



# Hotel Reservation Analysis in SQL

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# Introduction

The hospitality industry thrives on its ability to understand and cater to the diverse needs of its guests. In an era where data is paramount, leveraging comprehensive reservation data can significantly enhance a hotel's ability to provide exceptional service and make informed business decisions. This analysis explores in-depth hotel reservation data using SQL queries in order to provide crucial information about booking trends, guest preferences, and other important aspects that affect hotel operations.

# Dataset Details:

The dataset includes the following columns:

- **Booking\_ID:** A unique identifier for each hotel reservation.
- **no\_of\_adults:** The number of adults in the reservation.
- **no\_of\_children:** The number of children in the reservation.
- **no\_of\_weekend\_nights:** The number of nights in the reservation that fall on weekends.
- **no\_of\_week\_nights:** The number of nights in the reservation that fall on weekdays.
- **type\_of\_meal\_plan:** The meal plan chosen by the guests.
- **room\_type\_reserved:** The type of room reserved by the guests.
- **lead\_time:** The number of days between booking and arrival.
- **arrival\_date:** The date of arrival.
- **market\_segment\_type:** The market segment to which the reservation belongs.
- **avg\_price\_per\_room:** The average price per room in the reservation.
- **booking\_status:** The status of the booking.



# SQL Queries

# Dataset

Query    Query History

```
1 Select * From reservations;
```

Data Output    Messages    Notifications

SQL

	booking_id character varying (255) 	no_of_adults integer 	no_of_children integer 	no_of_weekend_nights integer 	no_of_week_nights integer 	type_of_meal_plan character varying (255) 	room_type_reserved character varying (255) 	lead_time integer 	arrival_date date 
1	INN00001	2	0	1	2	Meal Plan 1	Room_Type 1	224	2017-10-02
2	INN00002	2	0	2	3	Not Selected	Room_Type 1	5	2018-11-06
3	INN00003	1	0	2	1	Meal Plan 1	Room_Type 1	1	2018-02-28
4	INN00004	2	0	0	2	Meal Plan 1	Room_Type 1	211	2018-05-20
5	INN00005	2	0	1	1	Not Selected	Room_Type 1	48	2018-04-11
6	INN00006	2	0	0	2	Meal Plan 2	Room_Type 1	346	2018-09-13
7	INN00007	2	0	1	3	Meal Plan 1	Room_Type 1	34	2017-10-15
8	INN00008	2	0	1	3	Meal Plan 1	Room_Type 4	83	2018-12-26
9	INN00009	3	0	0	4	Meal Plan 1	Room_Type 1	121	2018-07-06
10	INN00010	2	0	0	5	Meal Plan 1	Room_Type 4	44	2018-10-18
11	INN00011	1	0	1	0	Not Selected	Room_Type 1	0	2018-09-11
12	INN00012	1	0	2	1	Meal Plan 1	Room_Type 4	35	2018-04-30

# Q1. What is the total no. of reservations in the dataset?

Query    Query History

```
1 ▾  SELECT COUNT(*) AS total_reservations
2   FROM reservations;
3
```

Data Output    Messages    Notifications

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	total_reservations	bigint
1		700

## Q2. Which Meal Plan is the most popular among Guests?

```
Query 1 ▾
SELECT type_of_meal_plan, COUNT(*) AS count
FROM reservations
GROUP BY type_of_meal_plan
ORDER BY count DESC LIMIT 1;
```

1	Meal Plan 1						527

**Q3. What is the average price per room for reservations involving children?**

```
1 ▾ SELECT room_type_reserved, COUNT(*) AS count,  
2 AVG(avg_price_per_room) AS avg_price  
FROM reservations  
WHERE no_of_children > 0  
GROUP BY room_type_reserved  
ORDER BY count DESC LIMIT 1;
```

Data Output    Messages    Notifications



room_type_reserved	count	avg_price
character varying (255)	bigint	numeric

## Q4. How many reservations were made for the year 2018?

Query    Query History

```
1 ▾  SELECT COUNT(*)
2   FROM reservations
3 WHERE DATE_PART('year', arrival_date) = 2018;
```

Data Output    Messages    Notifications

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	count	bigint
1	577	

## Q5. What is the most commonly booked room type?

Query    Query History

```
1 ▾  SELECT room_type_reserved, COUNT(*) AS count
2   FROM reservations
3   GROUP BY room_type_reserved
4   ORDER BY count DESC LIMIT 1;
```

Data Output    Messages    Notifications

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	room_type_reserved	count
1	character varying (255)	534

## Q6. How many reservations fall on a weekend (no\_of\_weekend\_nights > 0)?

Query    Query History

```
1 ▾ SELECT COUNT(*) AS weekend_reservations
2 FROM reservations
3 WHERE no_of_weekend_nights > 0;
```

Data Output    Messages    Notifications

weekend\_reservations  
bigint

	weekend_reservations	bigint
1		383

## **Q7. What is the highest and lowest lead time for reservations?**

Query History

```
1 ▾ SELECT MAX(lead_time) AS highest_lead_time,
2 MIN(lead_time) AS lowest_lead_time
3 FROM reservations;
```

Data Output Messages Notifications

highest\_lead\_time integer  
lowest\_lead\_time integer

	highest_lead_time	lowest_lead_time
1	443	0

## Q8. What is the most common market segment type for reservations?

Query History

```
1 ▾ SELECT market_segment_type, COUNT(*) AS count
2   FROM reservations
3 GROUP BY market_segment_type
4 ORDER BY count DESC LIMIT 1;
```

Data Output Messages Notifications

market\_segment\_type character varying (255) count bigint

	market_segment_type	count
1	Online	518

## Q9. How many reservations have a booking status of "Confirmed"?

Query    Query History

```
1 ✓ SELECT COUNT(*) AS confirmed_reservations
2 FROM reservations
3 WHERE booking_status = 'Confirmed';
```

Data Output    Messages    Notifications

confirmed\_reservations  
bigint

	confirmed_reservations	bigint
1	0	

## Q10. What is the total number of adults and children across all reservations?

Query    Query History

```
1 ▾ SELECT SUM(no_of_adults) AS total_adults,
2   SUM(no_of_children) AS total_children
3 FROM reservations;
```

Data Output    Messages    Notifications

total\_adults bigint  
total\_children bigint

	total_adults	total_children
1	1316	69

**Q11. What is the average number of weekend nights for reservations involving children?**

# Q12. How many reservations were made in each month of the year?

Query    Query History

```
1 ▾ SELECT
2   EXTRACT(MONTH FROM arrival_date) AS month_number,
3   TO_CHAR(arrival_date, 'Month') AS month_name,
4   COUNT(*) AS reservation_count
5 FROM reservations
6 GROUP BY EXTRACT(MONTH FROM arrival_date), TO_CHAR(arrival_date, 'Month')
7 ORDER BY month_number;
```

Data Output    Messages    Notifications

SQL

	month_number numeric	month_name text	reservation_count bigint
1		1 January	11
2		2 February	28
3		3 March	52
4		4 April	67
5		5 May	55
6		6 June	84
7		7 July	44
8		8 August	70
9		9 September	80
10		10 October	103
11		11 November	54
12		12 December	52

# Q13. What is the average number of nights (both weekend and weekday) spent by guests for each room type?

Query    Query History

```
1 ✓ SELECT room_type_reserved,
2   AVG(no_of_weekend_nights + no_of_week_nights) AS avg_nights
3   FROM reservations
4   GROUP BY room_type_reserved;
```

Data Output    Messages    Notifications

room\_type\_reserved    avg\_nights

	room_type_reserved character varying (255)	avg_nights numeric
1	Room_Type 7	2.6666666666666667
2	Room_Type 1	2.8782771535580524
3	Room_Type 5	2.5000000000000000
4	Room_Type 2	3.0000000000000000
5	Room_Type 6	3.6111111111111111
6	Room_Type 4	3.8000000000000000

**Q14. For reservations involving children, what is the most common room type, and what is the average price for that room type?**

Query History

```
1 ▾ SELECT room_type_reserved, COUNT(*) AS count,
2      AVG(avg_price_per_room) AS avg_price
3      FROM reservations
4      WHERE no_of_children > 0
5      GROUP BY room_type_reserved
6      ORDER BY count DESC LIMIT 1;
```

Data Output Messages Notifications

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	room_type_reserved character varying (255)	count bigint	avg_price numeric
1	Room_Type 1	24	123.1229166666666667

**Q15. Find the market segment type that generates the highest average price per room?**

Query    Query History

```
1 ▾ SELECT market_segment_type,  
2 AVG(avg_price_per_room) AS avg_price  
3 FROM reservations  
4 GROUP BY market_segment_type  
5 ORDER BY avg_price DESC LIMIT 1;
```

Data Output    Messages    Notifications

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	market_segment_type character varying (255)	avg_price numeric
1	Online	112.4552123552123552

# Conclusion

The hotel can attract more guests and increase profitability by focusing on the most popular meal plans, improving family-oriented offerings, and targeting high-value online market segments. Aside from that, promoting weekend stays and effectively managing lead times can further boost occupancy rates. By putting these recommendations into practice, the hotel will be able to better meet guest preferences, streamline operations, and achieve long-term success in a competitive market.

# Thankyou

