily Utilized Room Nights'
from fact_bookings
```

Output:

Total Booking Per Day

1	1462

Daily Sellable Room Nights

1	2528

Daily Utilized Room Nights

1	1026

Problem Statement: What is the percentage change in revenue week over week?

Query:

```
-- Revenue Change Week Over Week
select
concat('Week',DATEPART(WK,check_in_date)) as 'Week No',
sum(revenue_realized) as 'Revenue',
concat(cast(round((((sum(cast(revenue_realized as decimal(10,2)))-
lag(sum(cast(revenue_realized as decimal(10,2))),1,0)
over (order by datepart(wk,check_in_date))) /
nullif(lag(sum(revenue_realized),1,0) over
(order by datepart (wk,check_in_date)),0))*100.0),0) as int),'%')
as 'Revenue Change Week Over Week %'
from fact_bookings
group by datepart(wk,check_in_date)
order by datepart(wk,check_in_date)
```

Output:

	Week No	Revenue	Revenue Change Week Over Week %
1	Week19	138182064	%
2	Week20	139435920	1%
3	Week21	114922175	-18%
4	Week22	138720126	21%
5	Week23	115568569	-17%
6	Week24	139581703	21%
7	Week25	138674279	-1%
8	Week26	114152421	-18%
9	Week27	139555632	22%
10	Week28	139383916	0%
11	Week29	139730590	0%
12	Week30	114811148	-18%
13	Week31	115042325	0%
14	Week32	21010361	-82%

Problem Statement: What is the week-over-week percentage change in occupancy across all hotels?

Query:

```
-- Occupancy Change Week Over Week
select
concat('Week',DATEPART(WK,check_in_date)) as 'Week No',
cast(round(sum(successful_bookings)*100.0 /
sum(capacity),0) as int) as 'Occupancy %',
concat(cast((cast(sum(successful_bookings)*100.0 /
sum(capacity) as decimal(10,2))-
lag(cast(sum(successful_bookings)*100.0 /
sum(capacity) as decimal(10,2))) over (order by
datepart(wk,check_in_date)))/
lag(cast(sum(successful_bookings)*100.0 /
sum(capacity) as decimal(10,2))) over (order by
datepart(wk,check_in_date))* 100 as int),'%')
as 'Occupancy Change Week Over Week %'
from fact_aggregated_bookings
group by datepart(wk,check_in_date)
order by datepart(wk,check_in_date)
```

Output:

	Week No	Occupancy %	Occupancy Change Week Over Week %
1	Week19	62	%
2	Week20	62	0%
3	Week21	51	-17%
4	Week22	62	20%
5	Week23	51	-16%
6	Week24	62	21%
7	Week25	62	0%
8	Week26	51	-17%
9	Week27	62	21%
10	Week28	62	0%
11	Week29	62	0%
12	Week30	51	-18%
13	Week31	51	0%
14	Week32	65	28%

Problem Statement: What is the week-over-week percentage change in the Average Daily Rate (ADR) across all hotels?

Query:

```
-- Average Daily rate Changing Week Over Week %
select
concat('Week',DATEPART(WK,check_in_date)) as 'Week No',
sum(revenue_realized)/count(booking_id) as 'Average Daily Rate',
concat(cast(round((cast(sum(revenue_realized)/count(booking_id) as decimal(10,2)) -
lag(cast(sum(revenue_realized)/
count(booking_id)as decimal(10,2))) over (order by datepart(wk,check_in_date)))/
lag(cast(sum(revenue_realized)/
count(booking_id)as decimal(10,2)))
over (order by datepart(wk,check_in_date))*100,0) as int) ,'%')
as 'Average Daily Rate Change Week Over Week %'
from fact_bookings
group by DATEPART(WK,check_in_date)
order by DATEPART(WK,check_in_date)
```

Output:

	Week No	Average Daily Rate	ADR Change Week Over Week %
1	Week19	12602	%
2	Week20	12724	1%
3	Week21	12709	0%
4	Week22	12687	0%
5	Week23	12715	0%
6	Week24	12642	-1%
7	Week25	12672	0%
8	Week26	12659	0%
9	Week27	12730	1%
10	Week28	12753	0%
11	Week29	12682	-1%
12	Week30	12728	0%
13	Week31	12752	0%
14	Week32	12725	0%

Problem Statement: What is the week-over-week percentage change in Revenue Per Available Room (RevPAR) across all hotels?

Query:

```
-- Revenue Per Available Room Change week over week %
select
concat('Week', DATEPART(WK,check_in_date)) as 'Week No',
room_class as 'Room Class',
sum(revenue_realized) as 'Revenue Generated',
concat(cast((sum(revenue_realized)-
lag(cast(sum(revenue_realized)as decimal(10,2)))
over(partition by room_class order by
DATEPART(WK,check_in_date)))/
lag(sum(revenue_realized))
over(partition by room_class order by
DATEPART(WK,check_in_date))*100 as int) ,'%')
as 'Revenue Per Available Room Change week over week %'
from fact_bookings join dim_rooms
on fact_bookings.room_category=dim_rooms.room_id
group by
DATEPART(WK,check_in_date),
room_class
order by DATEPART(WK,check_in_date)
```

Output:

	Week No	Room Class	Revenue Generated	Revenue WOW Per Available Room %
1	Week19	Elite	45599274	%
2	Week19	Premium	37038120	%
3	Week19	Presidential	30472922	%
4	Week19	Standard	25071748	%
5	Week20	Standard	25306216	0%
6	Week20	Presidential	30856760	1%
7	Week20	Premium	37780752	2%
8	Week20	Elite	45492192	0%
9	Week21	Elite	37807722	-16%
10	Week21	Premium	31079832	-17%
11	Week21	Presidential	25247504	-18%
12	Week21	Standard	20787117	-17%
13	Week22	Standard	24852802	19%
14	Week22	Presidential	30510428	20%
15	Week22	Premium	37946784	22%
16	Week22	Elite	45410112	20%
17	Week23	Elite	38084454	-16%
18	Week23	Premium	31198680	-17%
19	Week23	Presidential	25321414	-17%
20	Week23	Standard	20964021	-15%
21	Week24	Standard	25515451	21%
22	Week24	Presidential	31001160	22%
23	Week24	Premium	37366728	19%
24	Week24	Elite	45698364	19%
25	Week25	Elite	45551178	0%
26	Week25	Premium	37546824	0%
27	Week25	Presidential	30367548	-2%
28	Week25	Standard	25208729	-1%
29	Week26	Standard	20587177	-18%
30	Week26	Presidential	25519736	-15%
31	Week26	Premium	31064832	-17%

32	Week26	Elite	36980676	-18%
33	Week27	Elite	45747882	23%
34	Week27	Premium	37664736	21%
35	Week27	Presidential	30904944	21%
36	Week27	Standard	25238070	22%
37	Week28	Standard	25188020	0%
38	Week28	Presidential	30614168	0%
39	Week28	Premium	37710168	0%
40	Week28	Elite	45871560	0%
41	Week29	Elite	45928548	0%
42	Week29	Premium	37942752	0%
43	Week29	Presidential	30451908	0%
44	Week29	Standard	25407382	0%
45	Week30	Standard	20852052	-17%
46	Week30	Presidential	25548122	-16%
47	Week30	Premium	30470808	-19%
48	Week30	Elite	37940166	-17%
49	Week31	Elite	37625076	0%
50	Week31	Premium	31550592	3%
51	Week31	Presidential	25201220	-1%
52	Week31	Standard	20665437	0%
53	Week32	Standard	3936673	-80%
54	Week32	Presidential	4734952	-81%
55	Week32	Premium	5804736	-81%
56	Week32	Elite	6534000	-82%

Problem Statement: What is the week-over-week percentage change in realization, which represents the percentage of successful "checked out" bookings over all bookings made?

Query:

```
-- Realisation change percentage week over week %
select
concat('Week', DATEPART(WK,check_in_date)) as 'Week No',
count(case when booking_status='Checked Out' then 1 end)
as 'Successful Booking',
concat(cast((cast(count(case when booking_status='Checked Out'
then 1 end) as decimal(10,2)) -
lag(count(case when booking_status='Checked Out' then 1 end))
over (order by DATEPART(WK,check_in_date)))/
lag(count(case when booking_status='Checked Out' then 1 end))
over (order by DATEPART(WK,check_in_date))*100 as int),'%')
as 'Realisation change percentage week over week %'
from fact_bookings
group by DATEPART(WK,check_in_date)
order by DATEPART(WK,check_in_date)
```

Output:

	Week No	Successful Booking	Realisation change percentage week over week %
1	Week19	7628	%
2	Week20	7699	0%
3	Week21	6331	-17%
4	Week22	7585	19%
5	Week23	6399	-15%
6	Week24	7688	20%
7	Week25	7657	0%
8	Week26	6292	-17%
9	Week27	7734	22%
10	Week28	7757	0%
11	Week29	7777	0%
12	Week30	6348	-18%
13	Week31	6347	0%
14	Week32	1169	-81%

Problem Statement: What is the week-over-week percentage change in Daily Sellable Room Nights (DSRN) across all hotels?

Query:

```
-- Daily Sellable Room Nights Change % week over week
select
concat('Week', DATEPART(WK,check_in_date)) as 'Week No',
sum(successful_bookings) / count(distinct(check_in_date))
as 'Rooms Available For Sale',
concat(cast((cast(sum(successful_bookings) /
count(distinct(check_in_date)) as decimal(10,2))-
lag(sum(successful_bookings) /
count(distinct(check_in_date))) over
(order by DATEPART(WK,check_in_date)))/
lag(sum(successful_bookings) /
count(distinct(check_in_date))) over
(order by DATEPART(WK,check_in_date)) * 100 as int),'%')
as "Daily Sellable Room Nights Change % week over week"
from fact_aggregated_bookings
group by DATEPART(WK,check_in_date)
order by DATEPART(WK,check_in_date)
```

Output:

	Week No	Rooms Available For Sale	DSRN Change % week over week %
1	Week19	1566	%
2	Week20	1565	0%
3	Week21	1291	-17%
4	Week22	1562	20%
5	Week23	1298	-16%
6	Week24	1577	21%
7	Week25	1563	0%
8	Week26	1288	-17%
9	Week27	1566	21%
10	Week28	1561	0%
11	Week29	1574	0%
12	Week30	1288	-18%
13	Week31	1288	0%
14	Week32	1651	28%

THE END