



THE FULLERTON HOTEL

HOTEL RESERVATION ANALYSIS

HOTEL RESERVATION ANALYSIS WITH SQL



INROUDCTION

The hotel industry relies on data to make informed decisions and provide a better guest experience. In this analysis, we work with a hotel reservation dataset to gain insights into guest preferences, booking trends, and other key factors that impact the hotel's operations. We will use SQL to query and analyze the data, as well as answer specific questions about the dataset.





About the dataset



- 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.

- **Identify Trends:** Understand booking patterns, such as peak booking times, popular room types, and preferred meal plans, to optimize marketing and operations.
- **Customer Insights:** Gain insights into guest preferences and behaviors, which can help in personalizing services and enhancing guest satisfaction.
- **Revenue Management:** Analyze lead times and average prices to optimize pricing strategies and improve revenue management.
- **Operational Efficiency:** Identify inefficiencies and areas for improvement in the booking process, room management, and service delivery.
- **Forecasting and Planning:** Use historical data to forecast demand, plan for busy periods, and manage resources effectively.
- **Market Segmentation:** Understand different market segments to tailor marketing campaigns and service offerings to target specific customer groups.



Check the Dataset for Null values

```
SELECT
    (COUNT(*) - COUNT(Booking_ID)) +
    (COUNT(*) - COUNT(no_of_adults)) +
    (COUNT(*) - COUNT(no_of_children)) +
    (COUNT(*) - COUNT(no_of_weekend_nights)) +
    (COUNT(*) - COUNT(no_of_week_nights)) +
    (COUNT(*) - COUNT(type_of_meal_plan)) +
    (COUNT(*) - COUNT(room_type_reserved)) +
    (COUNT(*) - COUNT(lead_time)) +
    (COUNT(*) - COUNT(arrival_date)) +
    (COUNT(*) - COUNT(market_segment_type)) +
    (COUNT(*) - COUNT(avg_price_per_room)) +
    (COUNT(*) - COUNT(bookings_status)) AS Total_Missing_Values
FROM
    dbo.reservations;
```

100 %

Results Messages

	Total_Missing_Values
1	0

- The dataset contains 0 null values and therefore analysis begins



The total number of reservations made in the hotel was 700 reservations

Total number of reservations

```
SELECT COUNT(*) AS total_reservations  
FROM dbo.reservations;
```

100 %

Results Messages

	total_reservations
1	700

Meal plan most popular among guests?

```
SELECT TOP 1 type_of_meal_plan, COUNT(*) AS count
FROM dbo.reservations
GROUP BY type_of_meal_plan
ORDER BY count DESC;
```

100 %

Results Messages

	type_of_meal_plan	count
1	Meal Plan 1	527



Meal Plan 1 was the most preferred meal plan by the hotel guests

Average price per room for reservations involving children?

```
SELECT AVG(avg_price_per_room) AS avg_price_per_room  
FROM dbo.reservations  
WHERE no_of_children > 0;
```

100 %

Results Messages

avg_price_per_room
144.568333307902

The average price per room for all the hotel rooms was \$144.57





Reservations were made for the year 2018

```
SELECT COUNT(*) AS reservations_in_20XX  
FROM dbo.reservations  
WHERE YEAR(arrival_date) = 2018;
```

100 %

Results Messages

	reservations_in_20XX
1	577

Reservations made in the year 2018 was 577 in number



ROOM 03

Most commonly booked room type?

```
SELECT TOP 1 room_type_reserved, COUNT(*) AS count
FROM dbo.reservations
GROUP BY room_type_reserved
ORDER BY count DESC;
```

100 %

Results Messages

	room_type_reserved	count
1	Room_Type 1	534



room type 1 was the most commonly booked room type preffered by the guests



Number of reservations that fall on a weekend

A screenshot of the SQL Server Management Studio (SSMS) interface. The query window displays the following T-SQL code:

```
SELECT COUNT(*) AS weekend_reservations
FROM dbo.reservations
WHERE no_of_weekend_nights > 0;
```

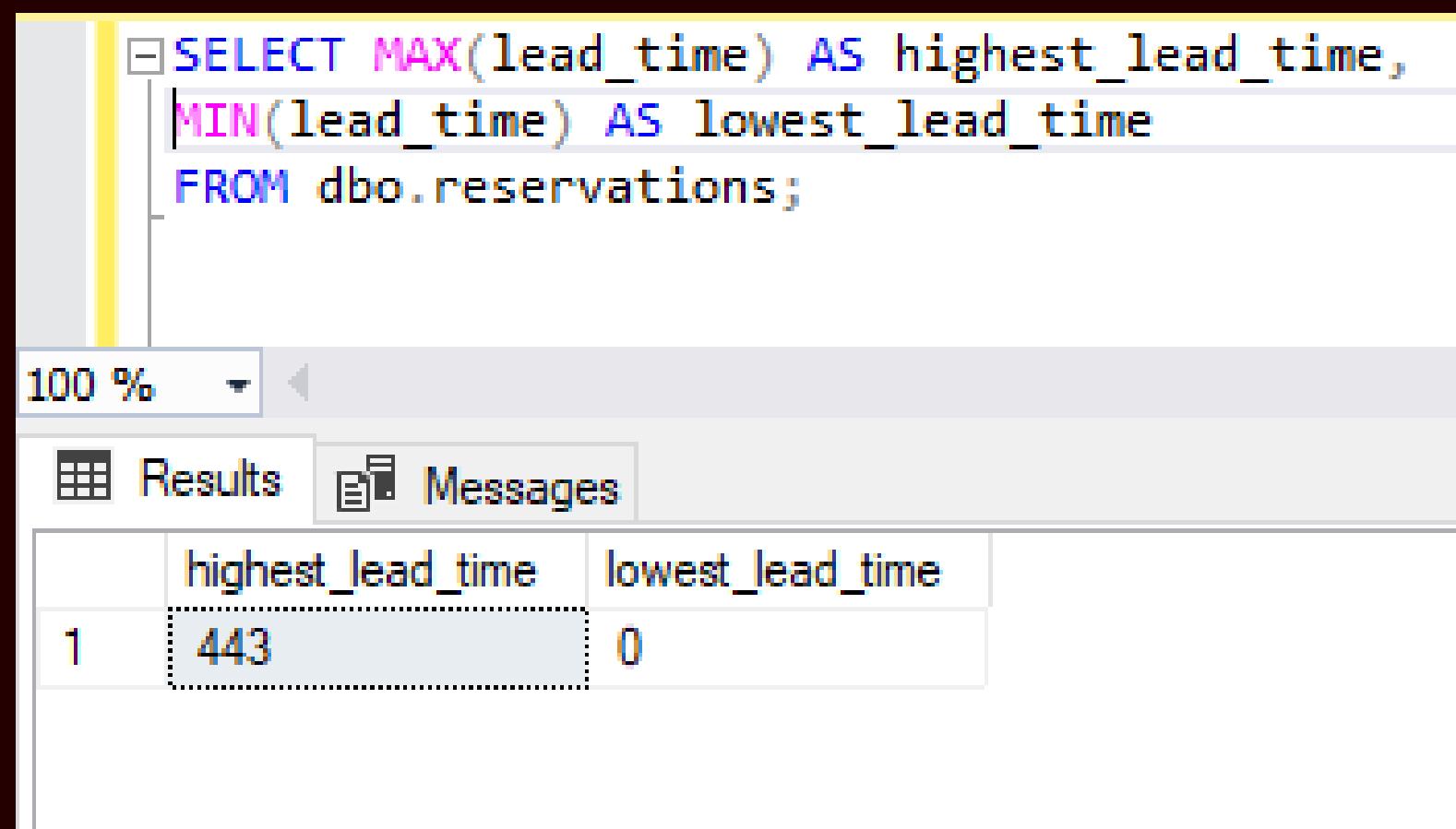
The results pane shows a single row of data:

	weekend_reservations
1	383

The value '383' is highlighted with a dashed red box.

383 reservations fall on a weekend

Highest and lowest lead time for reservations



```
SELECT MAX(lead_time) AS highest_lead_time,
       MIN(lead_time) AS lowest_lead_time
  FROM dbo.reservations;
```

The screenshot shows a SQL query in the 'Query Editor' of SSMS. The query selects the maximum and minimum values from the 'lead_time' column of the 'dbo.reservations' table, aliasing them as 'highest_lead_time' and 'lowest_lead_time'. The results pane displays a single row with the values 443 and 0 respectively.

	highest_lead_time	lowest_lead_time
1	443	0



The highest lead time is 433 while the lowest lead time is 0

The most common market segment type for reservations?

```
SELECT TOP 1 market_segment_type, COUNT(*) AS count
FROM dbo.reservations
GROUP BY market_segment_type
ORDER BY count DESC;
```

100 %

Results Messages

	market_segment_type	count
1	Online	518



The most common market segment type for reservation is online

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 dbo.reservations;
```

100 %

Results Messages

	total_adults	total_children
1	1316	69



The total number of adults is 1316 while the number of children is 69

Average number of weekend nights for reservations involving children?

```
SELECT AVG(no_of_weekend_nights) AS avg_weekend_nights
FROM dbo.reservations
WHERE no_of_children > 0;
```

100 %

Results Messages

	avg_weekend_nights
1	1



The avg number of weekend nights for reservations involving children is 1



Reservations were made in each month of the year?

```
SELECT MONTH(arrival_date) AS month, COUNT(*) AS count
FROM dbo.reservations
GROUP BY MONTH(arrival_date);
```

100 %

Results Messages

	month	count
1	1	11
2	2	28
3	3	52
4	4	67
5	5	55
6	6	84
7	7	44
8	8	70
9	9	80
10	10	103
11	11	54
12	12	52

From the analysis
October had the highest number of reservations while January had the lowest number of reservations



Average number of nights (both weekend and weekday) spent by guests for each room type?

```
SELECT room_type_reserved,
       AVG(no_of_weekend_nights + no_of_week_nights) AS avg_total_nights
  FROM dbo.reservations
 GROUP BY room_type_reserved;
```

100 %

Results Messages

	room_type_reserved	avg_total_nights
1	Room_Type 1	2
2	Room_Type 2	3
3	Room_Type 4	3
4	Room_Type 5	2
5	Room_Type 6	3
6	Room_Type 7	2



Room type 1 had an average of 2 nights spent by guest while 3 had 3 room type 4 3, room type 5 2 room type 6 had 3 with room type 7 had 2

ROOM 03

07



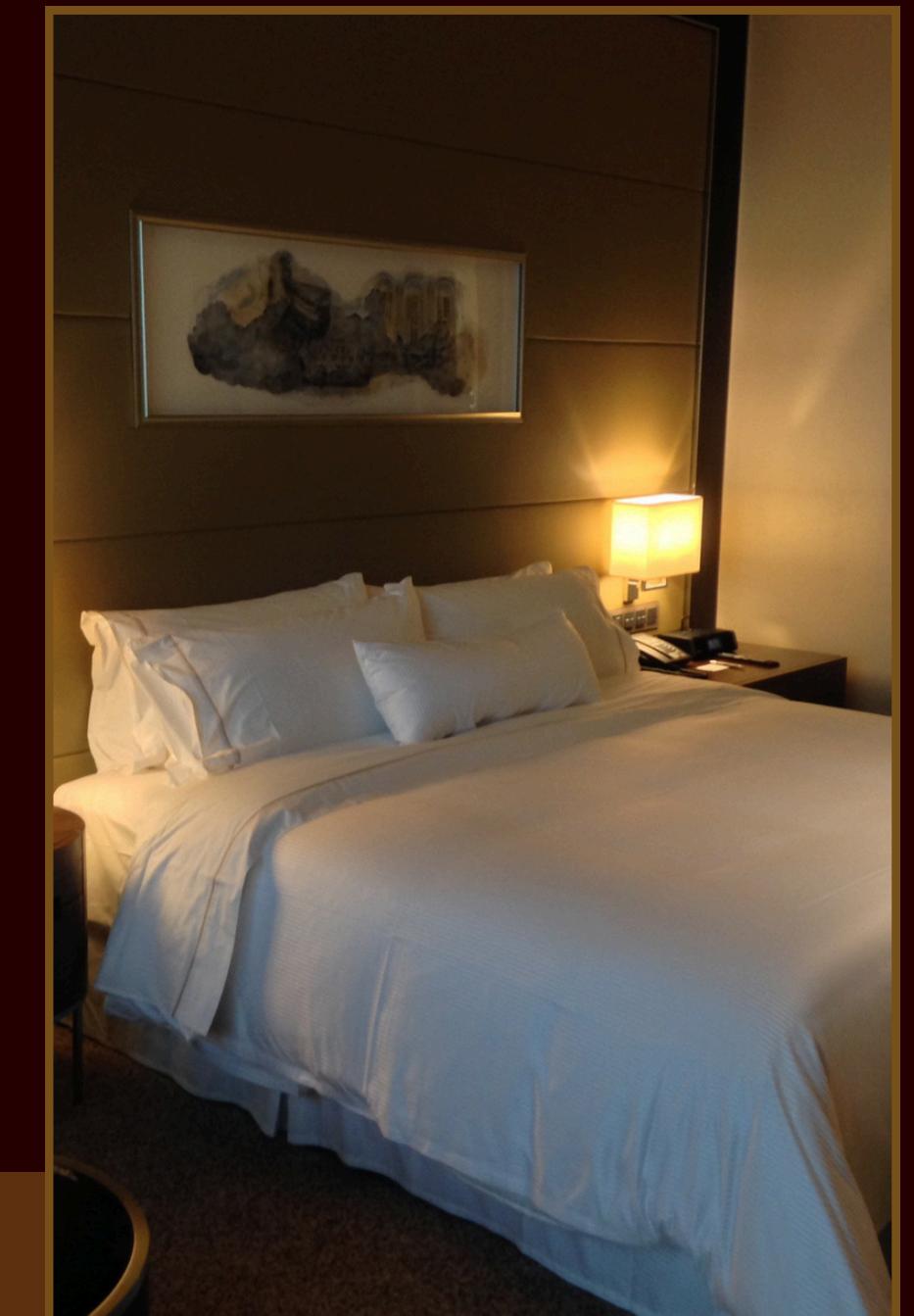
The most common room type, and what is the average price for that room type?

```
SELECT TOP 1 room_type_reserved, COUNT(*) AS count,
AVG(avg_price_per_room) AS avg_price_per_room
FROM dbo.reservations
WHERE no_of_children > 0
GROUP BY room_type_reserved
ORDER BY count DESC;
```

100 %

Results Messages

	room_type_reserved	count	avg_price_per_room
1	Room_Type 1	24	123.12291653951



ROOM 03

room type 1 was the most common with a count of 24 and an average price of \$123.12



Market segment type that generates the highest average price per room.

```
SELECT TOP 1 market_segment_type,
AVG(avg_price_per_room) AS avg_price_per_room
FROM dbo.reservations
GROUP BY market_segment_type
ORDER BY avg_price_per_room DESC;
```

100 %

Results Messages

	market_segment_type	avg_price_per_room
1	Online	112.455212331647



ROOM 03

The online market segemnt generated the highest average pricrice per room with 112.46\$



Conclusions

Reservation Patterns:

- The total number of reservations made was 700.
- Most reservations were made in 2018, totaling 577.
- October had the highest number of reservations, while January had the lowest.

Guest Preferences:

- Meal Plan 1 was the most preferred by guests.
- Room Type 1 was the most commonly booked room type.
- The most common market segment for reservations was online.

Pricing Insights:

- The average price per room involving children was \$144.57.
- Room Type 1 had the most common room with a count of 24 and an average price of \$123.12.
- The online market segment generated the highest average price per room at \$112.46.

Stay Duration and Lead Time:

- The highest lead time was 433 days, while the lowest was 0 days.
- Room Type 1 had an average of 2 nights spent by guests.
- Other room types varied in the number of nights spent, with Room Type 3 and Room Type 6 having the highest average at 3 nights.

Weekend Stays:

- 383 reservations fell on a weekend.
- The average number of weekend nights for reservations involving children was 1.



Recommendations

Marketing and Promotions:

- Targeted Marketing: Focus marketing efforts on Meal Plan 1 and Room Type 1, which are the most preferred by guests. Use this data to tailor promotions and packages.
- Seasonal Promotions: Create special promotions for the months with lower reservations, such as January, to boost occupancy during these periods.

Revenue Management:

- Dynamic Pricing: Implement dynamic pricing strategies to adjust room rates based on demand, lead time, and seasonality to maximize revenue.
- Optimize Online Sales: Since the online market segment generates the highest average price per room, invest in improving the online booking experience and consider partnerships with online travel agencies.

Operational Efficiency:

- Resource Allocation: Adjust staffing and resource allocation to match the higher demand in October and weekends. Ensure adequate staffing during peak times to maintain service quality.
- Lead Time Management: Develop strategies to manage reservations with high lead times effectively. Implement automated reminders and follow-ups to confirm bookings closer to the arrival date.

Customer Experience:

- Family-Friendly Services: Given that reservations involving children have a higher average price per room, consider offering family-friendly packages and amenities to attract more families.
- Personalization: Use data on guest preferences to offer personalized experiences. For example, guests who prefer Meal Plan 1 can be offered special deals on meal upgrades.

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MENTORNESS

Thank You
