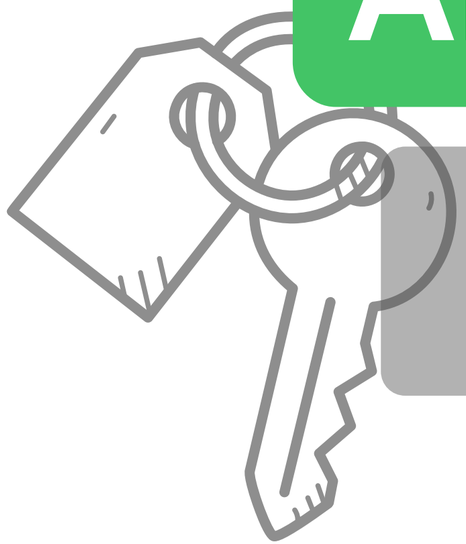
Hotel Reservation Analysis with SQL



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BATCH - **MIP-DA-10**

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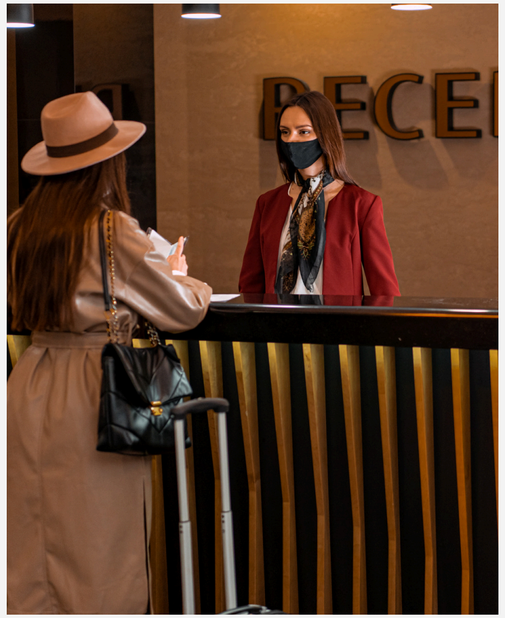
Introduction

In the competitive hospitality industry, data-driven insights are crucial for hotels to optimize their operations, enhance guest experiences, and drive business growth. This report presents a comprehensive analysis of a hotel reservation dataset, uncovering trends, patterns, and preferences of hotel guests.



Objectives

1. Explore guest behavior, booking trends, and revenue management through **15** key questions.

2. Uncover actionable insights for hotel management to refine their strategies, improve customer satisfaction, and maximize revenue.

3. Provide a snapshot of the hotel's performance, highlighting areas of strength and opportunities for growth.

4. Serve as a foundation for data-informed decision-making in the pursuit of excellence in hospitality.

Dataset Overview

- **Booking_ID**: Unique identifier for each reservation
- **no_of_adults** and **no_of_children**: Number of adults and children in each reservation
- **no_of_weekend_nights** and **no_of_week_nights**: Number of weekend and weekday nights in each reservation
- **type_of_meal_plan**: Meal plan chosen by guests (e.g., breakfast, half-board, full-board)
- **room_type_reserved**: Type of room reserved (e.g., single, double, suite)
- **lead_time**: Number of days between booking and arrival
- **arrival_date**: Date of arrival
- **market_segment_type**: Market segment (e.g., corporate, leisure, group)
- **avg_price_per_room**: Average price per room in each reservation
- **booking_status**: Status of the booking (e.g., confirmed, cancelled, pending)

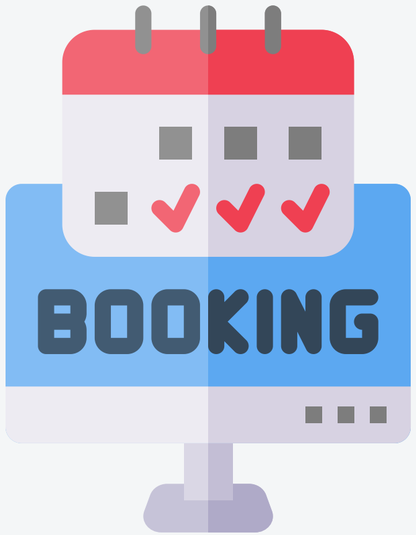
Process Overview

Let's begin!

Analysis

1

What is the total number of reservations in the dataset?




```sql
SELECT COUNT(*) AS 'Number of Reservation'
FROM hotel_reservation_dataset;
```

Result Grid Filter Rows: Search

Number of Reservation
700

2

Which meal plan is the most popular among guests?

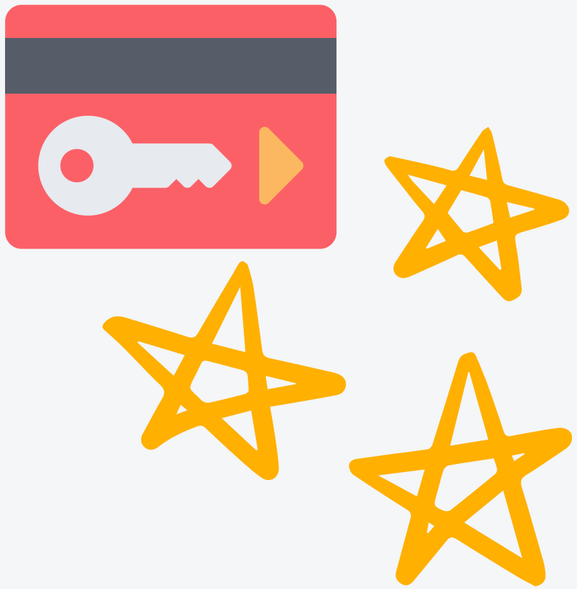
```sql
SELECT type_of_meal_plan AS 'Popular Meal',
COUNT(*) AS 'Orders Count'
FROM hotel_reservation_dataset
WHERE type_of_meal_plan <> 'Not Selected'
GROUP BY type_of_meal_plan
LIMIT 1;
```

Result Grid Filter Rows: Search

Popular Meal	Orders Count
Meal Plan 1	527

3

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



```sql
SELECT ROUND(AVG(avg_price_per_room)) AS 'Average Room Price With Children'
FROM hotel_reservation_dataset
WHERE no_of_children > 0;
```

Result Grid Filter Rows: Search

Average Room Price With Children
145

4

How many reservations were made for the year 2018?

```sql
SELECT COUNT(*) AS 'Total Reservation 2018'
FROM hotel_reservation_dataset
WHERE YEAR(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 2018;
```

Result Grid | Filter Rows: Search

Total Reservation 2018
577

5

What is the most commonly booked room type?

```sql
SELECT room_type_reserved AS 'Commonly Room Reserved Type',
COUNT(*) AS Count
FROM hotel_reservation_dataset
GROUP BY room_type_reserved
LIMIT 1;
```

Result Grid Filter Rows: Search

Commonly Room Reserved Type	Count
Room_Type 1	534

6

How many reservations fall on a weekend?

```sql
SELECT COUNT(*) AS 'Reservation on weekend'
FROM hotel_reservation_dataset
WHERE no_of_weekend_nights > 0;
```

Result Grid Filter Rows: Search

Reservation on weekend
383

7

What is the highest and lowest lead time for reservations?

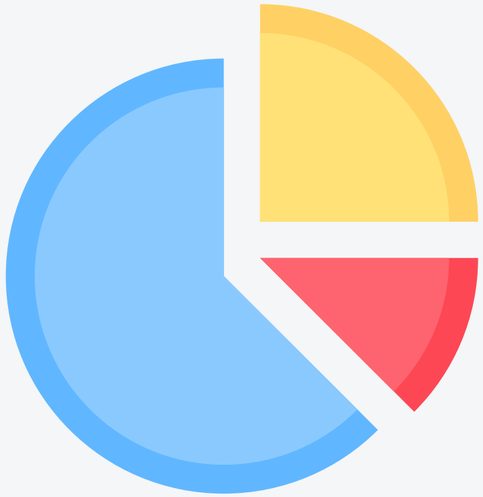
```sql
SELECT
MAX(lead_time) AS 'Highest Lead Time',
MIN(lead_time) AS 'Lowest Lead Time'
FROM hotel_reservation_dataset;
```

Result Grid Filter Rows: Search

Highest Lead Time	Lowest Lead Time
443	0

8

What is the most common market segment type for reservations?



```sql
SELECT market_segment_type AS 'Common Market Segment Type',
COUNT(*) AS 'Count'
FROM hotel_reservation_dataset
GROUP BY market_segment_type
ORDER BY count DESC
LIMIT 1;
```

Result Grid Filter Rows: Search

Common Market Segment Type	Count
Online	518

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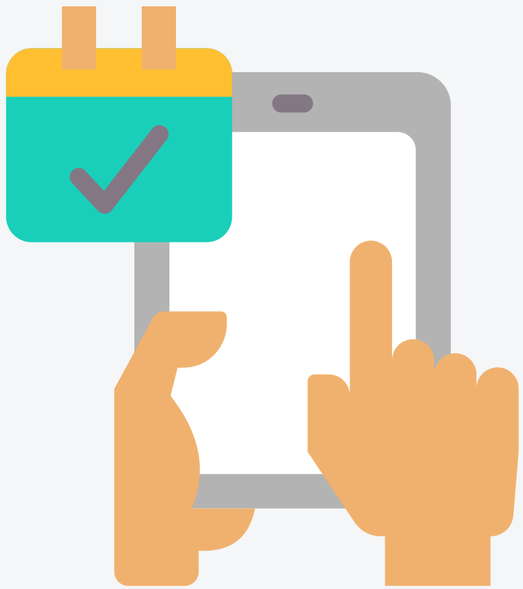
How many reservations have a booking status of "Confirmed"?



```sql
SELECT COUNT(*) AS 'Booking Status'
FROM hotel_reservation_dataset
WHERE booking_status = 'Not_Canceled';
```

Result Grid Filter Rows: Search

Booking Status
493

10

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

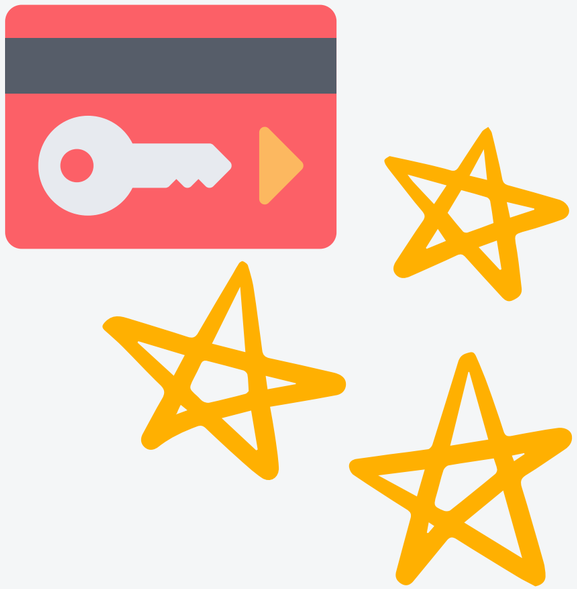
```sql
SELECT
SUM(no_of_adults) AS 'Number of Adults',
SUM(no_of_children) AS 'Number of Children',
SUM(no_of_adults) + SUM(no_of_children) AS 'Total Number
Of All Reservation'
FROM hotel_reservation_dataset;
```

Result Grid | Filter Rows: Search | Export:

Number of Adults	Number of Children	Total Number Of All Reservation
1316	69	1385

11

What is the average number of weekend nights for reservations involving children



```sql
SELECT AVG(no_of_weekend_nights) AS 'Average No Reservation'
FROM hotel_reservation_dataset
WHERE no_of_weekend_nights > 0 AND no_of_children > 0;
```

Result Grid Filter Rows: Search

Average No Reservati...
1.6000

12

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

RESERVED

```sql
SELECT MONTH(STR_TO_DATE(arrival_date, '%d-%m-%y')) AS MONTH,
COUNT(*) AS 'Total Reservation'
FROM hotel_reservation_dataset
GROUP BY MONTH
ORDER BY MONTH;
```

Result Grid Filter Rows: Search

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

13

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

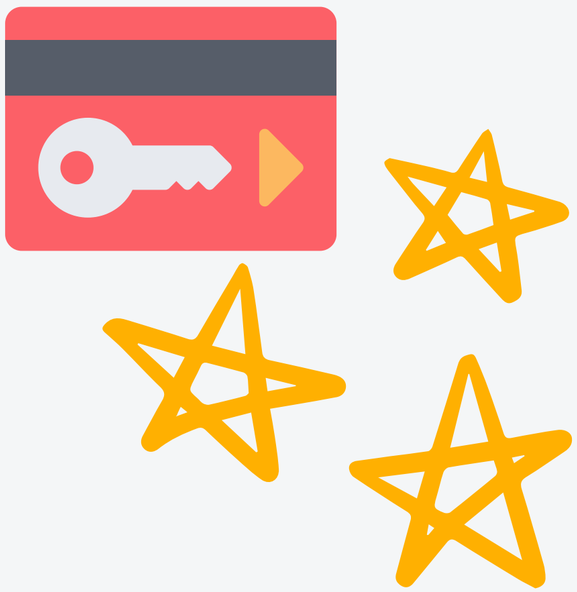
```sql
SELECT room_type_reserved AS 'Room Type',
ROUND(AVG(no_of_weekend_nights + no_of_week_nights),2) AS 'No Nights'
FROM hotel_reservation_dataset
GROUP BY room_type_reserved
ORDER BY room_type_reserved;
```

Result Grid Filter Rows: Search

Room Type	No Nights
Room_Type 1	2.88
Room_Type 2	3.00
Room_Type 4	3.80
Room_Type 5	2.50
Room_Type 6	3.61
Room_Type 7	2.67

14

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



```sql
SELECT room_type_reserved AS 'Room Type Reserved',
COUNT(*) AS COUNT,
AVG(avg_price_per_room) AS 'Average Price Per Room'
FROM hotel_reservation_dataset
WHERE no_of_children > 0
GROUP BY room_type_reserved
ORDER BY room_type_reserved;
```

Result Grid Filter Rows: Search

Room Type Reserved	COUNT	Average Price Per Room
Room_Type 1	24	123.12291666666665
Room_Type 2	5	112.07800000000002
Room_Type 4	1	86.32
Room_Type 6	17	185.32823529411766
Room_Type 7	1	187.04

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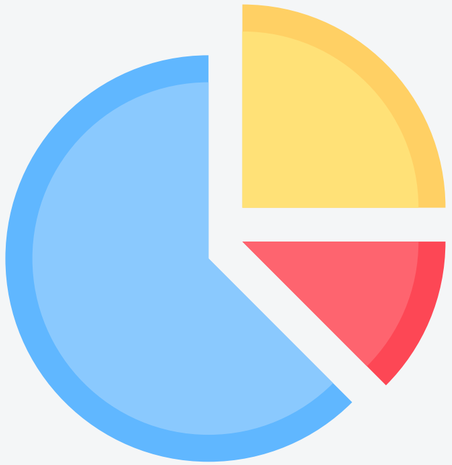
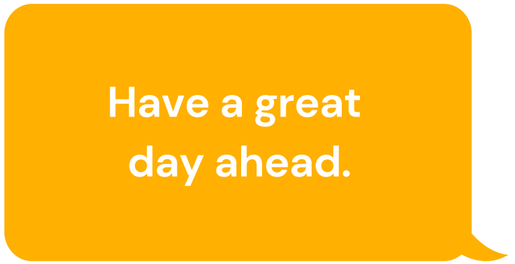
Find the market segment type that generates the highest average price per room.



```sql
SELECT market_segment_type AS 'Market Segment',
ROUND(AVG(avg_price_per_room),2) AS 'Average Price Per Room'
FROM hotel_reservation_dataset
GROUP BY market_segment_type;
```

Result Grid Filter Rows: Search

Market Segme...	Average Price Per Room
Offline	89.98
Online	112.46
Corporate	82.4
Aviation	110
Complementary	2.54

Thank you!