



Hotel Reservation Analysis

USING SQL



Overview

- In the hotel industry, information helps make guest stays more enjoyable. I analyzed hotel booking data to understand guest preferences, booking behaviors, and factors impacting the hotel's success. Using SQL, I sifted through the data to find precise answers to key questions.

Dataset Details

- `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.

Excel

| | A | B | C | D | E | F | G | H | I | J | K | L |
|----|------------|--------------|----------------|----------------------|-------------------|-------------------|--------------------|-----------|--------------|---------------------|--------------------|----------------|
| 1 | Booking_ID | no_of_adults | no_of_children | no_of_weekend_nights | no_of_week_nights | type_of_meal_plan | room_type_reserved | lead_time | arrival_date | market_segment_type | avg_price_per_room | booking_status |
| 2 | INN00001 | 2 | 0 | 1 | 2 | Meal Plan 1 | Room_Type 1 | 224 | 02-10-2017 | Offline | 65 | Not_Canceled |
| 3 | INN00002 | 2 | 0 | 2 | 3 | Not Selected | Room_Type 1 | 5 | 06-11-2018 | Online | 106.68 | Not_Canceled |
| 4 | INN00003 | 1 | 0 | 2 | 1 | Meal Plan 1 | Room_Type 1 | 1 | 07-11-2018 | Online | 60 | Canceled |
| 5 | INN00004 | 2 | 0 | 0 | 2 | Meal Plan 1 | Room_Type 1 | 211 | 08-11-2018 | Online | 100 | Canceled |
| 6 | INN00005 | 2 | 0 | 1 | 1 | Not Selected | Room_Type 1 | 48 | 09-11-2018 | Online | 94.5 | Canceled |
| 7 | INN00006 | 2 | 0 | 0 | 2 | Meal Plan 2 | Room_Type 1 | 346 | 10-11-2018 | Online | 115 | Canceled |
| 8 | INN00007 | 2 | 0 | 1 | 3 | Meal Plan 1 | Room_Type 1 | 34 | 11-11-2018 | Online | 107.55 | Not_Canceled |
| 9 | INN00008 | 2 | 0 | 1 | 3 | Meal Plan 1 | Room_Type 4 | 83 | 12-11-2018 | Online | 105.61 | Not_Canceled |
| 10 | INN00009 | 3 | 0 | 0 | 4 | Meal Plan 1 | Room_Type 1 | 121 | 13-11-2018 | Offline | 96.9 | Not_Canceled |
| 11 | INN00010 | 2 | 0 | 0 | 5 | Meal Plan 1 | Room_Type 4 | 44 | 14-11-2018 | Online | 133.44 | Not_Canceled |
| 12 | INN00011 | 1 | 0 | 1 | 0 | Not Selected | Room_Type 1 | 0 | 15-11-2018 | Online | 85.03 | Not_Canceled |
| 13 | INN00012 | 1 | 0 | 2 | 1 | Meal Plan 1 | Room_Type 4 | 35 | 16-11-2018 | Online | 140.4 | Not_Canceled |
| 14 | INN00013 | 2 | 0 | 2 | 1 | Not Selected | Room_Type 1 | 30 | 17-11-2018 | Online | 88 | Canceled |
| 15 | INN00014 | 1 | 0 | 2 | 0 | Meal Plan 1 | Room_Type 1 | 95 | 18-11-2018 | Online | 90 | Canceled |
| 16 | INN00015 | 2 | 0 | 0 | 2 | Meal Plan 1 | Room_Type 1 | 47 | 19-11-2018 | Online | 94.5 | Not_Canceled |
| 17 | INN00016 | 2 | 0 | 0 | 2 | Meal Plan 2 | Room_Type 1 | 256 | 20-11-2018 | Online | 115 | Canceled |
| 18 | INN00017 | 1 | 0 | 1 | 0 | Meal Plan 1 | Room_Type 1 | 0 | 21-11-2018 | Offline | 96 | Not_Canceled |
| 19 | INN00018 | 2 | 0 | 1 | 3 | Not Selected | Room_Type 1 | 1 | 22-11-2018 | Online | 96 | Not_Canceled |
| 20 | INN00019 | 2 | 0 | 2 | 2 | Meal Plan 1 | Room_Type 1 | 99 | 23-11-2018 | Online | 65 | Canceled |
| 21 | INN00020 | 2 | 0 | 1 | 0 | Meal Plan 1 | Room_Type 1 | 12 | 24-11-2018 | Offline | 72 | Not_Canceled |
| 22 | INN00021 | 2 | 0 | 2 | 2 | Meal Plan 1 | Room_Type 1 | 99 | 25-11-2018 | Online | 65 | Canceled |
| 23 | INN00022 | 1 | 0 | 0 | 1 | Meal Plan 1 | Room_Type 1 | 122 | 26-11-2018 | Corporate | 67 | Not_Canceled |
| 24 | INN00023 | 2 | 0 | 2 | 4 | Meal Plan 1 | Room_Type 1 | 2 | 27-11-2018 | Offline | 85 | Not_Canceled |
| 25 | INN00024 | 2 | 0 | 0 | 3 | Meal Plan 1 | Room_Type 1 | 37 | 28-11-2018 | Offline | 105 | Not_Canceled |
| 26 | INN00025 | 2 | 0 | 2 | 1 | Not Selected | Room_Type 1 | 130 | 29-11-2018 | Online | 94.5 | Not_Canceled |
| 27 | INN00026 | 2 | 0 | 0 | 2 | Meal Plan 1 | Room_Type 1 | 99 | 30-11-2018 | Online | 114.3 | Not_Canceled |
| 28 | INN00027 | 2 | 0 | 1 | 1 | Meal Plan 1 | Room_Type 1 | 60 | 01-12-2018 | Offline | 65 | Not_Canceled |
| 29 | INN00028 | 1 | 0 | 0 | 2 | Meal Plan 1 | Room_Type 4 | 2 | 02-12-2018 | Aviation | 110 | Canceled |
| 30 | INN00029 | 1 | 0 | 1 | 2 | Meal Plan 1 | Room_Type 1 | 37 | 03-12-2018 | Online | 37.33 | Canceled |
| 31 | INN00030 | 2 | 0 | 0 | 2 | Meal Plan 2 | Room_Type 1 | 56 | 04-12-2018 | Offline | 82 | Not_Canceled |
| 32 | INN00031 | 2 | 0 | 1 | 1 | Meal Plan 1 | Room_Type 4 | 3 | 05-12-2018 | Online | 177.5 | Not_Canceled |
| 33 | INN00032 | 2 | 0 | 2 | 2 | Meal Plan 1 | Room_Type 1 | 107 | 06-12-2018 | Online | 87.5 | Not_Canceled |

Import Data From CSV File by SQL Server

Dashboard x Properties x SQL x Statistics x Dependencies x Dependents x Processes x Hotel Reservation Analysis /postgres@PostgreSQL 16* x Hotel Reservation v

explorer Servers (1) PostgreSQL 16 Databases (2) Hotel Reservation Analysis postgres Casts Catalogs Event Triggers Extensions Foreign Data Wra Languages Publications Schemas (1) public Aggregates Collations Domains FTS Config FTS Diction FTS Parsers FTS Templa Foreign Tab Functions Materialized Operators Procedures Sequences Tables (1) bookings Column

Hotel Reservation Analysis /postgres@PostgreSQL 16

No limit

Query Query History

```
1 Select * FROM hrapp;
```

Scratch Pad x

Data Output Messages Notifications

| | Booking_ID [PK] character varying (20) | no_of_adults integer | no_of_children integer | no_of_weekend_nights integer | no_of_week_nights integer | type_of_meal_plan character varying (20) | room_type_reserved character varying (20) | lead_time integer | arrival_date date | market_segmen character varyin |
|---|---|-------------------------|---------------------------|---------------------------------|------------------------------|---|--|----------------------|----------------------|-----------------------------------|
| 1 | INN00001 | 2 | 0 | 1 | 2 | Meal Plan 1 | Room_Type 1 | 224 | 2017-10-02 | Offline |
| 2 | INN00002 | 2 | 0 | 2 | 3 | Not Selected | Room_Type 1 | 5 | 2018-11-06 | Online |
| 3 | INN00003 | 1 | 0 | 2 | 1 | Meal Plan 1 | Room_Type 1 | 1 | 2018-02-28 | Online |
| 4 | INN00004 | 2 | 0 | 0 | 2 | Meal Plan 1 | Room_Type 1 | 211 | 2018-05-20 | Online |
| 5 | INN00005 | 2 | 0 | 1 | 1 | Not Selected | Room_Type 1 | 48 | 2018-04-11 | Online |
| 6 | INN00006 | 2 | 0 | 0 | 2 | Meal Plan 2 | Room_Type 1 | 346 | 2018-09-13 | Online |

Total rows: 700 of 700 Query complete 00:00:00.389 Ln 1, Col 20


SQL Query

Query Query History

```
1 1) What is the total number of reservations in the
2 dataset?
```

```
3 -----
```


```
4 select
5     COUNT(*) AS Total_Reservations
6 FROM hrap;
```

| | total_reservations  |
|---|--|
| 1 | 700 |

```
1 2) Which meal plan is the most popular among guests?
2 -----|
3 SELECT type_of_meal_plan,
4         COUNT(*) AS total_bookings
5 FROM hrap
6 GROUP BY type_of_meal_plan
7 ORDER BY total_bookings DESC
8 LIMIT 1;
9
```


| | type_of_meal_plan character varying (20) 🔒 | total_bookings bigint 🔒 |
|---|---|----------------------------|
| 1 | Meal Plan 1 | 527 |


```
1 3) What is the average price per room for reservations
2 involving children?
3 -----|
4 SELECT
5 ROUND(AVG(avg_price_per_room),2) as Average_Price_Per_Room
6 FROM hrap
7 Where no_of_children>0;
```

| | average_price_per_room  |
|---|--|
| 1 | 144.57 |

1 4) How many reservations were made for the year 20XX
2 (replace XX with the desired year)?
3 -----

4 SELECT COUNT(*) AS total_reservations
5 FROM hrap
6 WHERE EXTRACT(YEAR FROM arrival_date) = 2017;
7



| | total_reservations bigint  |
|---|--|
| 1 | 123 |

1 5) What **is** the most commonly booked room **type**?

2 -----

```
3 SELECT room_type_reserved, COUNT(*) AS num_bookings
4 FROM hrap
5 GROUP BY room_type_reserved
6 ORDER BY num_bookings DESC
7 LIMIT 1;
```

8


| | room_type_reserved  character varying (20) | num_bookings  bigint |
|---|--|--|
| 1 | Room_Type 1 | 534 |

1 6) How many reservations fall on a weekend (no_of_weekend_nights
2 > 0)?

3 -----

4 SELECT COUNT(*) AS num_weekend_reservations
5 FROM hrap
6 WHERE no_of_weekend_nights > 0;

7

| | num_weekend_reservations  |
|---|--|
| 1 | 383 |

1 7) What is the highest and lowest lead time for reservations?

2

3 SELECT



4 MAX(lead_time) AS highest_lead_time,

5 MIN(lead_time) AS lowest_lead_time

6 FROM



7 hrap;

8

| | highest_lead_time integer  | lowest_lead_time integer  |
|---|--|---|
| 1 | 443 | 0 |


1 8) What **is** the most common market segment **type** for
2 reservations?

3 -----|
4 **SELECT** market_segment_type, **COUNT**(*) **AS** num_reservations
5 **FROM** hrap
6 **GROUP BY** market_segment_type
7 **ORDER BY** num_reservations **DESC**;

| | market_segment_type  character varying (20) | num_reservations  bigint |
|---|---|--|
| 1 | Online | 518 |
| 2 | Offline | 140 |
| 3 | Corporate | 27 |
| 4 | Complementary | 14 |
| 5 | Aviation | 1 |



1 9) How many reservations have a booking status of
2 "Confirmed"?

3 -----
4 **SELECT COUNT(*) AS** num_confirmed_reservations
5 **FROM** hrap
6 **WHERE** booking_status = 'Not_Canceled';
7

| | num_confirmed_reservations  |
|---|--|
| 1 | 493 |

1 10) What is the total number of adults and children across all
2 reservations?

3 -----|
4 SELECT
5 SUM(no_of_adults) AS total_adults,
6 SUM(no_of_children) AS total_children
7 from hrap;

| | total_adults bigint  | total_children bigint  |
|---|--|--|
| 1 | 1316 | 69 |

1 11) What is the average number of weekend nights for
2 reservations involving children?

3 -----

4 **SELECT** **AVG**(no_of_weekend_nights) **AS** avg_weekend_nights
5 **FROM** hrap
6 **WHERE** no_of_children > 0;
7

| | avg_weekend_nights numeric | |
|---|-------------------------------|--|
| 1 | 1.00000000000000000000 | |

1 12. How many reservations were made in each month of the
2 year?


3 -----
4 SELECT EXTRACT(MONTH FROM arrival_date) AS month,
5 COUNT(*) AS num_reservations
6 FROM hrap
7 GROUP BY EXTRACT(MONTH FROM arrival_date)
8 ORDER BY month;
9

| | month numeric | | num_reservations bigint | |
|----|------------------|----|----------------------------|-----|
| 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 |

```
1 13) What is the average number of nights (both weekend and
2 weekday) spent by guests for each room type?
3 -----
4 select room_type_reserved,
5 ROUND(AVG(no_of_weekend_nights + no_of_week_nights),2) AS avg_nights
6 FROM hrap
7 GROUP BY room_type_reserved;
```



| | room_type_reserved character varying (20) 🔒 | avg_nights numeric 🔒 |
|---|--|-------------------------|
| 1 | Room_Type 7 | 2.67 |
| 2 | Room_Type 1 | 2.88 |
| 3 | Room_Type 5 | 2.50 |
| 4 | Room_Type 2 | 3.00 |
| 5 | Room_Type 6 | 3.61 |
| 6 | Room_Type 4 | 3.80 |

```
1 14) For reservations involving children, what is the most common
2 room type, and what is the average price for that room type?
3 -----
4 SELECT room_type_reserved AS most_common_room_type,
5 ROUND(AVG(avg_price_per_room),2) AS average_price
6 FROM hrap
7 WHERE no_of_children > 0
8 GROUP BY room_type_reserved
9 ORDER BY average_price DESC;
10
```

| | most_common_room_type character varying (20) | average_price numeric  |
|---|---|--|
| 1 | Room_Type 7 | 187.04 |
| 2 | Room_Type 6 | 185.33 |
| 3 | Room_Type 1 | 123.12 |
| 4 | Room_Type 2 | 112.08 |
| 5 | Room_Type 4 | 86.32 |

1 15) Find the market segment **type** that generates the highest
2 average price per room.

3 -----|
4 **select** market_segment_type,
5 ROUND(**AVG**(avg_price_per_room),2) **AS** average_price
6 **FROM** hrap
7 **GROUP BY** market_segment_type
8 **ORDER BY** average_price **DESC**;

| | market_segment_type  character varying (20) | average_price  numeric |
|---|---|--|
| 1 | Online | 112.46 |
| 2 | Aviation | 110.00 |
| 3 | Offline | 89.98 |
| 4 | Corporate | 82.40 |
| 5 | Complementary | 2.54 |



Summery

SQL is a useful language for handling databases and pulling out important queries to analyze data quickly and efficiently.



Thank you!