HOTEL RESERVATION ANALYSIS WITH SQL

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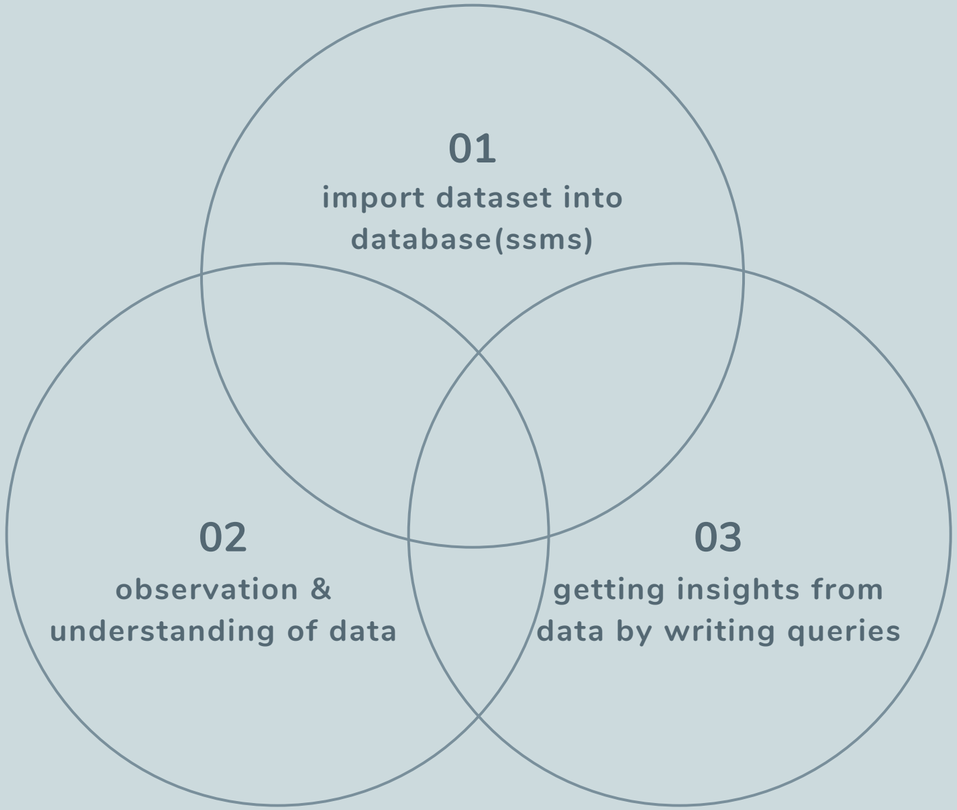
Profile : Data Analyst Intern

- **Project Objective**: Analyzing a hotel reservation dataset using SQL
- **Importance**: Enhancing data analysis skills in a practical context
- **Dataset Details**: Key columns and their significance

PROBLEM ANALYSIS



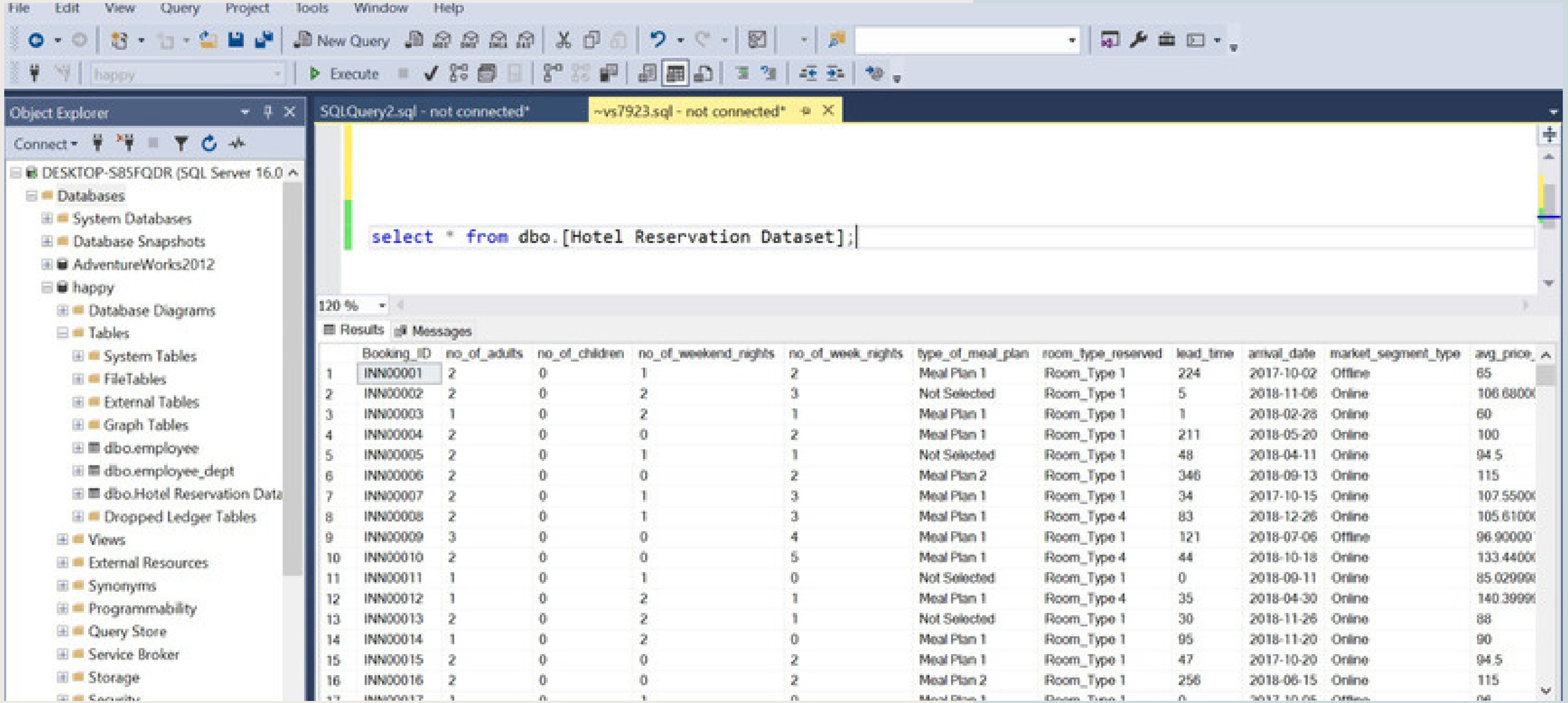
DATASET DETAILS :

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.

DATABASE USED

Microsoft SQL server Management Studio(SSMS)

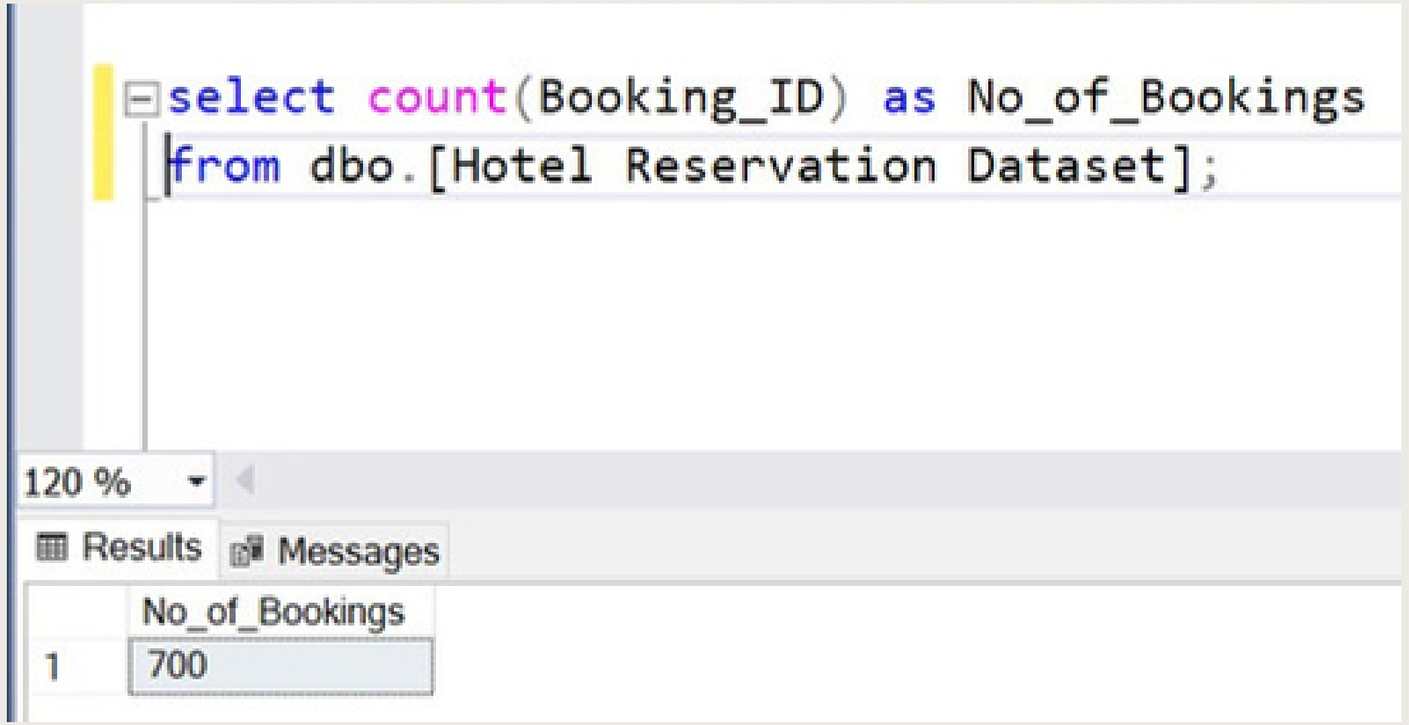
SSMS INTERFACE



	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_
1	INN00001	2	0	1	2	Meal Plan 1	Room_Type 1	224	2017-10-02	Offline	65
2	INN00002	2	0	2	3	Not Selected	Room_Type 1	5	2018-11-06	Online	106.6800
3	INN00003	1	0	2	1	Meal Plan 1	Room_Type 1	1	2018-02-28	Online	60
4	INN00004	2	0	0	2	Meal Plan 1	Room_Type 1	211	2018-05-20	Online	100
5	INN00005	2	0	1	1	Not Selected	Room_Type 1	48	2018-04-11	Online	94.5
6	INN00006	2	0	0	2	Meal Plan 2	Room_Type 1	346	2018-09-13	Online	115
7	INN00007	2	0	1	3	Meal Plan 1	Room_Type 1	34	2017-10-15	Online	107.5500
8	INN00008	2	0	1	3	Meal Plan 1	Room_Type 4	83	2018-12-26	Online	105.6100
9	INN00009	3	0	0	4	Meal Plan 1	Room_Type 1	121	2018-07-06	Offline	96.90000
10	INN00010	2	0	0	5	Meal Plan 1	Room_Type 4	44	2018-10-18	Online	133.4400
11	INN00011	1	0	1	0	Not Selected	Room_Type 1	0	2018-09-11	Online	85.02999
12	INN00012	1	0	2	1	Meal Plan 1	Room_Type 4	35	2018-04-30	Online	140.3999
13	INN00013	2	0	2	1	Not Selected	Room_Type 1	30	2018-11-26	Online	88
14	INN00014	1	0	2	0	Meal Plan 1	Room_Type 1	95	2018-11-20	Online	90
15	INN00015	2	0	0	2	Meal Plan 1	Room_Type 1	47	2017-10-20	Online	94.5
16	INN00016	2	0	0	2	Meal Plan 2	Room_Type 1	256	2018-06-15	Online	115

LETS START WITH SQL QUERIES :

Q1). What is the Total number of reservations in the dataset?



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

```
select type_of_meal_plan, COUNT(type_of_meal_plan) as no_of_times_ordered
from dbo.[Hotel Reservation Dataset]
group by type_of_meal_plan
order by no_of_times_ordered desc;
```

120 %

Results | Messages

	type_of_meal_plan	no_of_times_ordered
1	Meal Plan 1	527
2	Not Selected	109
3	Meal Plan 2	64

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

```
select avg(avg_price_per_room) as Avg_price_per_room_involving_children
from dbo.[Hotel Reservation Dataset]
where no_of_children!=0;
```

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Results | Messages

	Avg_price_per_room_involving_children
1	144.568333307902

```sql
select COUNT(booking_id) as Total_no_of_reservations_in_2018
from dbo.[Hotel Reservation Dataset]
where year(arrival_date) = 2018;
```

120 %

Results | Messages

	Total_no_of_reservations_in_2018
1	577

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?

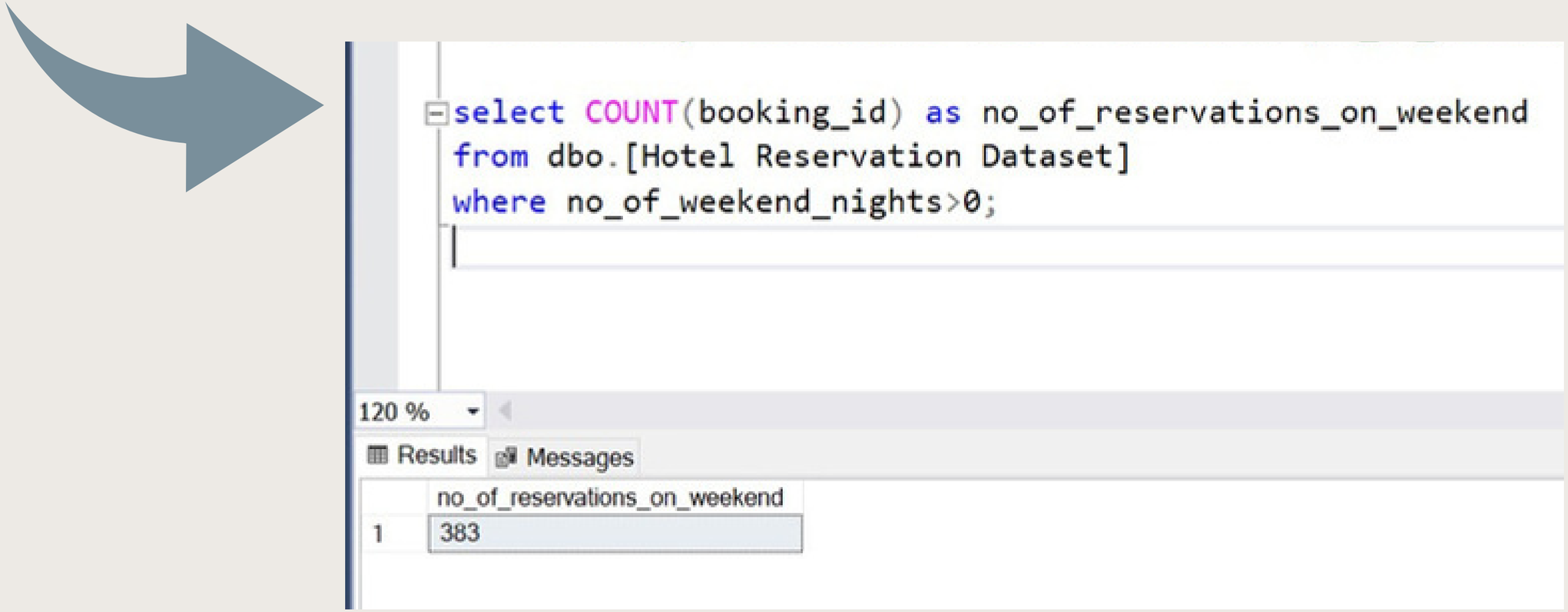
```sql
select room_type_reserved, COUNT(room_type_reserved) as max_no_of_times_booked_room
from dbo.[Hotel Reservation Dataset]
group by room_type_reserved
order by max_no_of_times_booked_room desc;
```

120 %

Results | Messages

	room_type_reserved	max_no_of_times_booked_room
1	Room_Type 1	534
2	Room_Type 4	130
3	Room_Type 6	18
4	Room_Type 2	8
5	Room_Type 7	6
6	Room_Type 5	4

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



```
select MAX(lead_time) as highest_lead_time, MIN(lead_time) as lowest_lead_time
from dbo.[Hotel Reservation Dataset];
```

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Results | Messages

	highest_lead_time	lowest_lead_time
1	443	0

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

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

```sql
select market_segment_type, COUNT(market_segment_type) as max_no_of_times_used
from dbo.[Hotel Reservation Dataset]
group by market_segment_type
order by max_no_of_times_used desc;
```

120 %

Results | Messages

	market_segment_type	max_no_of_times_used
1	Online	518
2	Offline	140
3	Corporate	27
4	Complementary	14
5	Aviation	1

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

```
select COUNT(booking_status) as no_of_confirmed_bookings
from dbo.[Hotel Reservation Dataset]
where booking_status='Not_Canceled';
```

Results | Messages

no_of_confirmed_bookings
493

```
select sum(no_of_adults) as Total_no_of_adults, sum(no_of_children) as Total_no_of_children
from dbo.[Hotel Reservation Dataset];
```

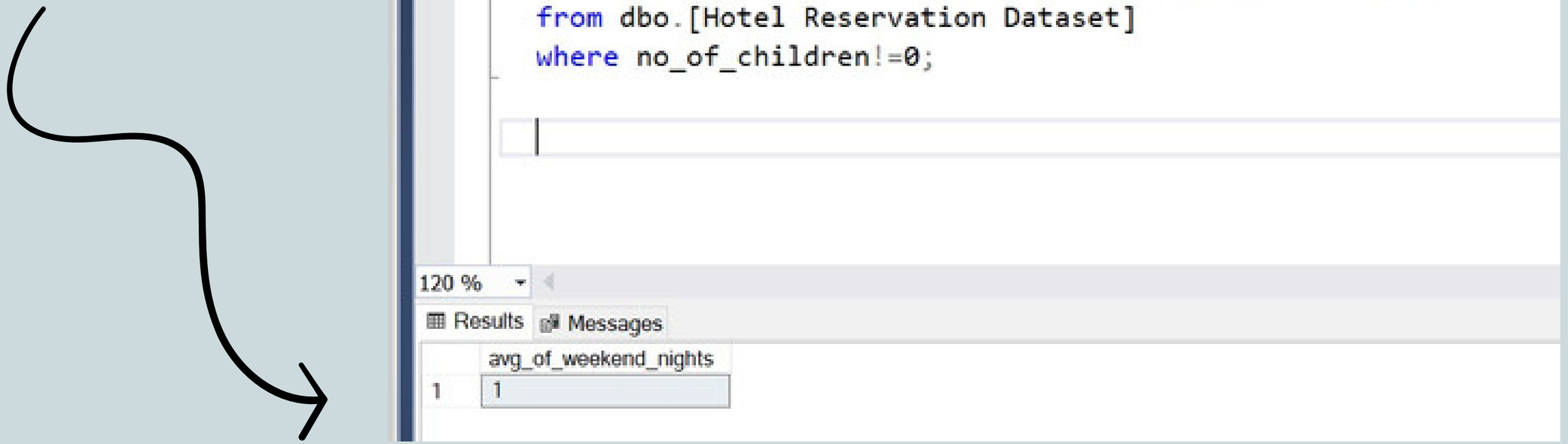
120 %

Results | Messages

	Total_no_of_adults	Total_no_of_children
1	1316	69

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?

```sql
select COUNT(Booking_Id) as no_of_reservations,MONTH(arrival_date) as Month, YEAR(arrival_date) as Year
from dbo.[Hotel Reservation Dataset]
group by Month(arrival_date), YEAR(arrival_date)
order by no_of_reservations desc;
```

120 %

Results | Messages

	no_of_reservations	Month	Year
1	84	6	2018
2	67	4	2018
3	63	10	2018
4	56	8	2018
5	55	5	2018
6	52	3	2018
7	45	9	2018
8	41	11	2018
9	40	10	2017
10	39	12	2018
11	36	7	2018
12	35	9	2017

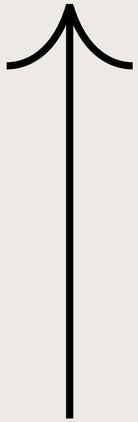
Query executed successfully. DESKTOP-S85FQDR (16.0 RTM) DESKTOI

```sql
select room_type_reserved, AVG(no_of_weekend_nights) as avg_weekend_nights, AVG(no_of_week_nights) as avg_week_nights
from dbo.[Hotel Reservation Dataset]
group by room_type_reserved;
```

120 %

Results | Messages

	room_type_reserved	avg_weekend_nights	avg_week_nights
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



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

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, COUNT(room_type_reserved) as max_times_reserved, avg(avg_price_per_room) as avg_price_of_room
from dbo.[Hotel Reservation Dataset]
group by room_type_reserved
order by max_times_reserved desc;
```

120 %

Results | Messages

	room_type_reserved	max_times_reserved	avg_price_of_room
1	Room_Type 1	534	96.9079962741123
2	Room_Type 4	130	122.782922832782
3	Room_Type 6	18	182.988889058431
4	Room_Type 2	8	89.720000743866
5	Room_Type 7	6	168.99666595459
6	Room_Type 5	4	120.845001220703

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

```sql
select market_segment_type, max(avg_price_per_room) as highest_of_avg_price_of_room
from dbo.[Hotel Reservation Dataset]
group by market_segment_type
order by highest_of_avg_price_of_room desc;
```

120 %

Results | Messages

	market_segment_type	highest_of_avg_price_of_room
1	Online	258
2	Offline	192.029998779297
3	Corporate	160
4	Aviation	110
5	Complementary	29

OUT COMES :

- Retrieved all the required Data
- Gain critical and analytical thinking abilities.
- Visually appealing Insights to take bussiness decisions.

CONCLUSION :

The analysis of the hotel reservation dataset reveals valuable insights for informed decision-making in the hospitality industry. Understanding guest preferences, popular meal plans, room types, booking trends, and market segments allows hotels to tailor their offerings, optimize pricing strategies, and enhance the guest experience. Leveraging data-driven insights empowers hotels to stay competitive, attract the right audience, and drive business success.

THANK YOU