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# Hotel Reservation

Analysis with SQL



# Overview

The hotel industry uses data to make informed decisions and enhance the guest experience. This project involves working with a hotel reservation dataset to understand guest preferences, booking trends, and other operational factors. SQL will be used to query and analyze the data to answer specific questions.



# Dataset Details

The dataset includes the following columns

- ***Booking\_ID***: A unique identifier for each reservation.
- ***no\_of\_adults***: Number of adults in the reservation.
- ***no\_of\_children***: Number of children in the reservation.
- ***no\_of\_weekend\_nights***: Number of weekend nights in the reservation.
- ***no\_of\_week\_nights***: Number of weekday nights in the reservation.
- ***type\_of\_meal\_plan***: Meal plan chosen by the guests.
- ***room\_type\_reserved***: Type of room reserved by the guests.
- ***lead\_time***: Number of days between booking and arrival.
- ***arrival\_date***: Date of arrival.
- ***market\_segment\_type***: Market segment of the reservation.
- ***avg\_price\_per\_room***: Average price per room in the reservation.
- ***booking\_status***: Status of the booking.

# Analysis Questions and SQL Queries

Question1: What is the total number of reservations in the dataset?

```
SELECT count(*) AS total_reservations  
FROM `hotel reservation dataset`;
```

	total_reservations
700	700

- This query counts all records in the dataset to find the total number of reservations.

## Question2: Which meal plan is the most popular among guests?

```
SELECT type_of_meal_plan, count(*) AS count  
from `hotel reservation dataset`  
GROUP BY type_of_meal_plan  
ORDER BY count DESC  
LIMIT 1;
```

	type_of_meal_plan	count
▶	Meal Plan 1	527

- This query groups reservations by meal plan and orders them by count in descending order to find the most popular meal plan.

## Question3: What is the average price per room for reservations involving children?

```
SELECT avg(avg_price_per_room) as avg_price  
from `hotel reservation dataset`  
where no_of_children > 0;
```

	avg_price
▶	144.56833333333336

- This query calculates the average room price for reservations that include children.

## Question4: How many reservations were made for the year 20XX (replace XX with the desired year)?

```
SELECT  
    YEAR(STR_TO_DATE(arrival_date, '%d-%m-%Y')) AS year,  
    COUNT(*) AS reservation_count  
FROM  
    `hotel reservation dataset`  
WHERE  
    YEAR(STR_TO_DATE(arrival_date, '%d-%m-%Y')) IN (2017, 2018)  
GROUP BY  
    YEAR(STR_TO_DATE(arrival_date, '%d-%m-%Y'));
```

	year	reservation_count
▶	2017	123
	2018	577

- This query counts the number of reservations for specified years by converting the arrival date to a year format.

## Question5: What is the most commonly booked room type?

```
SELECT room_type_reserved, count(*) AS count  
from `hotel reservation dataset`  
GROUP BY room_type_reserved  
ORDER BY count DESC  
LIMIT 1;
```

	room_type_reserved	count
▶	Room_Type 1	594

- This query identifies the most frequently booked room type by grouping and ordering by count.

## Question6: How many reservations fall on a weekend (no\_of\_weekend\_nights > 0)?

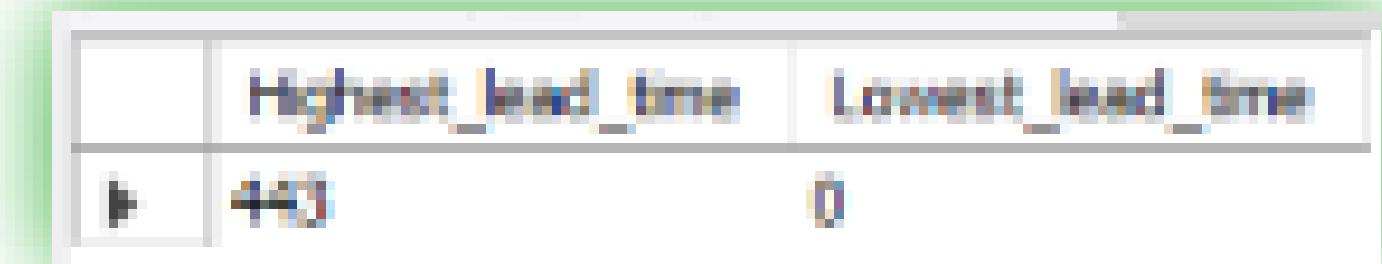
```
SELECT count(*) as weekend_reserved  
from `hotel reservation dataset`  
where no_of_weekend_nights > 0
```

	weekend_reserved
383	383

- This query counts reservations that include weekend nights.

## Question7: What is the highest and lowest lead time for reservations?

```
SELECT max(lead_time) AS Highest_lead_time,  
min(lead_time) AS Lowest_lead_time  
FROM `hotel reservation dataset`
```



	Highest_lead_time	Lowest_lead_time
	1000	0

- This query finds the maximum and minimum lead times for reservations.

## Question8: What is the most common market segment type for reservations?

```
SELECT market_segment_type, count(*) AS count  
from `hotel reservation dataset`  
GROUP BY market_segment_type  
ORDER BY count DESC  
LIMIT 1;
```

	market_segment_type	count
▶	Online	510

- This query identifies the most common market segment by grouping and ordering by count.

## Question9: How many reservations have a booking status of "Confirmed"?

```
SELECT COUNT(*) as confirmed_reservations  
FROM `hotel reservation dataset`  
WHERE booking_status = 'Not_Canceled';
```

	confirmed_reservations
493	493

- This query counts the number of reservations with a confirmed status.

## Question10: What is the total number of adults and children across all reservations?

```
SELECT sum(no_of_adults) AS total_adults,  
sum(no_of_children) AS total_children  
FROM `hotel reservation dataset`;
```

	total_adults	total_children
	1316	69

- This query sums the total number of adults and children across all reservations.

## Question 11: What is the average number of weekend nights for reservations involving children?

```
SELECT avg(no_of_weekend_nights) as  
avg_weekend_nights  
from ` hotel reservation dataset`  
where no_of_children > 0
```

	avg_weekend_nights
	1.0000

- This query calculates the average number of weekend nights for reservations that include children.

## Question12: How many reservations were made in each month of the year?

```
SELECT
    YEAR(STR_TO_DATE(arrival_date, '%d-%m-%Y')) AS
year,
    MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) AS
month,
    COUNT(*) AS reservation_count
FROM
    ` hotel reservation dataset`
GROUP BY
    YEAR(STR_TO_DATE(arrival_date, '%d-%m-%Y')),
    MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y'))
ORDER BY
    year, month;
```

	year	month	reservation_count
▶	2017	7	8
	2017	8	14
	2017	9	35
	2017	10	40
	2017	11	13
	2017	12	13
	2018	1	11
	2018	2	28
	2018	3	52
	2018	4	67
	2018	5	55
	2018	6	84
	2018	7	36
	2018	8	56
	2018	9	45
	2018	10	63
	2018	11	41
	2018	12	39

- This query counts the number of reservations for each month by converting the arrival date to year and month format.

## Question13: What is the average number of nights spent by guests for each room type?

```
SELECT  
    room_type_reserved,  
    AVG(no_of_weekend_nights + no_of_week_nights)  
AS avg_nights  
FROM  
    `hotel reservation dataset`  
GROUP BY  
    room_type_reserved;
```

	room_type_reserved	avg_nights
▶	Room_Type 1	2.8783
	Room_Type 4	3.8000
	Room_Type 2	3.0000
	Room_Type 6	3.6111
	Room_Type 5	2.5000
	Room_Type 7	2.6667

- This query calculates the average number of nights spent by guests for each room type.

Question14: For reservations involving children, what is the most common room type, and what is the average price for that room type?

```
SELECT room_type_reserved, avg(avg_price_per_room)
AS avg_price
FROM `hotel reservation dataset`
WHERE no_of_children > 0
GROUP BY room_type_reserved
ORDER BY count(*) DESC
LIMIT 1
```

	room_type_reserved	avg_price
1	Room_Type_1	120.12291000000005

- This query identifies the most common room type for reservations with children and calculates the average price for that room type.

## Question15: Find the market segment type that generates the highest average price per room.

```
SELECT market_segment_type,  
avg(avg_price_per_room) AS avg_price  
FROM `hotel reservation dataset`  
GROUP BY market_segment_type  
ORDER BY count(*) DESC  
LIMIT 1
```

market_segment_type	avg_price
Online	112.4857123456789
...	...
...	...
...	...

- This query identifies the market segment that generates the highest average price per room.



**THANK YOU**  
For watching this presentation