

Task # 02

Title: Hotel Reservation Analysis using SQL

Submitted to: Mentorness


Submitted by: Anita Shafique

Name _____

Signature _____

Date _____



The background of the slide is a blurred photograph of a hotel lobby. In the foreground, a polished, reflective metal bell is visible on a surface. The overall lighting is soft and indoor. A decorative graphic on the left side consists of several overlapping diagonal bands in shades of blue and grey.

Hotel Reservation Analysis using SQL

Overview:

In this project, we will use SQL to answer the questions related to dataset. This will help us to develop our data analysis skills in a practical context. We will 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.



Step 1:

- Create a database in MSSMS.
- Use the current the database sql1.
- Click on the sql1 expend it then click on the tables and then add a CSV file .



Dataset Details:

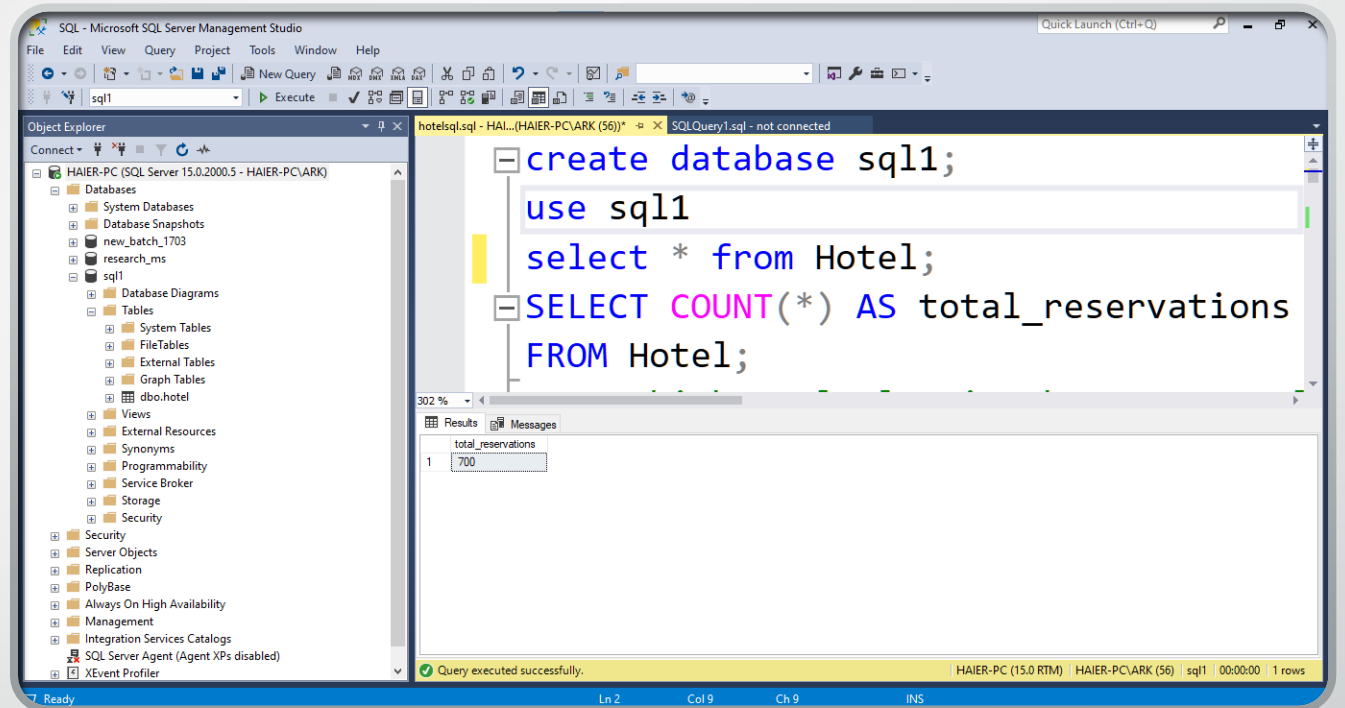
The dataset includes the following columns:

- **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.

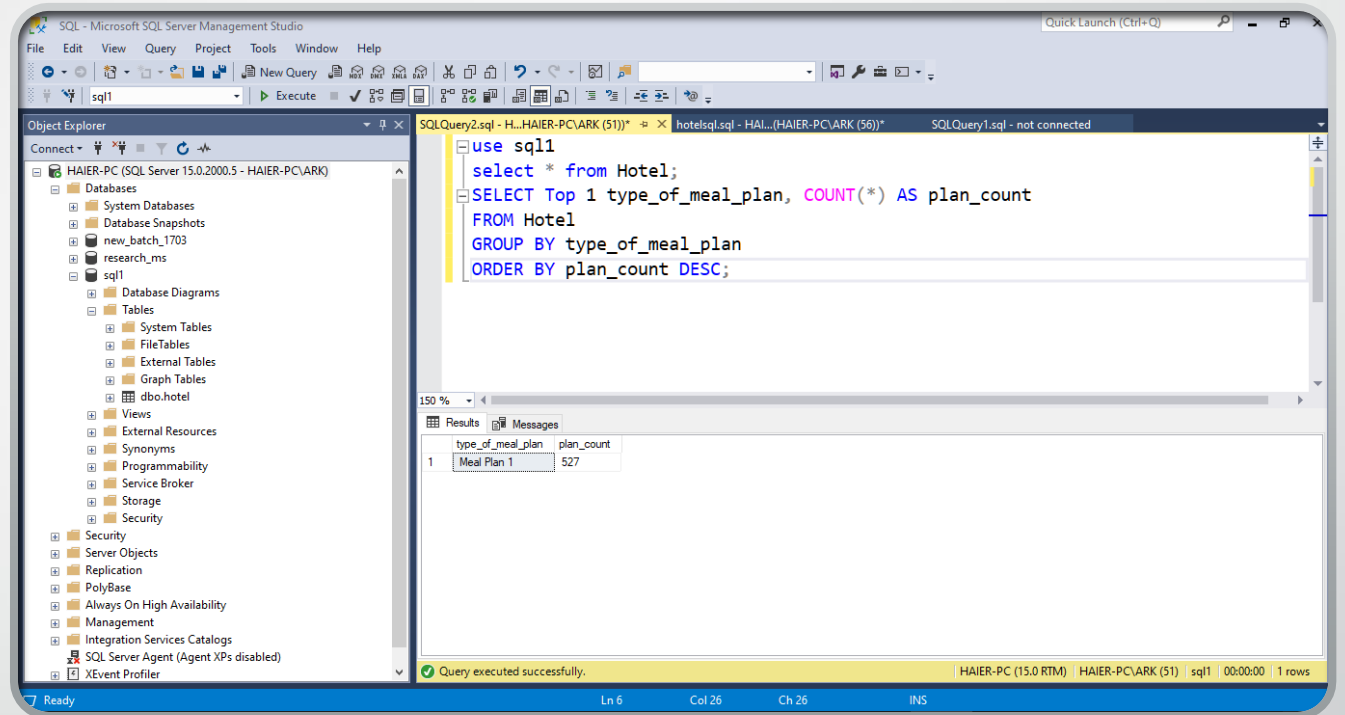


Here are some questions for which we will write SQL queries to gain insights:

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



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



The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left displays the database structure for 'HAIER-PC (SQL Server 15.0.2000.5 - HAIER-PC\ARK)'. The main query window contains the following SQL code:

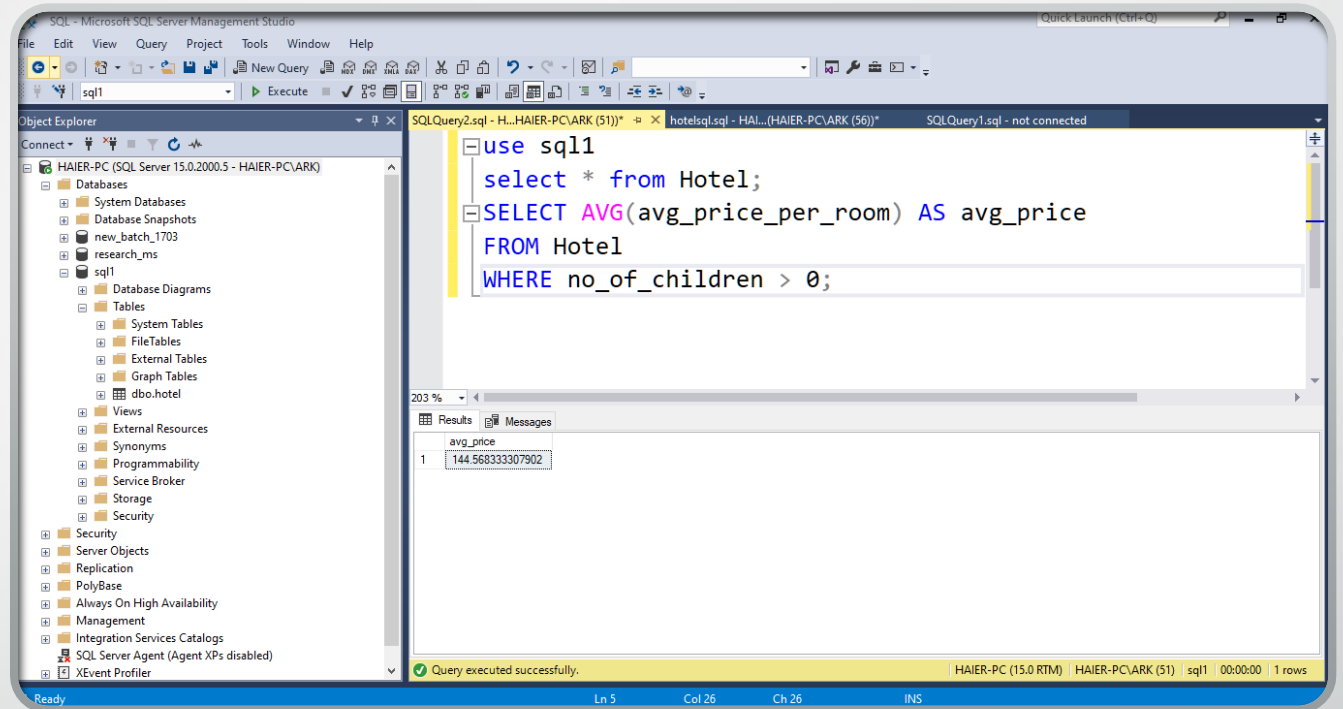
```
use sql1
select * from Hotel;
SELECT Top 1 type_of_meal_plan, COUNT(*) AS plan_count
FROM Hotel
GROUP BY type_of_meal_plan
ORDER BY plan_count DESC;
```

The Results pane at the bottom shows the output of the query:

	type_of_meal_plan	plan_count
1	Meal Plan 1	527

The status bar at the bottom indicates 'Query executed successfully.' and '1 rows'.

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



The screenshot displays the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure for 'HAIER-PC (SQL Server 15.0.2000.5 - HAIER-PC\ARK)'. The main query window contains the following SQL code:

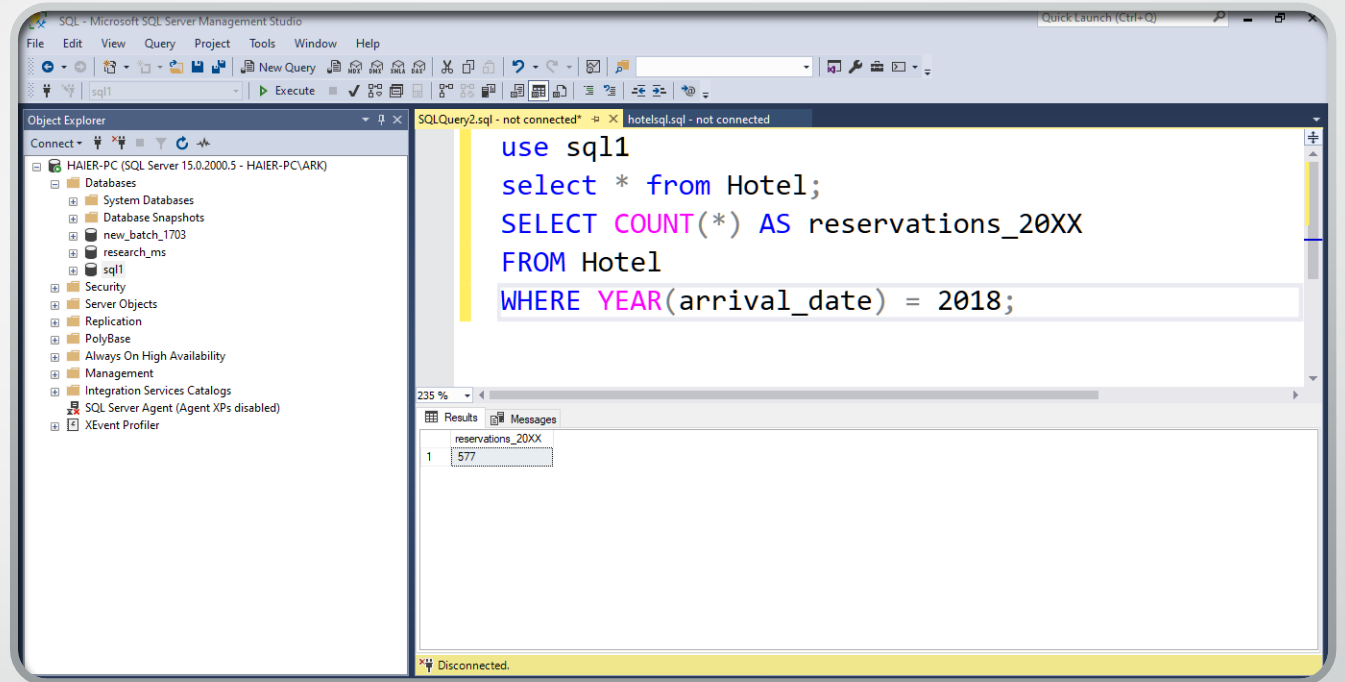
```
use sql1
select * from Hotel;
SELECT AVG(avg_price_per_room) AS avg_price
FROM Hotel
WHERE no_of_children > 0;
```

The Results pane at the bottom shows the output of the query:

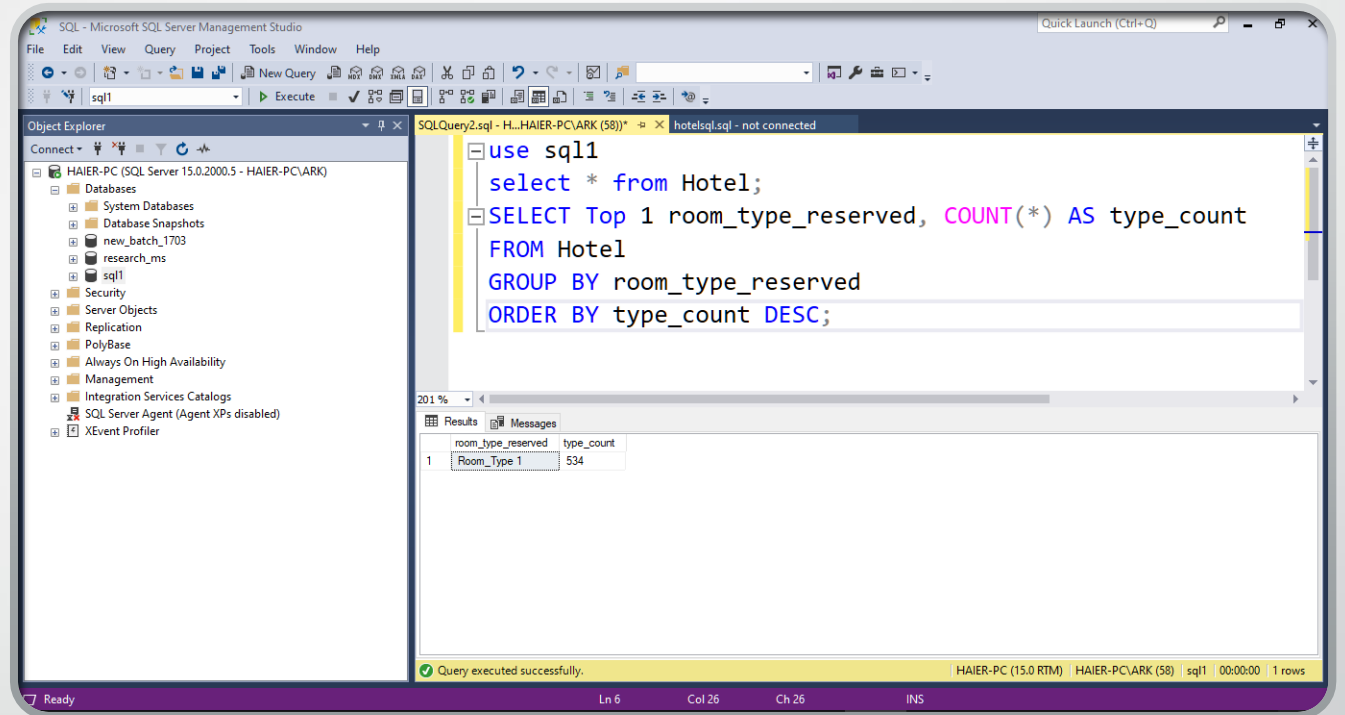
avg_price
144.568333307902

The status bar at the bottom indicates 'Query executed successfully.' and '1 rows'.

4. How many reservations were made for the year 20XX (replace XX with the desired year)?



5. What is the most commonly booked room type?



The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left displays the server structure for 'HAIER-PC (SQL Server 15.0.2000.5 - HAIER-PC\ARK)', including databases like 'new_batch_1703' and 'research_ms', and the 'sql1' database. The main query window shows the following SQL code:

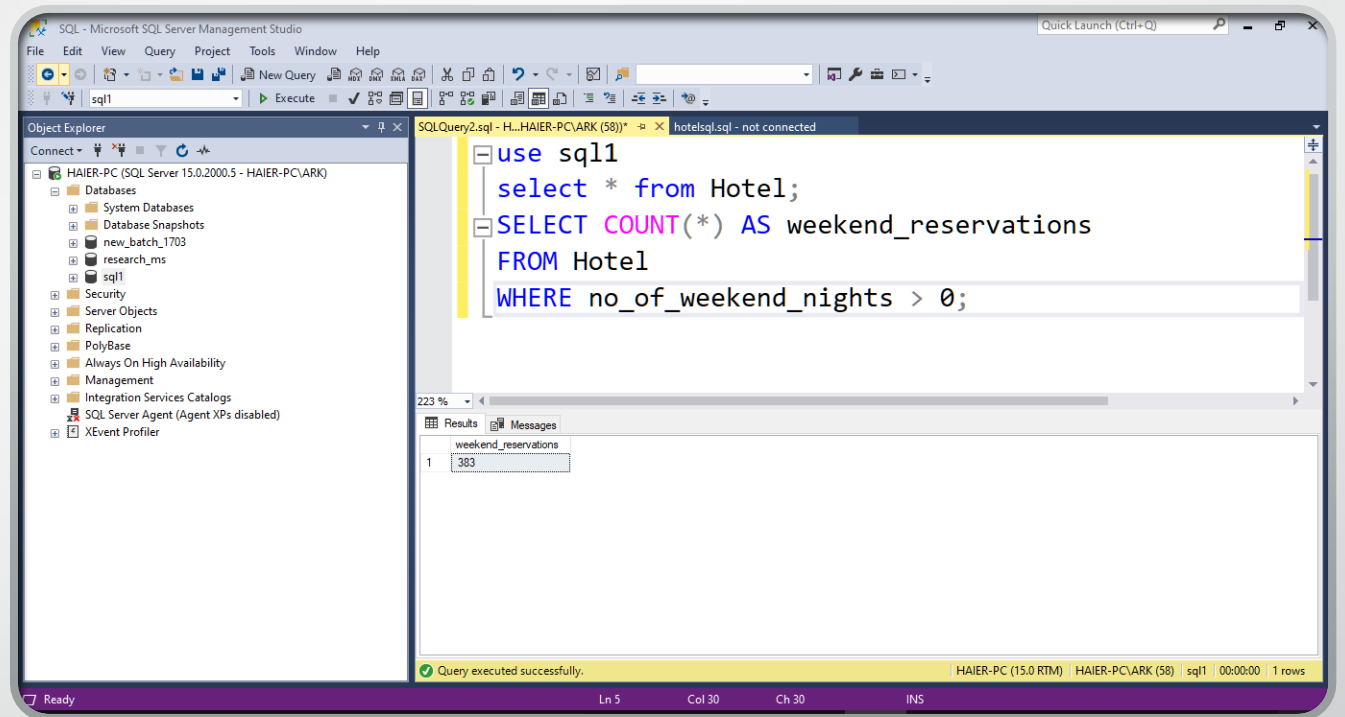
```
use sql1
select * from Hotel;
SELECT Top 1 room_type_reserved, COUNT(*) AS type_count
FROM Hotel
GROUP BY room_type_reserved
ORDER BY type_count DESC;
```

The Results pane at the bottom displays the output of the query as a table with two columns: 'room_type_reserved' and 'type_count'. The first row shows 'Room_Type 1' with a count of 534.

room_type_reserved	type_count
Room_Type 1	534

The status bar at the bottom indicates 'Query executed successfully.' and shows the execution time as 00:00:00 with 1 row returned.

6. How many reservations fall on a weekend($\text{no_of_weekend_nights} > 0$)?



The screenshot displays the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the server hierarchy for 'HAIER-PC (SQL Server 15.0.2000.5 - HAIER-PC\ARK)'. The central query editor contains the following SQL code:

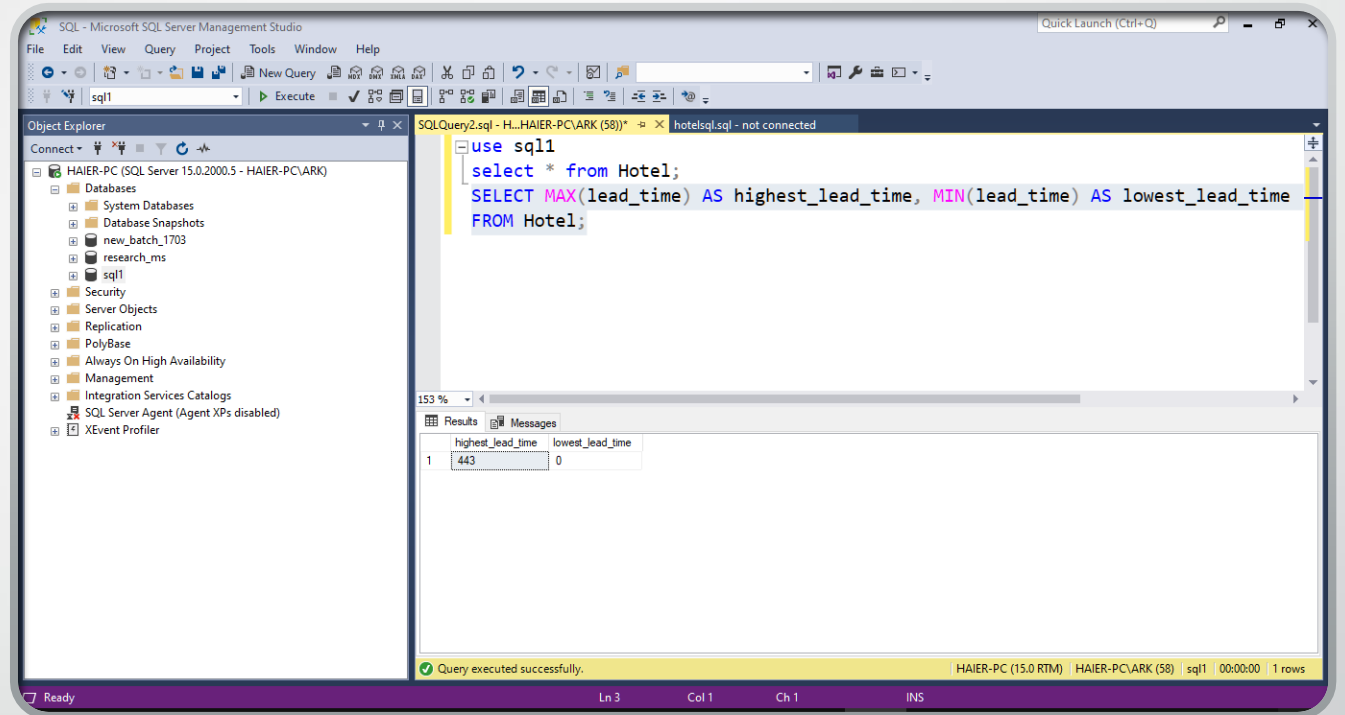
```
use sql1
select * from Hotel;
SELECT COUNT(*) AS weekend_reservations
FROM Hotel
WHERE no_of_weekend_nights > 0;
```

The Results pane at the bottom shows a single row of data:

weekend_reservations
383

The status bar at the bottom indicates 'Query executed successfully.' and '1 rows'.

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



The screenshot displays the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the server hierarchy for 'HAIER-PC (SQL Server 15.0.2000.5 - HAIER-PC\ARK)'. The central query editor contains the following SQL code:

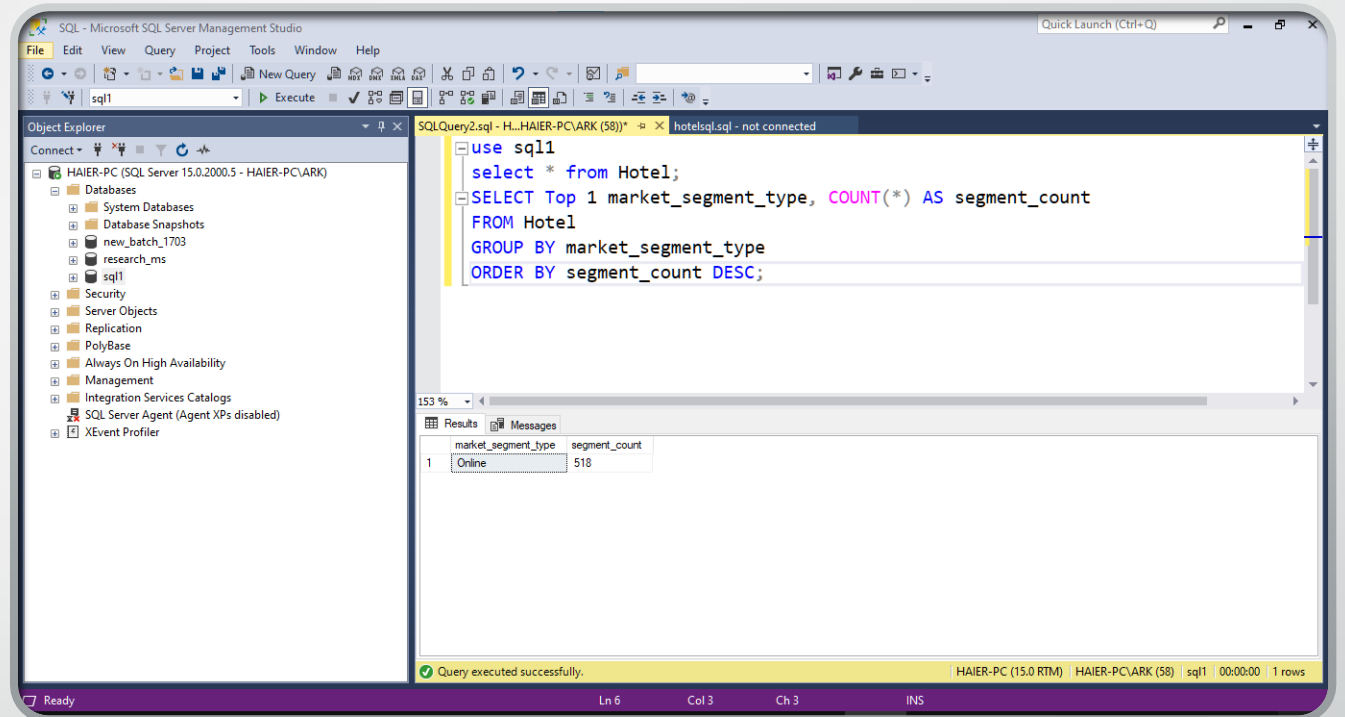
```
use sql1
select * from Hotel;
SELECT MAX(lead_time) AS highest_lead_time, MIN(lead_time) AS lowest_lead_time
FROM Hotel;
```

The Results pane at the bottom shows the output of the query:

	highest_lead_time	lowest_lead_time
1	443	0

The status bar at the bottom indicates 'Query executed successfully.' and '1 rows'.

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



The screenshot displays the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the server structure for 'HAIER-PC (SQL Server 15.0.2000.5 - HAIER-PC\ARK)'. The main query window shows the following SQL code:

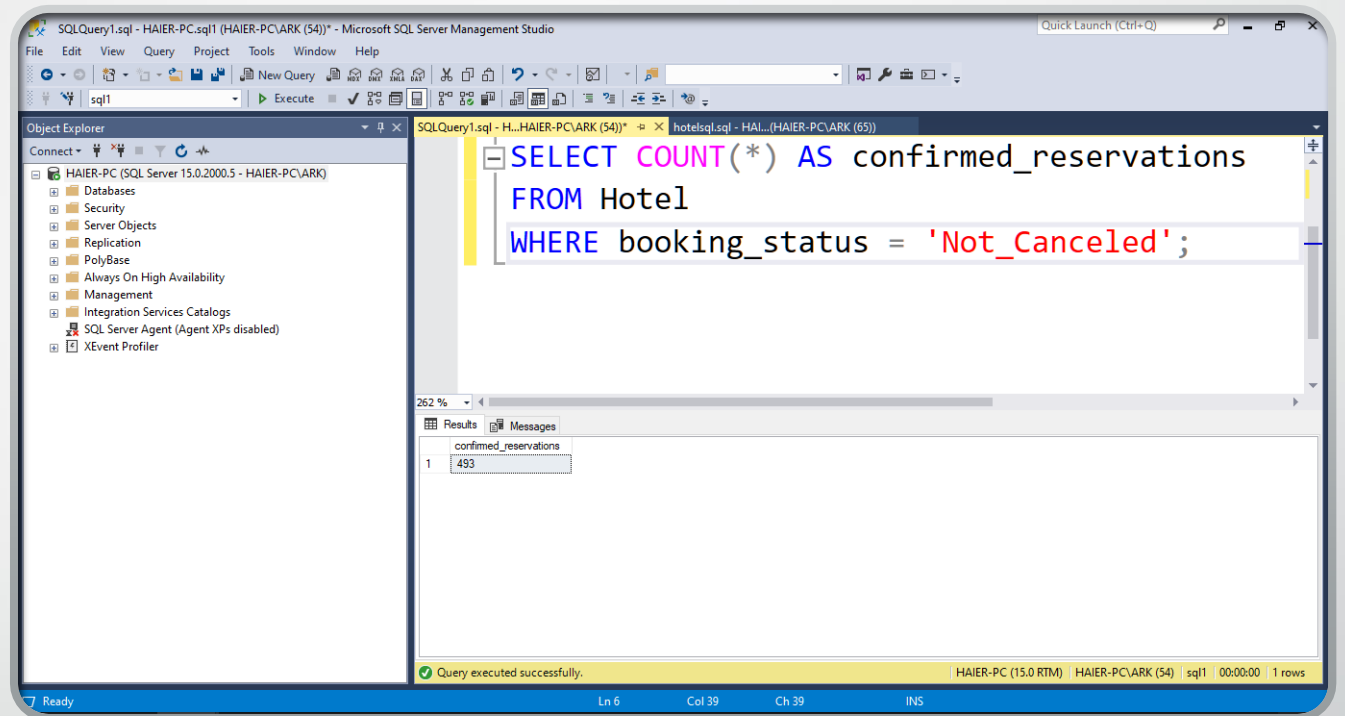
```
use sql1
select * from Hotel;
SELECT Top 1 market_segment_type, COUNT(*) AS segment_count
FROM Hotel
GROUP BY market_segment_type
ORDER BY segment_count DESC;
```

The Results pane at the bottom shows the output of the query:

market_segment_type	segment_count
1 Online	518

The status bar at the bottom indicates 'Query executed successfully.' and '1 rows'.

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



The screenshot displays the Microsoft SQL Server Management Studio interface. The main query editor contains the following SQL statement:

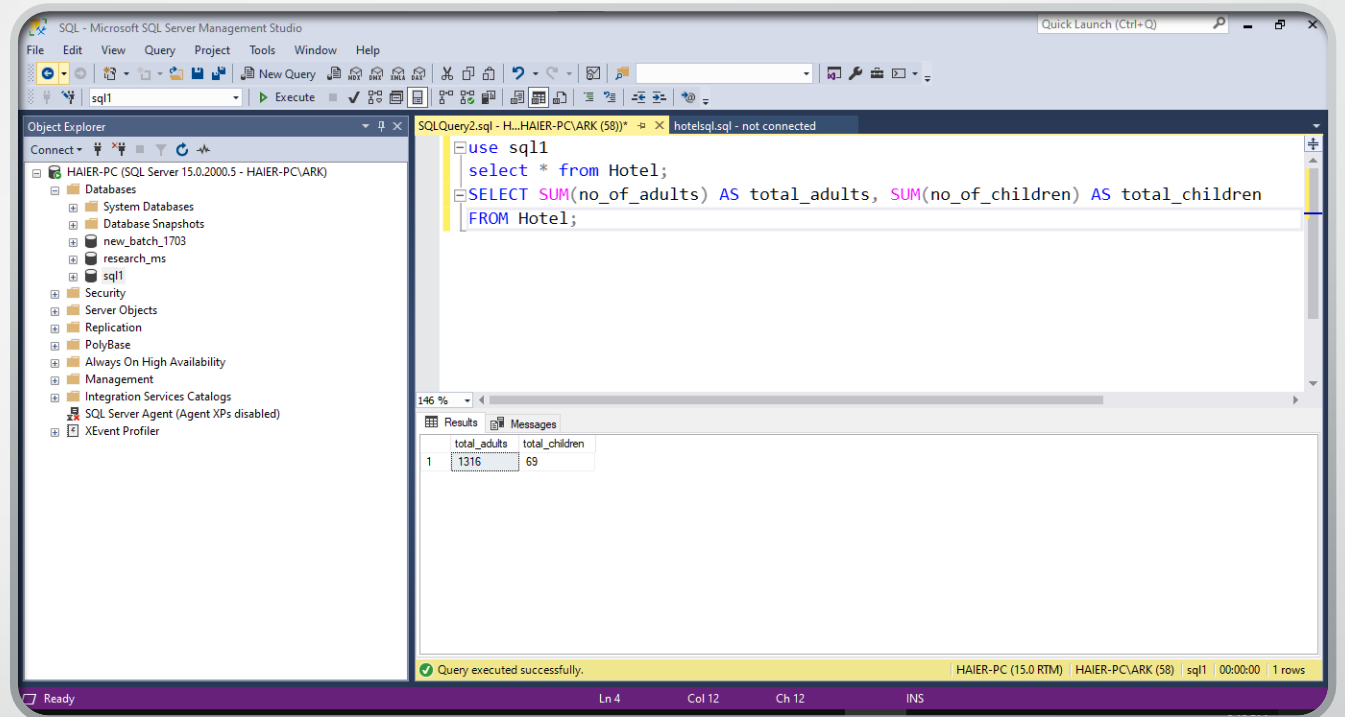
```
SELECT COUNT(*) AS confirmed_reservations
FROM Hotel
WHERE booking_status = 'Not_Canceled';
```

The query has been executed successfully, as indicated by the status bar. The results pane shows a single row with the value 493 for the column confirmed_reservations.

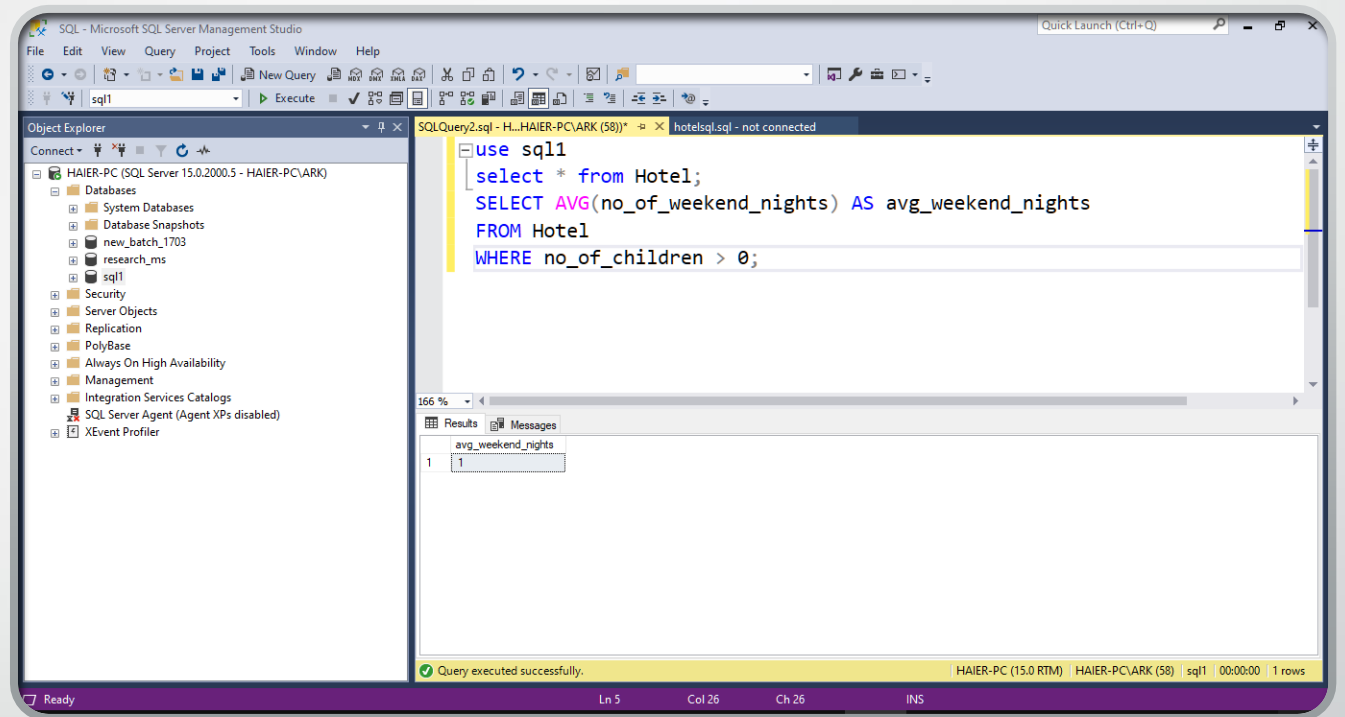
confirmed_reservations
493

The status bar at the bottom of the window confirms the successful execution of the query on the 'sql1' database, showing 1 row of results.

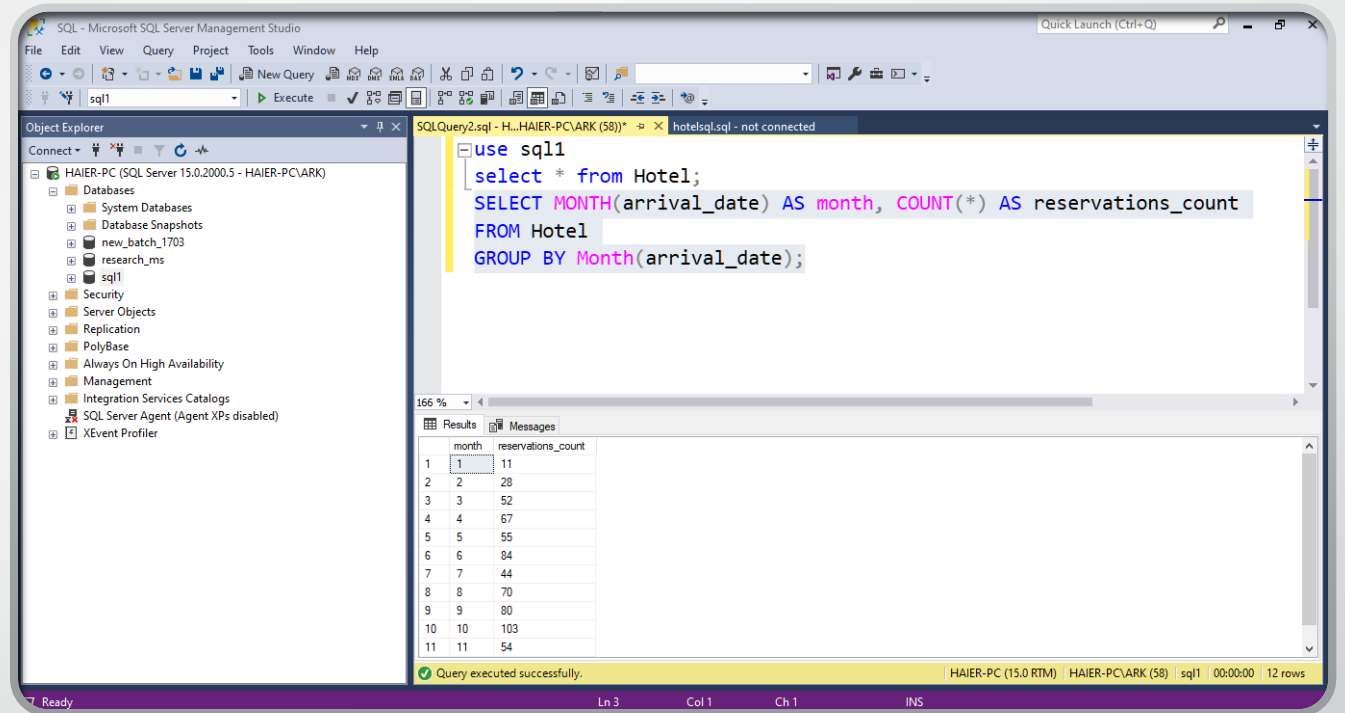
10. What is the total number of adults and children across all reservations?



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



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



The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left displays the server structure for 'HAIER-PC (SQL Server 15.0.2000.5 - HAIER-PC\ARK)'. The central query editor contains the following SQL code:

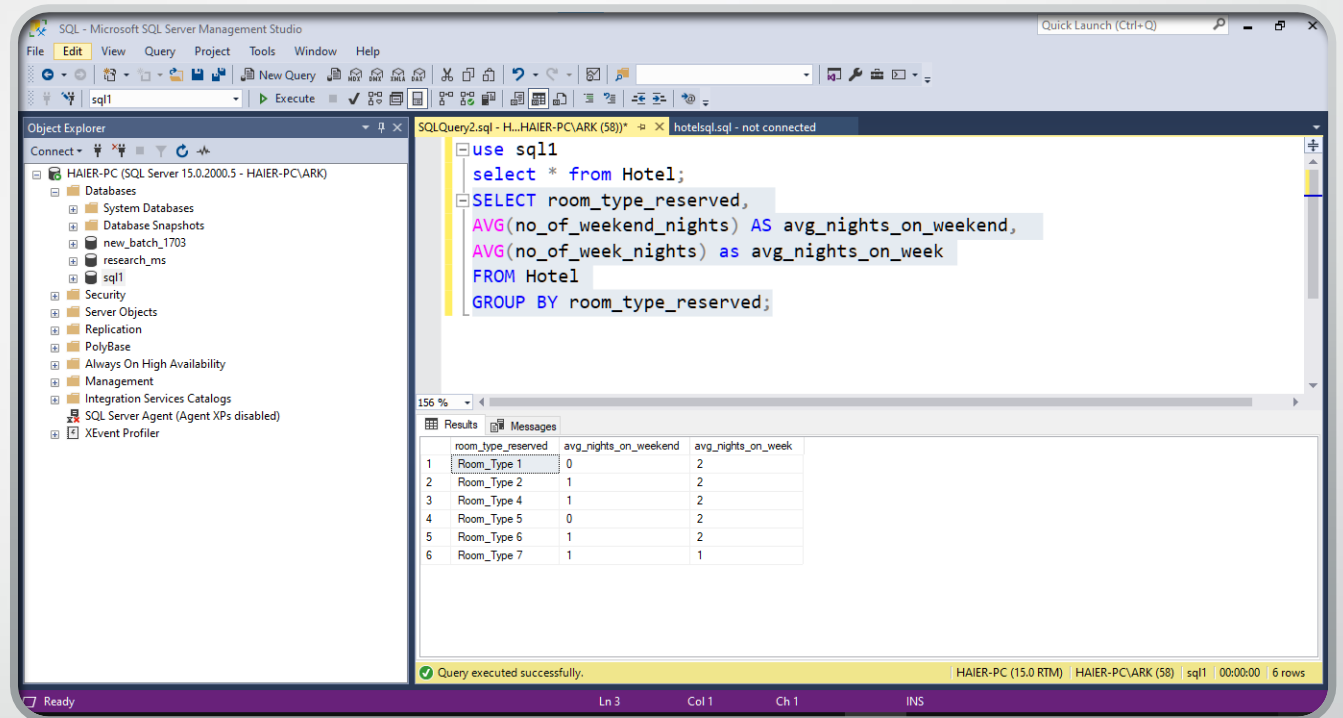
```
use sql1
select * from Hotel;
SELECT MONTH(arrival_date) AS month, COUNT(*) AS reservations_count
FROM Hotel
GROUP BY Month(arrival_date);
```

The bottom right pane shows the 'Results' tab with the following data:

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

The status bar at the bottom indicates 'Query executed successfully.' and '12 rows'.

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



The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left displays the server structure for 'HAIER-PC (SQL Server 15.0.2000.5 - HAIER-PC\ARK)'. The central query editor contains the following SQL code:

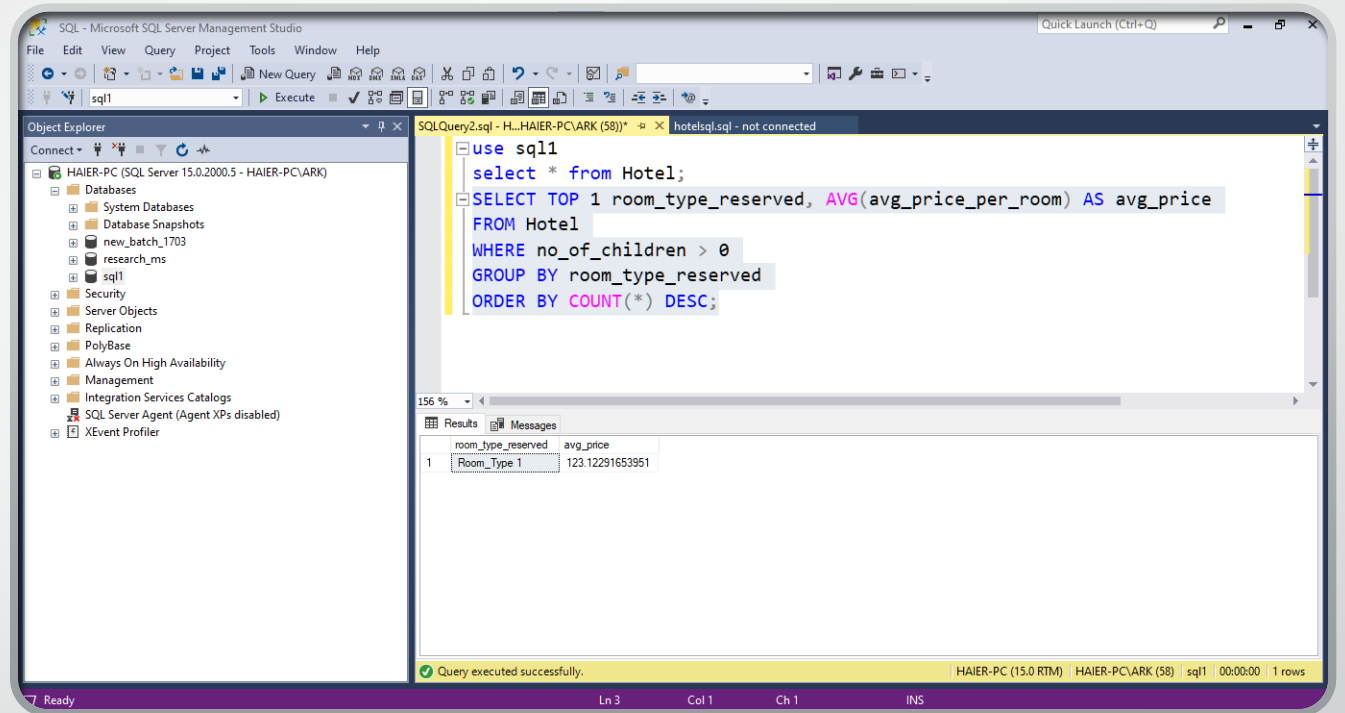
```
use sql1
select * from Hotel;
SELECT room_type_reserved,
AVG(no_of_weekend_nights) AS avg_nights_on_weekend,
AVG(no_of_week_nights) as avg_nights_on_week
FROM Hotel
GROUP BY room_type_reserved;
```

The Results pane at the bottom displays the output of the query as a table with 6 rows and 3 columns: room_type_reserved, avg_nights_on_weekend, and avg_nights_on_week.

	room_type_reserved	avg_nights_on_weekend	avg_nights_on_week
1	Room_Type 1	0	2
2	Room_Type 2	1	2
3	Room_Type 4	1	2
4	Room_Type 5	0	2
5	Room_Type 6	1	2
6	Room_Type 7	1	1

The status bar at the bottom indicates 'Query executed successfully.' and '6 rows'.

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



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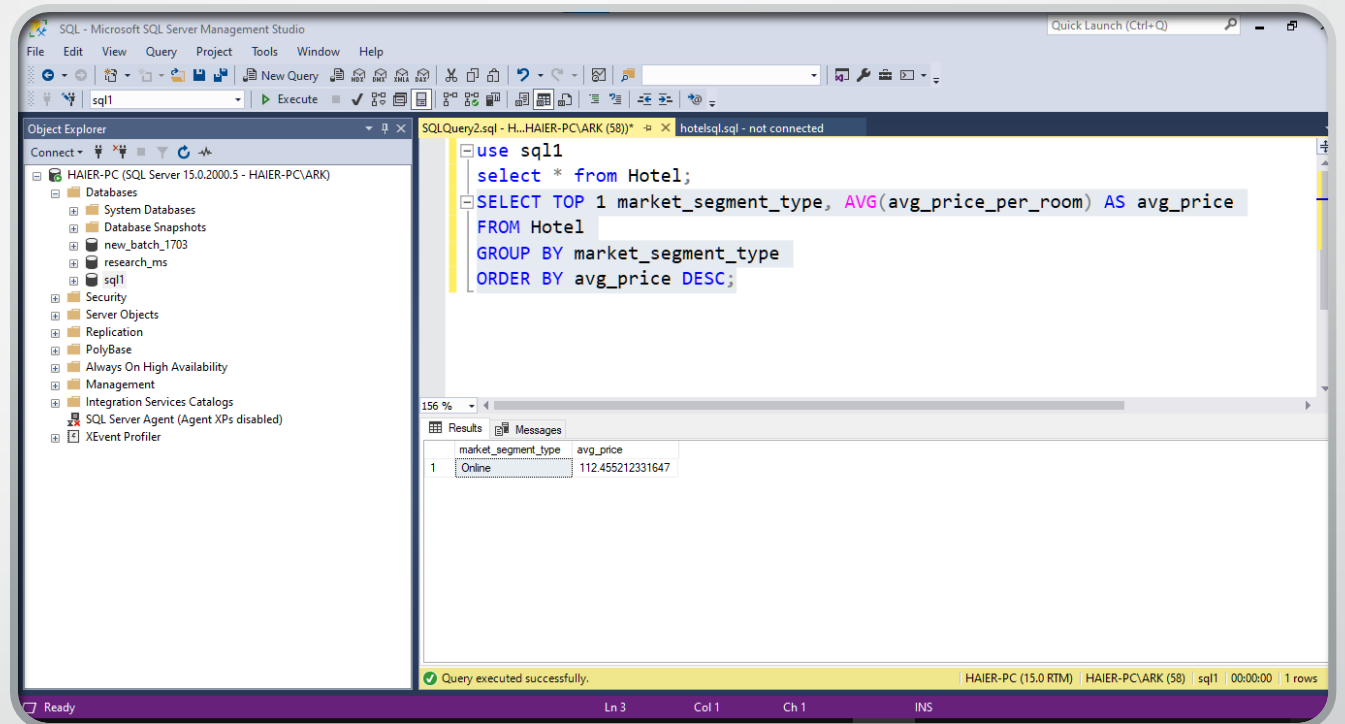
```
use sql1
select * from Hotel;
SELECT TOP 1 room_type_reserved, AVG(avg_price_per_room) AS avg_price
FROM Hotel
WHERE no_of_children > 0
GROUP BY room_type_reserved
ORDER BY COUNT(*) DESC;
```

The Results pane at the bottom shows the output of the query:

	room_type_reserved	avg_price
1	Room_Type 1	123.12291653951

The status bar at the bottom indicates 'Query executed successfully.' and '1 rows'.

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



The screenshot displays the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the server hierarchy for 'HAIER-PC (SQL Server 15.0.2000.5 - HAIER-PC\ARK)'. The central query editor contains the following SQL code:

```
use sql1
select * from Hotel;
SELECT TOP 1 market_segment_type, AVG(avg_price_per_room) AS avg_price
FROM Hotel
GROUP BY market_segment_type
ORDER BY avg_price DESC;
```

The Results pane at the bottom shows the output of the query, which is a single row with the following data:

market_segment_type	avg_price
Online	112.455212331647

The status bar at the bottom indicates 'Query executed successfully.' and '1 rows'.

Thank you

