HOTEL RESERVATION ANALYSIS IN SQL

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OVERVIEW

The hotel industry relies on data to make informed decisions and provide a better guest experience. We have to use SQL to query and analyze the data, as well as answer specific questions about the dataset.

OBJECTIVE

The objective of this project is to perform in-depth analysis of a hotel reservation dataset using SQL. By leveraging SQL queries, the aim is to extract meaningful insights into various aspects of guest behavior and operational trends within the hotel industry. This includes understanding booking patterns, preferences for meal plans and room types, the impact of lead time on reservations, and how different market segments contribute to booking volumes and revenue. Through these analyses, the project seeks to provide actionable intelligence that can inform strategic decisions aimed at improving guest satisfaction and optimizing hotel operations.

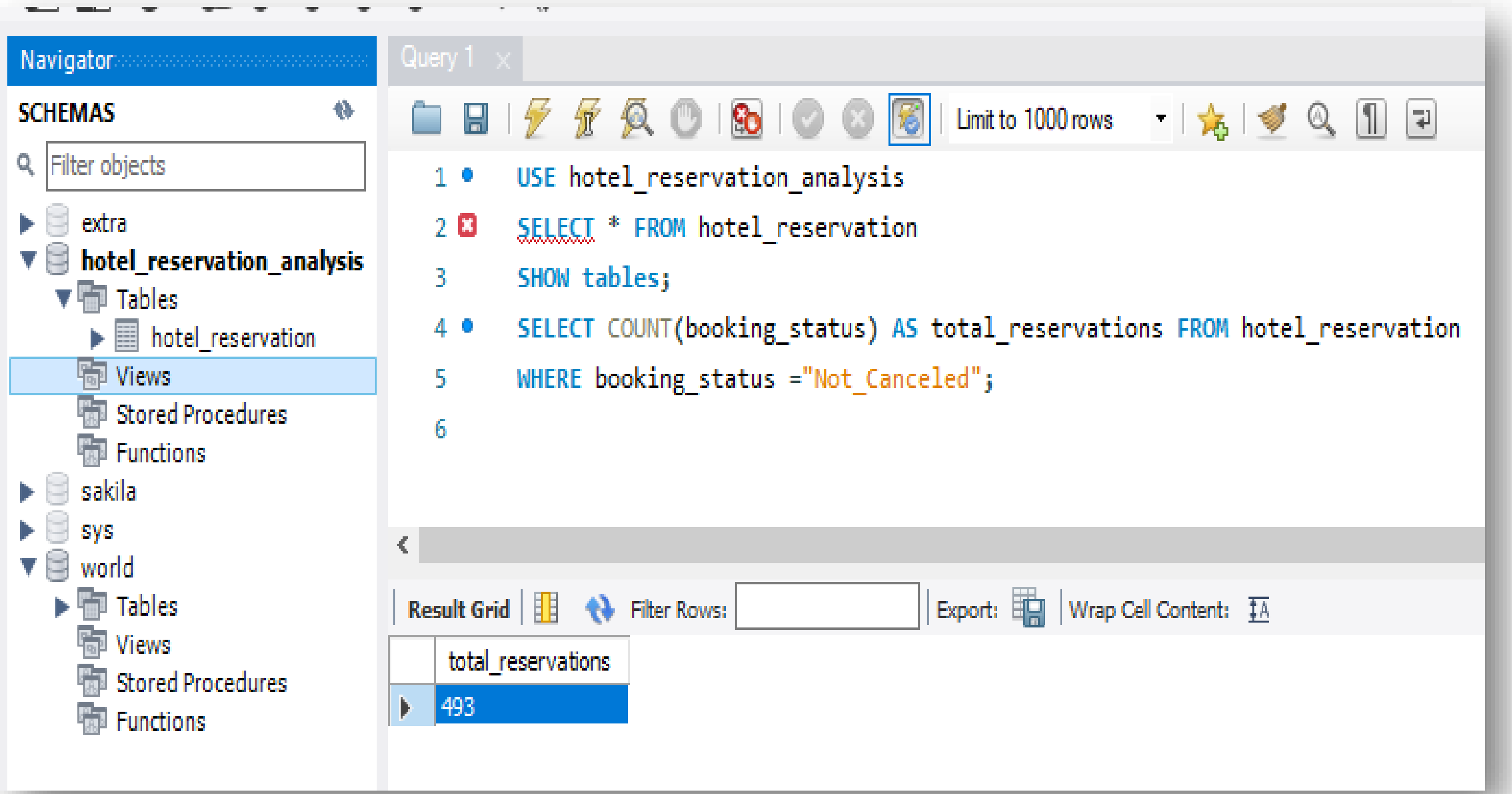
KEY METRICS

- 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

SQL QUERIES

1. What is the total number of reservations in the dataset?

This query counts the total number of rows in the hotel_reservation table, giving the total number of reservations. COUNT(*) returns the number of records.



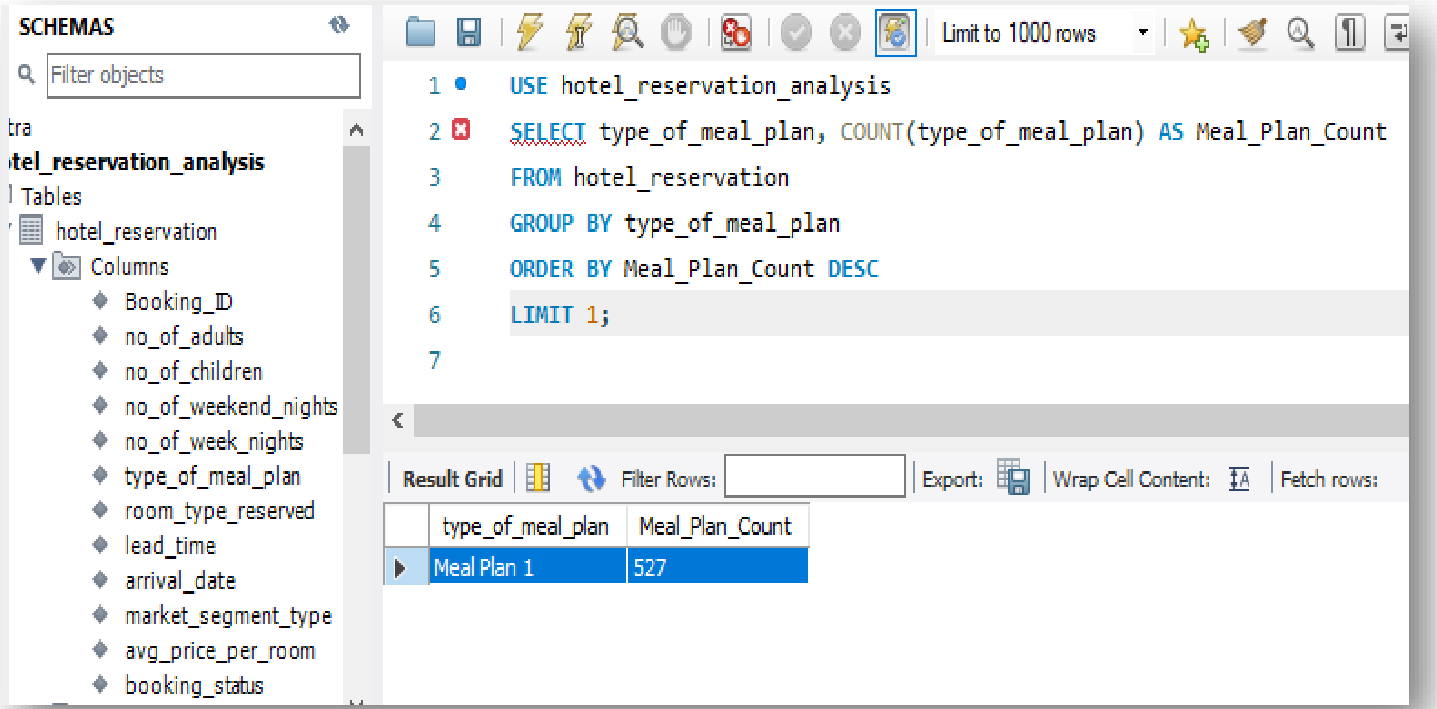
```
USE hotel_reservation_analysis
SELECT * FROM hotel_reservation
SHOW tables;
SELECT COUNT(booking_status) AS total_reservations FROM hotel_reservation
WHERE booking_status ="Not_Canceled";

```

total_reservations
493

SQL QUERIES

2. Which meal plan is the most popular among guests?

This query groups the reservations by type_of_meal_plan, counts the number of reservations for each meal plan, orders the result by the count in descending order, and returns the meal plan with the highest count.



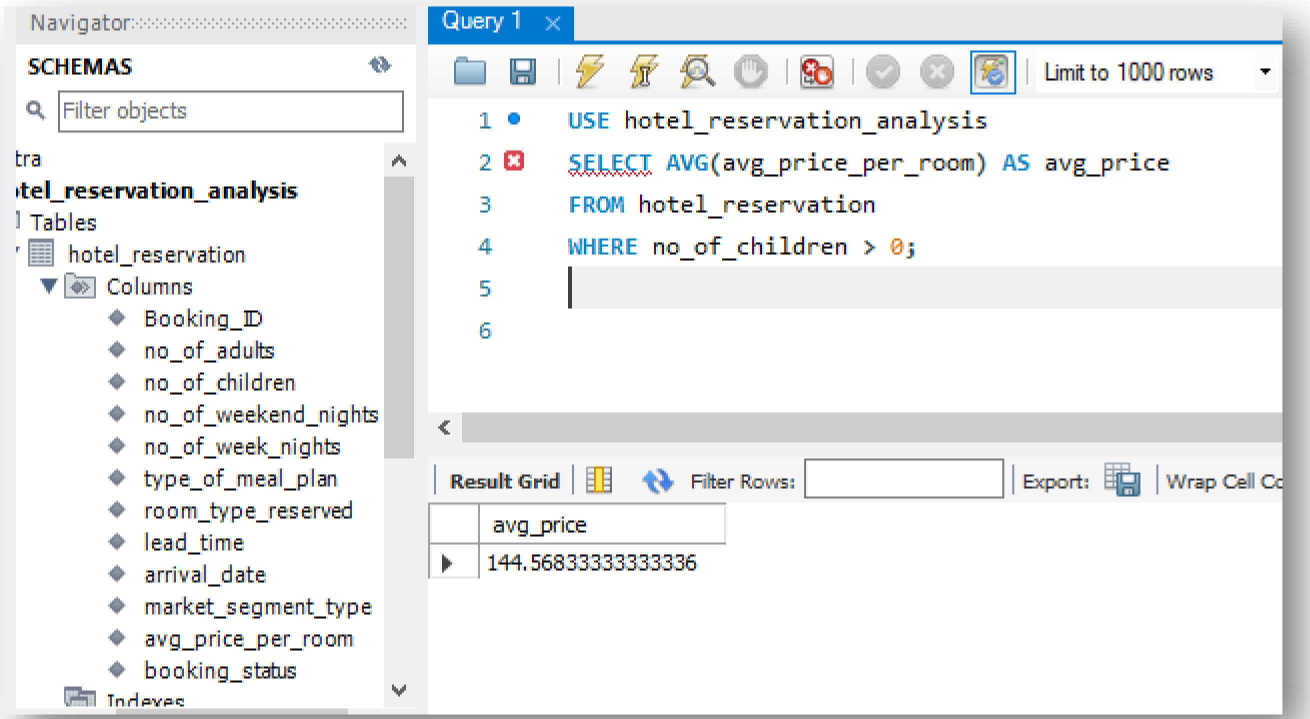
```sql
USE hotel_reservation_analysis
SELECT type_of_meal_plan, COUNT(type_of_meal_plan) AS Meal_Plan_Count
FROM hotel_reservation
GROUP BY type_of_meal_plan
ORDER BY Meal_Plan_Count DESC
LIMIT 1;
```

type_of_meal_plan	Meal_Plan_Count
Meal Plan 1	527

SQL QUERIES

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

This query calculates the average price per room for reservations that include children by filtering rows where no_of_children is greater than zero and using AVG(avg_price_per_room).



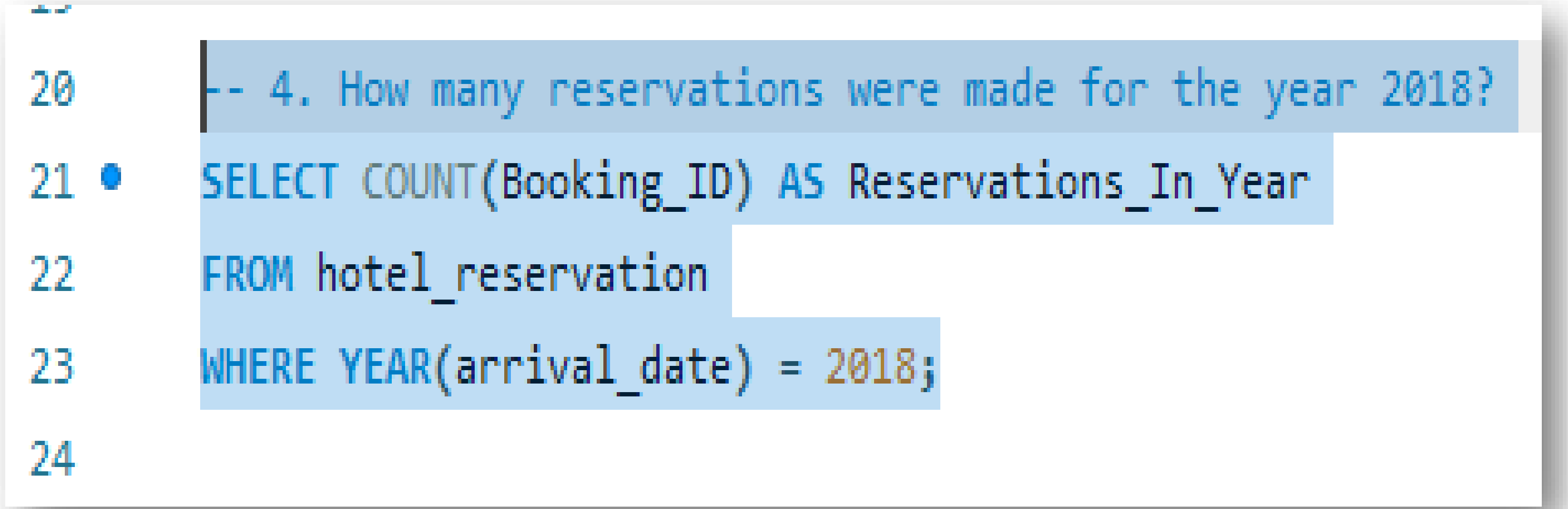
```
USE hotel_reservation_analysis
SELECT AVG(avg_price_per_room) AS avg_price
FROM hotel_reservation
WHERE no_of_children > 0;
```

```
avg_price
144.56833333333336
```

SQL QUERIES

4. How many reservations were made for the year 2018?

This query counts the number of reservations made for a specific year by extracting the year from `arrival_date` and filtering for the desired year.

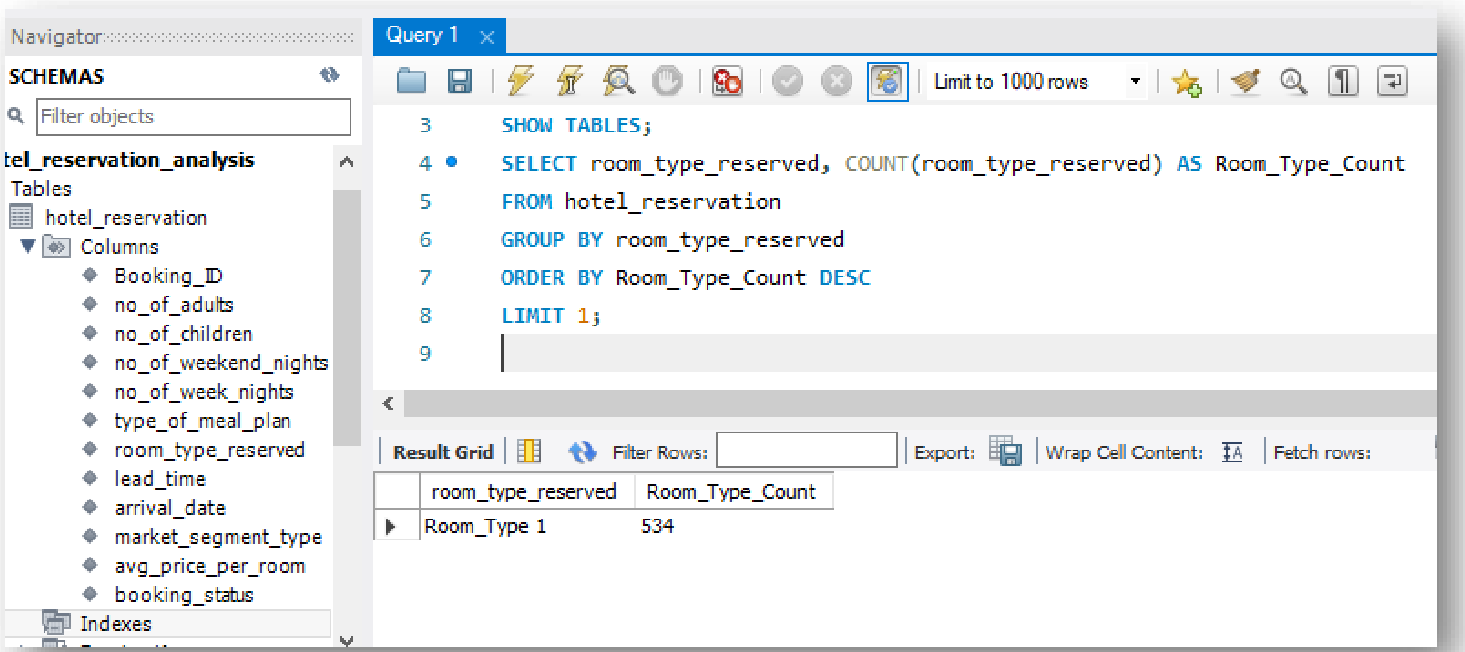


```sql
-- 4. How many reservations were made for the year 2018?
SELECT COUNT(Booking_ID) AS Reservations_In_Year
FROM hotel_reservation
WHERE YEAR(arrival_date) = 2018;
```

SQL QUERIES

5. What is the most commonly booked room type?

This query groups the reservations by room_type_reserved, counts the number of reservations for each room type, orders by count in descending order, and returns the most common room type.



Navigator

SCHEMAS

tel_reservation_analysis
Tables
hotel_reservation
Columns
- 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

Indexes

Query 1

Limit to 1000 rows

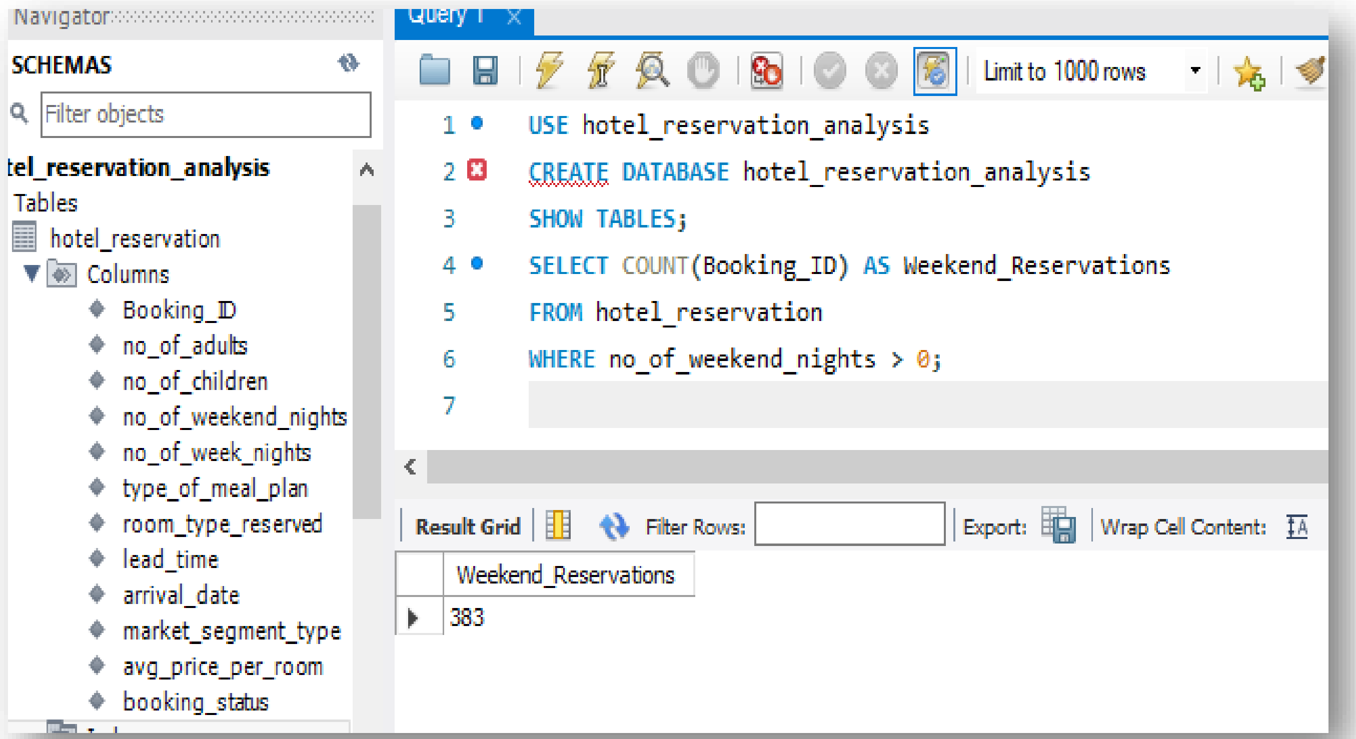
```
SHOW TABLES;
SELECT room_type_reserved, COUNT(room_type_reserved) AS Room_Type_Count
FROM hotel_reservation
GROUP BY room_type_reserved
ORDER BY Room_Type_Count DESC
LIMIT 1;
```

room_type_reserved	Room_Type_Count
Room_Type 1	534

SQL QUERIES

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

This query counts the number of reservations that include weekend nights by filtering rows where `no_of_weekend_nights` is greater than zero.



Navigator

SCHEMAS

tel_reservation_analysis
Tables
hotel_reservation
Columns
- 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

Query 1

Limit to 1000 rows

```sql
USE hotel_reservation_analysis
CREATE DATABASE hotel_reservation_analysis
SHOW TABLES;
SELECT COUNT(Booking_ID) AS Weekend_Reservations
FROM hotel_reservation
WHERE no_of_weekend_nights > 0;
```

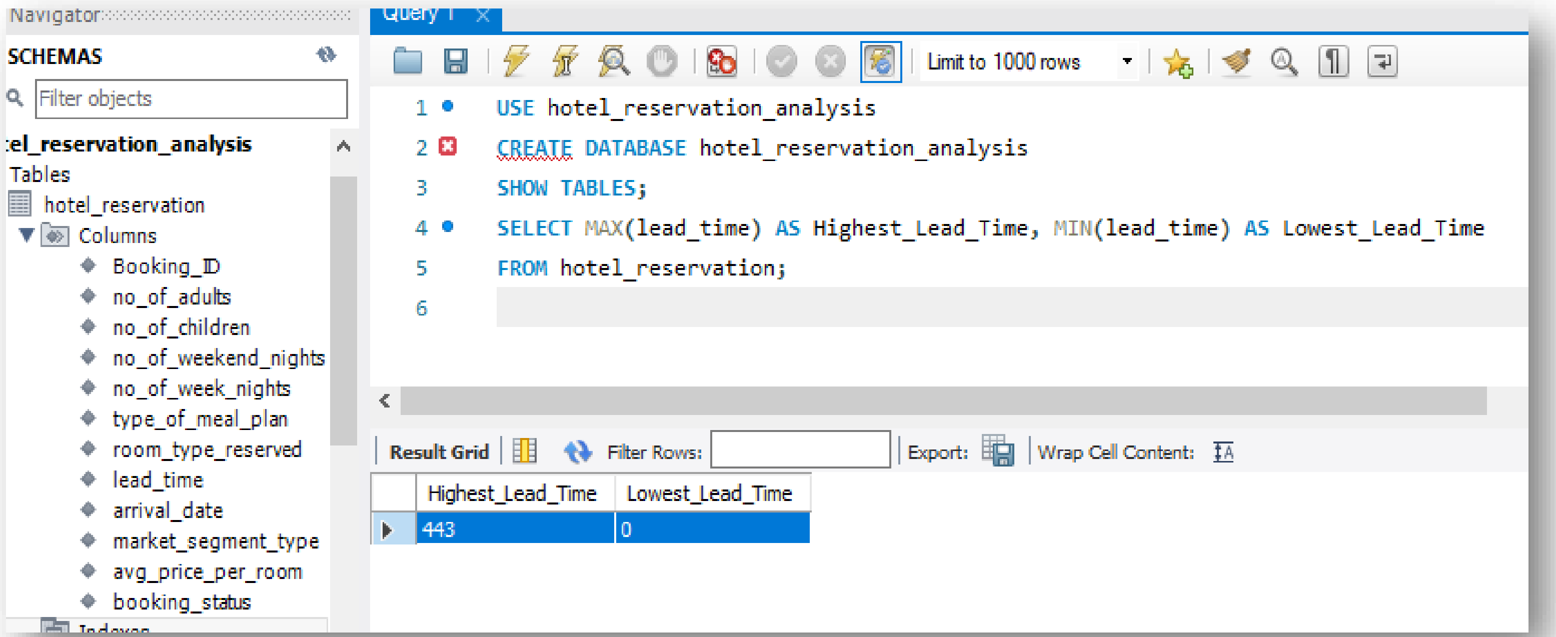
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Weekend_Reservations
383

SQL QUERIES

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

This query calculates the highest and lowest lead times by using `MAX(lead_time)` and `MIN(lead_time)` to find the maximum and minimum values of `lead_time`.



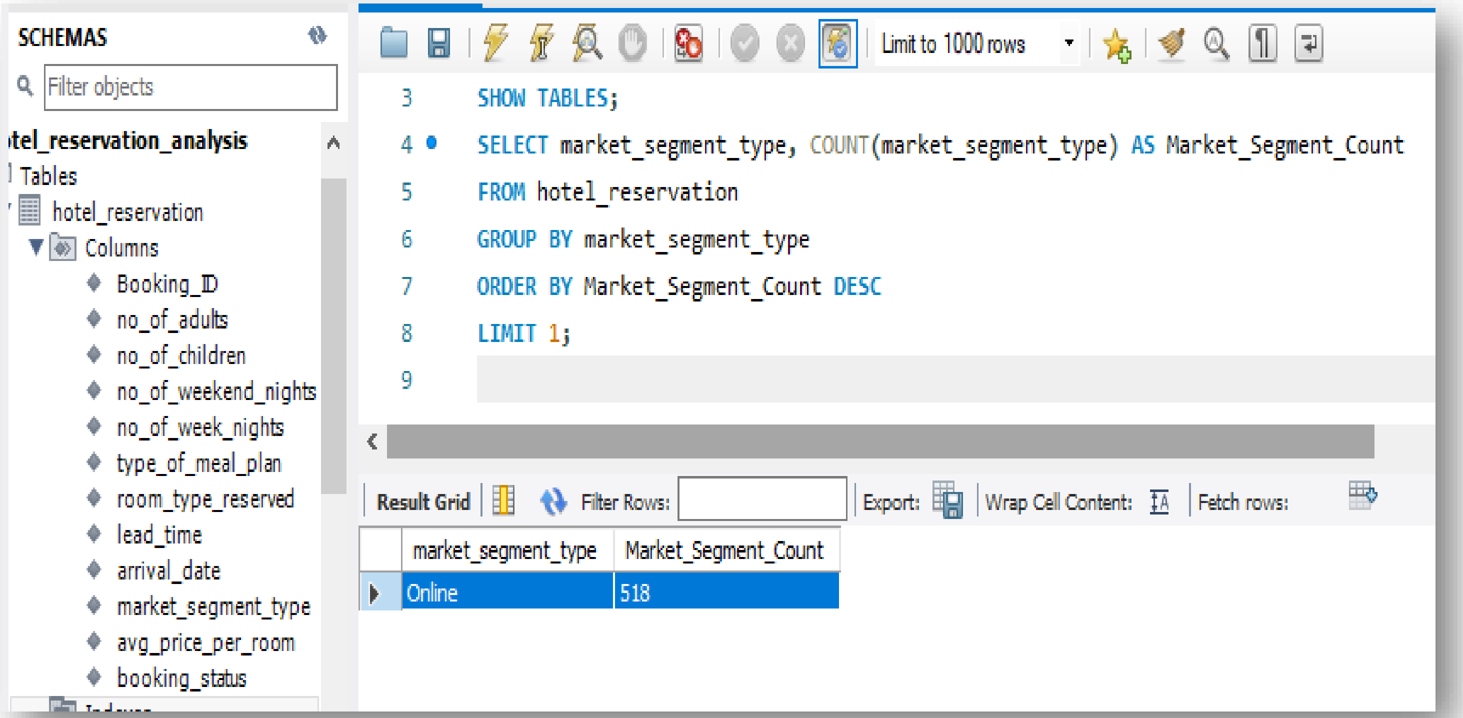
```
USE hotel_reservation_analysis
CREATE DATABASE hotel_reservation_analysis
SHOW TABLES;
SELECT MAX(lead_time) AS Highest_Lead_Time, MIN(lead_time) AS Lowest_Lead_Time
FROM hotel_reservation;
```

Highest_Lead_Time	Lowest_Lead_Time
443	0

SQL QUERIES

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

This query groups the reservations by `market_segment_type`, counts the number of reservations for each segment, orders by count in descending order, and returns the most common market segment type.



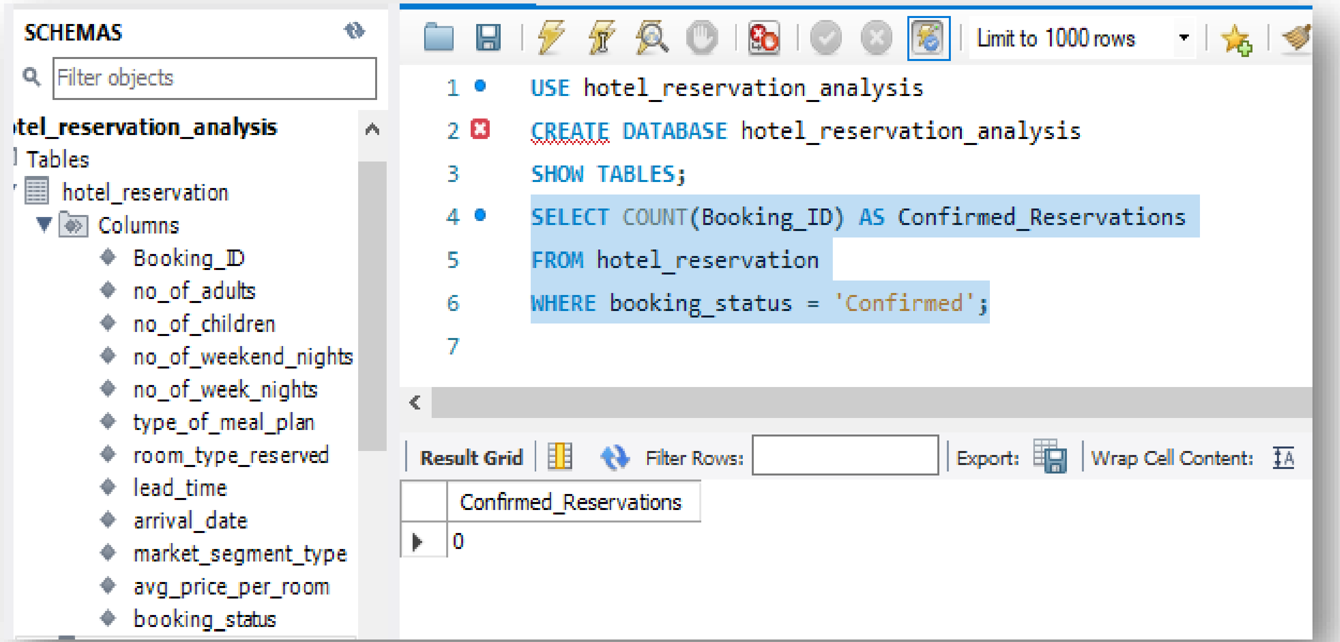
```
SHOW TABLES;
SELECT market_segment_type, COUNT(market_segment_type) AS Market_Segment_Count
FROM hotel_reservation
GROUP BY market_segment_type
ORDER BY Market_Segment_Count DESC
LIMIT 1;
```

market_segment_type	Market_Segment_Count
Online	518

SQL QUERIES

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

This query counts the number of reservations with a `booking_status` of 'Confirmed' by filtering rows where `booking_status` equals 'Confirmed'.



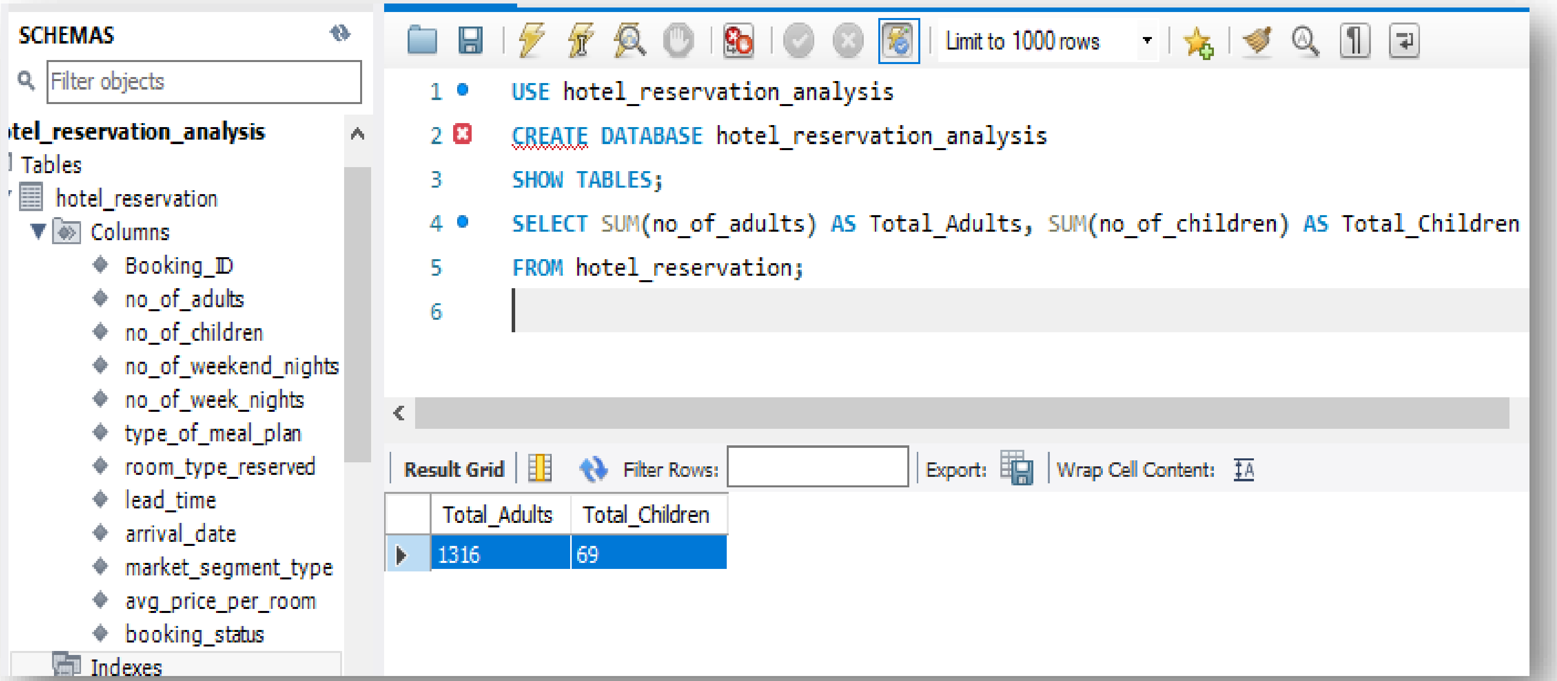
```sql
USE hotel_reservation_analysis
CREATE DATABASE hotel_reservation_analysis
SHOW TABLES;
SELECT COUNT(Booking_ID) AS Confirmed_Reservations
FROM hotel_reservation
WHERE booking_status = 'Confirmed';
```

```
Confirmed_Reservations
0
```

SQL QUERIES

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

This query calculates the total number of adults and children across all reservations by summing up `no_of_adults` and `no_of_children` using SUM().



SCHEMAS

Filter objects

tel_reservation_analysis
- Tables
  - hotel_reservation
    - Columns
      - 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
    - Indexes

Limit to 1000 rows

```sql
USE hotel_reservation_analysis
CREATE DATABASE hotel_reservation_analysis
SHOW TABLES;
SELECT SUM(no_of_adults) AS Total_Adults, SUM(no_of_children) AS Total_Children
FROM hotel_reservation;
```

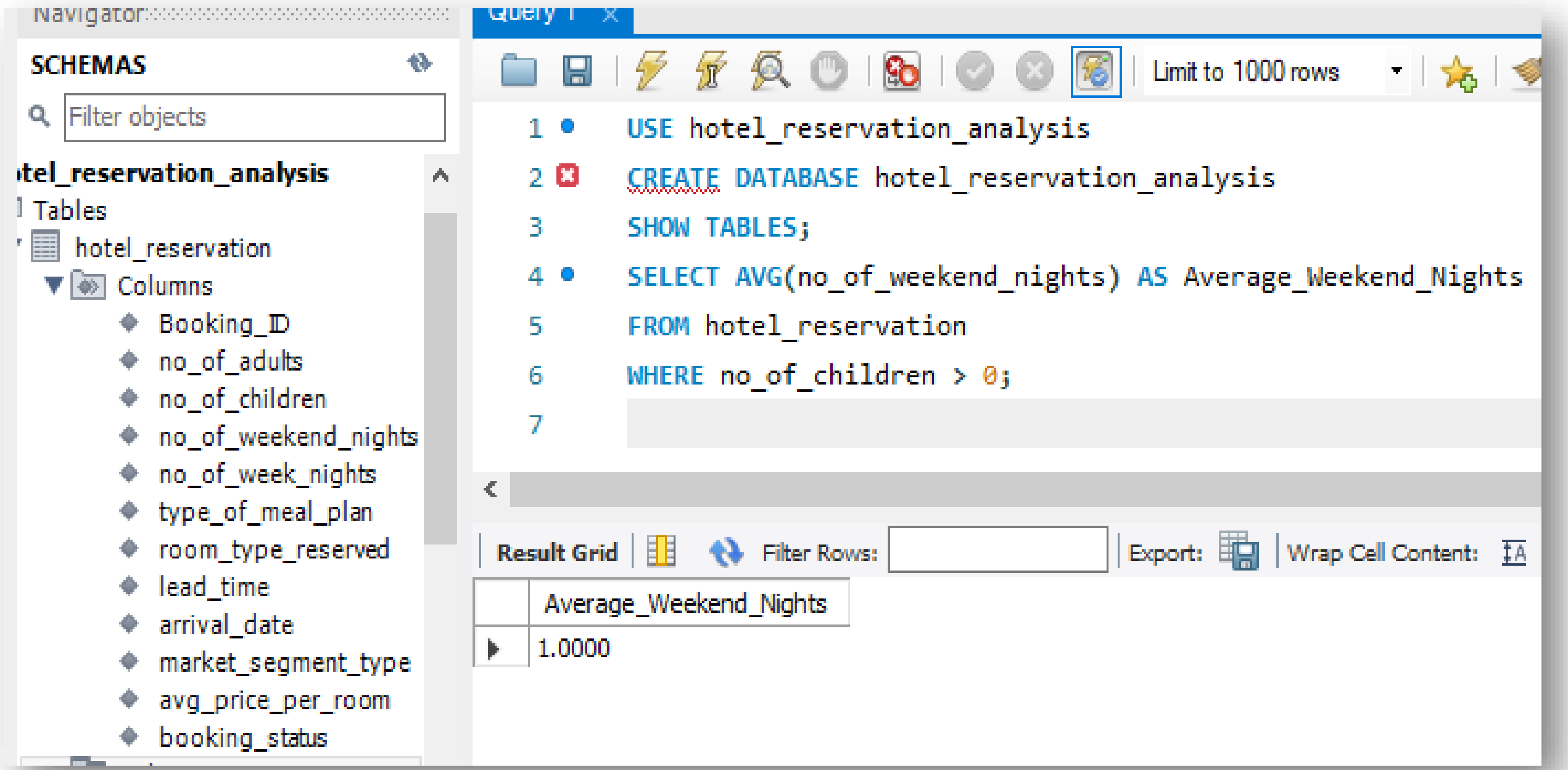
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Total_Adults	Total_Children
1316	69

SQL QUERIES

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

This query calculates the average number of weekend nights for reservations that include children by filtering rows where `no_of_children` is greater than zero and using AVG(`no_of_weekend_nights`).



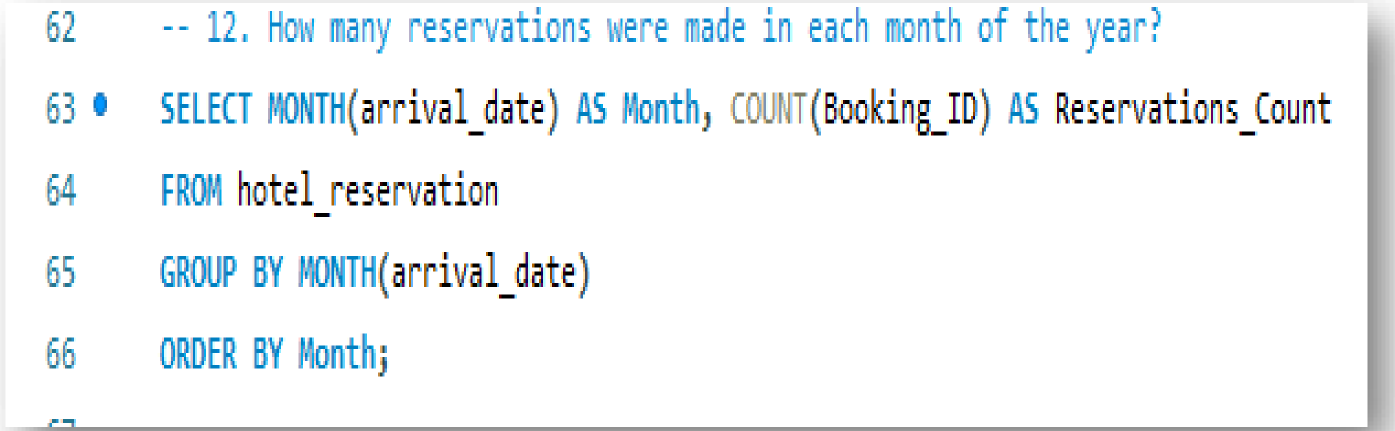
```
USE hotel_reservation_analysis
CREATE DATABASE hotel_reservation_analysis
SHOW TABLES;
SELECT AVG(no_of_weekend_nights) AS Average_Weekend_Nights
FROM hotel_reservation
WHERE no_of_children > 0;
```

```
Average_Weekend_Nights
1.0000
```

SQL QUERIES

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

This query groups the reservations by month of `arrival_date`, counts the number of reservations for each month, and returns the count for each month.

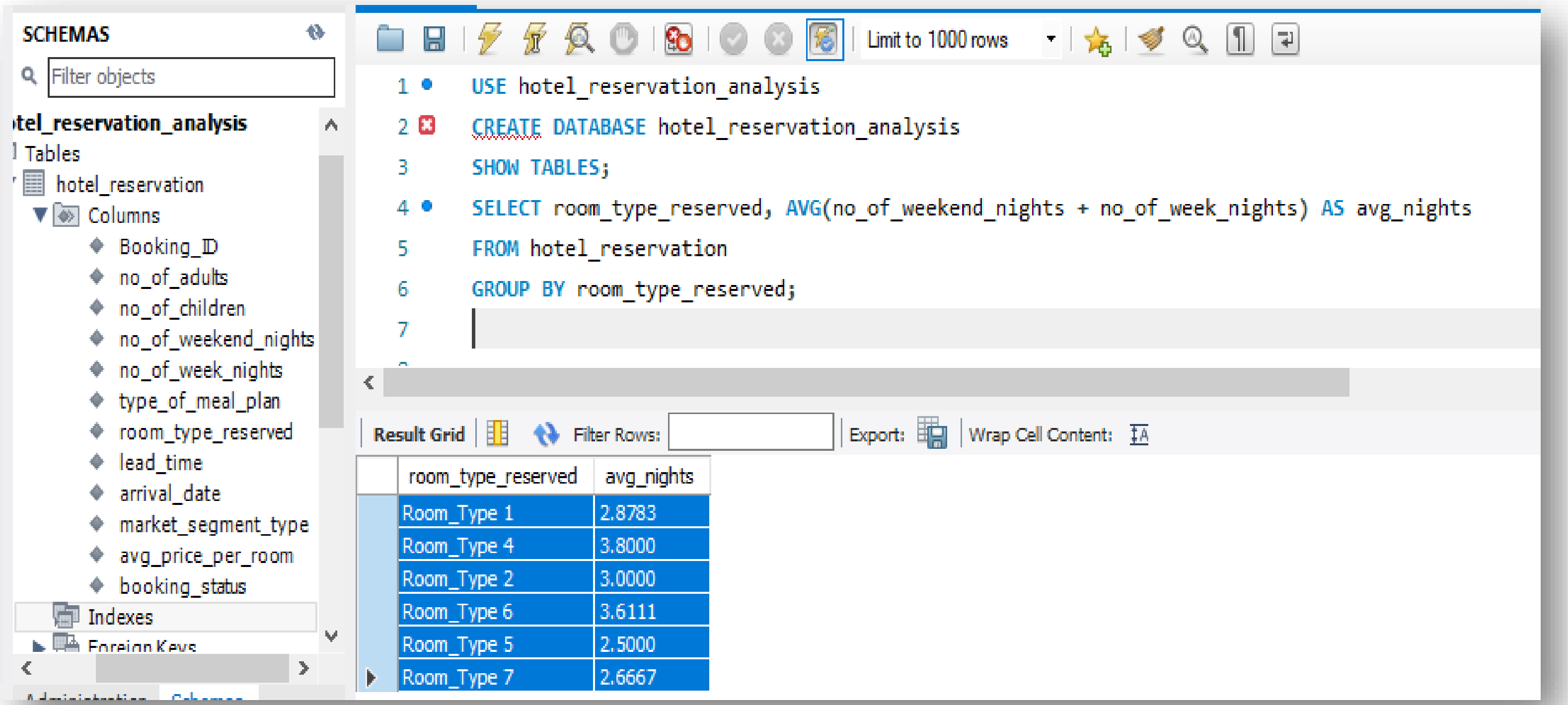


```
-- 12. How many reservations were made in each month of the year?
SELECT MONTH(arrival_date) AS Month, COUNT(Booking_ID) AS Reservations_Count
FROM hotel_reservation
GROUP BY MONTH(arrival_date)
ORDER BY Month;
```

SQL QUERIES

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

This query groups the reservations by month of arrival_date, counts the number of reservations for each month, and returns the count for each month.



SCHEMAS

tel_reservation_analysis
- Tables
  - hotel_reservation
    - Columns
      - 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
    - Indexes
    - Foreign Keys

Limit to 1000 rows

```sql
USE hotel_reservation_analysis
CREATE DATABASE hotel_reservation_analysis
SHOW TABLES;
SELECT room_type_reserved, AVG(no_of_weekend_nights + no_of_week_nights) AS avg_nights
FROM hotel_reservation
GROUP BY room_type_reserved;
```

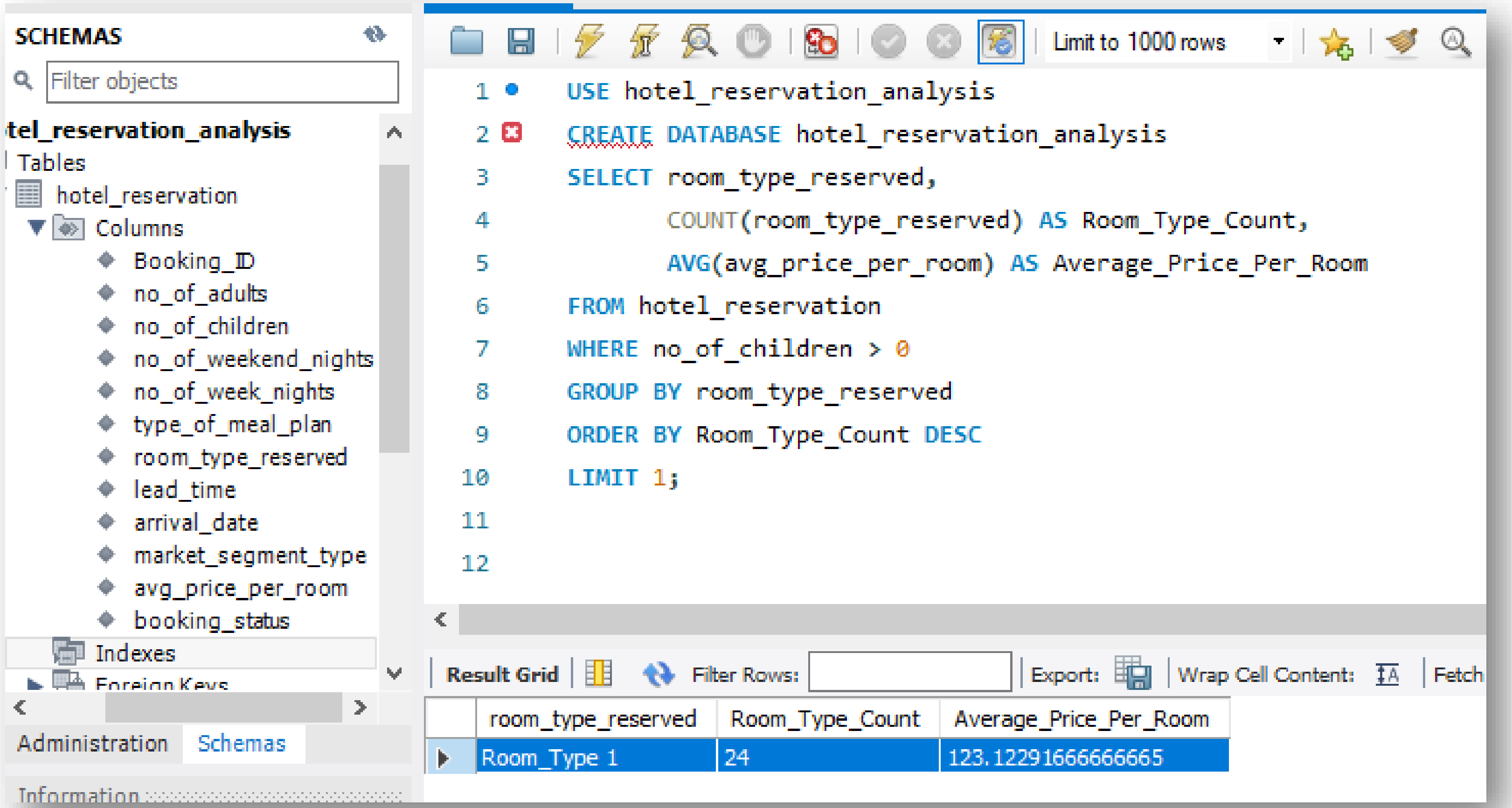
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

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

SQL QUERIES

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

This query groups the reservations by `room_type_reserved` for reservations involving children, counts the number of reservations for each room type, calculates the average price per room, orders by count in descending order, and returns the most common room type and its average price.



SCHEMAS

tel_reservation_analysis
- Tables
  - hotel_reservation
    - Columns
      - 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
    - Indexes
    - Foreign Keys

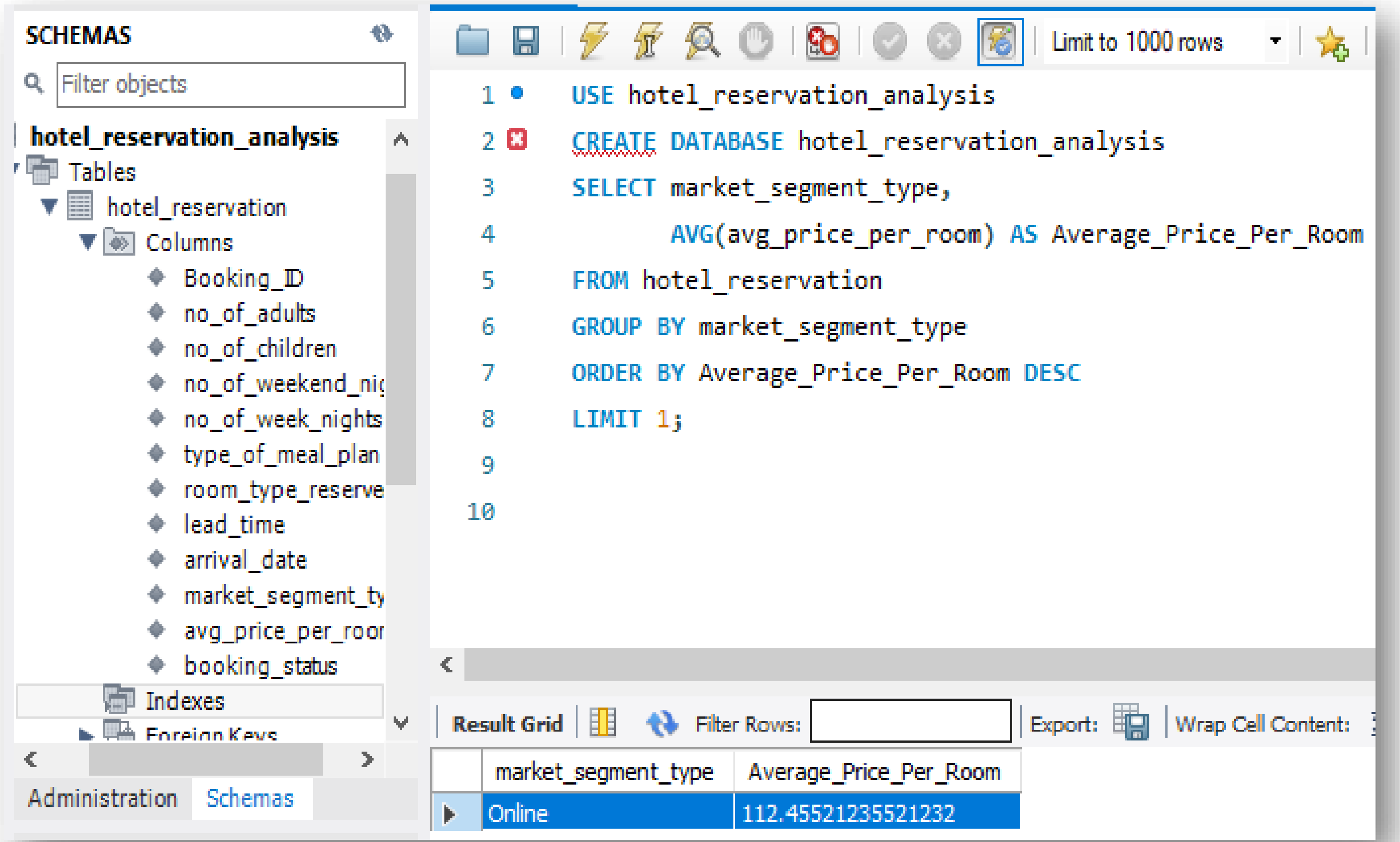
```sql
USE hotel_reservation_analysis
CREATE DATABASE hotel_reservation_analysis
SELECT room_type_reserved,
       COUNT(room_type_reserved) AS Room_Type_Count,
       AVG(avg_price_per_room) AS Average_Price_Per_Room
FROM hotel_reservation
WHERE no_of_children > 0
GROUP BY room_type_reserved
ORDER BY Room_Type_Count DESC
LIMIT 1;
```

room_type_reserved	Room_Type_Count	Average_Price_Per_Room
Room_Type 1	24	123.1229166666665

SQL QUERIES

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

This query groups the reservations by `market_segment_type`, calculates the average price per room for each segment, orders by average price in descending order, and returns the market segment type with the highest average price per room.



```sql
USE hotel_reservation_analysis
CREATE DATABASE hotel_reservation_analysis
SELECT market_segment_type,
       AVG(avg_price_per_room) AS Average_Price_Per_Room
FROM hotel_reservation
GROUP BY market_segment_type
ORDER BY Average_Price_Per_Room DESC
LIMIT 1;
```

market_segment_type	Average_Price_Per_Room
Online	112.45521235521232

THANK YOU

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