Hotel Reservation Analysis With SQL

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Hotel Reservation Analysis With SQL

Overview

- ✓ Using SQL to query and analyze provided hotel reservation data set.
- ✓ Extract insights of guest's preferences, hotel booking trend and operational factors.
- ✓ Provide actionable recommendation to improve guest experience and optimize hotels operations based on data findings.

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Data Set

- **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.

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Data Set

A	B	C	D	E	F	G	H	I	J	K	L
Booking_ID	no_of_adults	no_of_children	no_of_weekend_nights	no_of_week_nights	type_of_meal_pla	room_type_reserved	lead_time	arrival_date	market_segment_typ	avg_price_per_room	booking_status
INN00001	2	0	1	2	Meal Plan 1	Room_Type 1	224	2/10/2017	Offline	65	Not_Canceled
INN00002	2	0	2	3	Not Selected	Room_Type 1	5	6/11/2018	Online	106.68	Not_Canceled
INN00003	1	0	2	1	Meal Plan 1	Room_Type 1	1	28/02/2018	Online	60	Canceled
INN00004	2	0	0	2	Meal Plan 1	Room_Type 1	211	20/05/2018	Online	100	Canceled
INN00005	2	0	1	1	Not Selected	Room_Type 1	48	11/4/2018	Online	94.5	Canceled
INN00006	2	0	0	2	Meal Plan 2	Room_Type 1	346	13/09/2018	Online	115	Canceled
INN00007	2	0	1	3	Meal Plan 1	Room_Type 1	34	15/10/2017	Online	107.55	Not_Canceled
INN00008	2	0	1	3	Meal Plan 1	Room_Type 4	83	26/12/2018	Online	105.61	Not_Canceled
INN00009	3	0	0	4	Meal Plan 1	Room_Type 1	121	6/7/2018	Offline	96.9	Not_Canceled
INN00010	2	0	0	5	Meal Plan 1	Room_Type 4	44	18/10/2018	Online	133.44	Not_Canceled
INN00011	1	0	1	0	Not Selected	Room_Type 1	0	11/9/2018	Online	85.03	Not_Canceled
INN00012	1	0	2	1	Meal Plan 1	Room_Type 4	35	30/04/2018	Online	140.4	Not_Canceled
INN00013	2	0	2	1	Not Selected	Room_Type 1	30	26/11/2018	Online	88	Canceled
INN00014	1	0	2	0	Meal Plan 1	Room_Type 1	95	20/11/2018	Online	90	Canceled
INN00015	2	0	0	2	Meal Plan 1	Room_Type 1	47	20/10/2017	Online	94.5	Not_Canceled
INN00016	2	0	0	2	Meal Plan 2	Room_Type 1	256	15/06/2018	Online	115	Canceled
INN00017	1	0	1	0	Meal Plan 1	Room_Type 1	0	5/10/2017	Offline	96	Not_Canceled
INN00018	2	0	1	3	Not Selected	Room_Type 1	1	10/8/2017	Online	96	Not_Canceled
INN00019	2	0	2	2	Meal Plan 1	Room_Type 1	99	30/10/2017	Online	65	Canceled
INN00020	2	0	1	0	Meal Plan 1	Room_Type 1	12	4/10/2017	Offline	72	Not_Canceled
INN00021	2	0	2	2	Meal Plan 1	Room_Type 1	99	30/10/2017	Online	65	Canceled
INN00022	1	0	0	1	Meal Plan 1	Room_Type 1	122	25/11/2018	Corporate	67	Not_Canceled
INN00023	2	0	2	4	Meal Plan 1	Room_Type 1	2	20/03/2018	Offline	85	Not_Canceled
INN00024	2	0	0	3	Meal Plan 1	Room_Type 1	37	13/10/2018	Offline	105	Not_Canceled
INN00025	2	0	2	1	Not Selected	Room_Type 1	130	22/05/2018	Online	94.5	Not_Canceled
INN00026	2	0	0	2	Meal Plan 1	Room_Type 1	99	28/04/2018	Online	114.3	Not_Canceled
INN00027	2	0	1	1	Meal Plan 1	Room_Type 1	60	21/09/2017	Offline	65	Not_Canceled

Hotel Reservation Dataset

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Hotel Reservation Analysis With SQL

Data Base

master | Execute

LQuery3.sql - DE...JRA4U0V\Dell (70))* | SQLQuery2.sql - DE...JRA4U0V\Dell (51))* | SQLQuery1.sql - DE...JRA4U0V\Dell (72))*

```
use master
create database Mentorness;
go

use Mentorness;
go

Create Table Resv_Dtl (
Booking_ID   varchar(10),
no_of_adults    integer default 0,
no_of_children   integer default 0,
no_of_weekend_nights    integer default 0,
no_of_week_nights   integer default 0,
type_of_meal_plan    varchar(15),
room_type_reserved   varchar(15),
lead_time   integer default 0,
arrival_date     Date,
market_segment_type      varchar(15),
avg_price_per_room  Numeric(10,2) default 0,
booking_status   varchar(15)
);
```

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Hotel Reservation Analysis With SQL

Data

Mentorness | Execute

SQLQuery3.sql - DE...JRA4U0V\Dell (70))* | SQLQuery2.sql - DE...JRA4U0V\Dell (51))* | SQLQuery1.sql - DE...JRA4U0V\Dell (72))*

```
Use [Mentorness]
go

SELECT
      a.[type_of_meal_plan],a.[room_type_reserved],a.[market_segment_type]
     ,a.[booking_status],a.[Booking_ID],a.[no_of_adults],a.[no_of_children]
     ,a.[no_of_weekend_nights],a.[no_of_week_nights],a.[lead_time]
     ,a.[arrival_date],a.[avg_price_per_room]
FROM [Mentorness].[dbo].[Resv_Dtl] a;
```

database Mentorness

120 %

Results | Messages

	type_of_meal_plan	room_type_reserved	market_segment_type	booking_status	Booking_ID	no_of_adults	no_of_children	no_of_weekend_nights	no_of_week_nights	lead_time	arrival_date	avg_price_per_room
1	Meal Plan 1	Room_Type 1	Offline	Not_Canceled	INN00001	2	0	1	2	224	2017-10-02	65.00
2	Not Selected	Room_Type 1	Online	Not_Canceled	INN00002	2	0	2	3	5	2018-11-06	106.68
3	Meal Plan 1	Room_Type 1	Online	Canceled	INN00003	1	0	2	1	1	2018-02-28	60.00
4	Meal Plan 1	Room_Type 1	Online	Canceled	INN00004	2	0	0	2	211	2018-05-20	100.00
5	Not Selected	Room_Type 1	Online	Canceled	INN00005	2	0	1	1	48	2018-04-11	94.50
6	Meal Plan 2	Room_Type 1	Online	Canceled	INN00006	2	0	0	2	346	2018-09-13	115.00
7	Meal Plan 1	Room_Type 1	Online	Not_Canceled	INN00007	2	0	1	3	34	2017-10-15	107.55
8	Meal Plan 1	Room_Type 4	Online	Not_Canceled	INN00008	2	0	1	3	83	2018-12-26	105.61
9	Meal Plan 1	Room_Type 1	Offline	Not_Canceled	INN00009	3	0	0	4	121	2018-07-06	96.90
10	Meal Plan 1	Room_Type 4	Online	Not_Canceled	INN00010	2	0	0	5	44	2018-10-18	133.44
11	Not Selected	Room_Type 1	Online	Not_Canceled	INN00011	1	0	1	0	0	2018-09-11	85.03
12	Meal Plan 1	Room_Type 4	Online	Not_Canceled	INN00012	1	0	2	1	35	2018-04-30	140.40
13	Not Selected	Room_Type 1	Online	Canceled	INN00013	2	0	2	1	30	2018-11-26	88.00
14	Meal Plan 1	Room_Type 1	Online	Canceled	INN00014	1	0	2	0	95	2018-11-20	90.00
15	Meal Plan 1	Room_Type 1	Online	Not_Canceled	INN00015	2	0	0	2	47	2017-10-20	94.50
16	Meal Plan 2	Room_Type 1	Online	Canceled	INN00016	2	0	0	2	256	2018-06-15	115.00
17	Meal Plan 1	Room_Type 1	Offline	Not_Canceled	INN00017	1	0	1	0	0	2017-10-05	96.00
18	Not Selected	Room_Type 1	Online	Not_Canceled	INN00018	2	0	1	3	1	2017-08-10	96.00
19	Meal Plan 1	Room_Type 1	Online	Canceled	INN00019	2	0	2	2	99	2017-10-30	65.00
20	Meal Plan 1	Room_Type 1	Offline	Not_Canceled	INN00020	2	0	1	0	12	2017-10-04	72.00
21	Meal Plan 1	Room_Type 1	Online	Canceled	INN00021	2	0	2	2	99	2017-10-30	65.00
22	Meal Plan 1	Room_Type 1	Corporate	Not_Canceled	INN00022	1	0	0	1	122	2018-11-25	67.00
23	Meal Plan 1	Room_Type 1	Offline	Not_Canceled	INN00023	2	0	2	4	2	2018-03-20	85.00
24	Meal Plan 1	Room_Type 1	Offline	Not_Canceled	INN00024	2	0	0	3	37	2018-10-13	105.00
25	Not Selected	Room_Type 1	Online	Not_Canceled	INN00025	2	0	2	1	130	2018-05-22	94.50

Query executed successfully. | DESKTOP-JRA4U0V\MYSQLDATA (... | DESKTOP-JRA4U0

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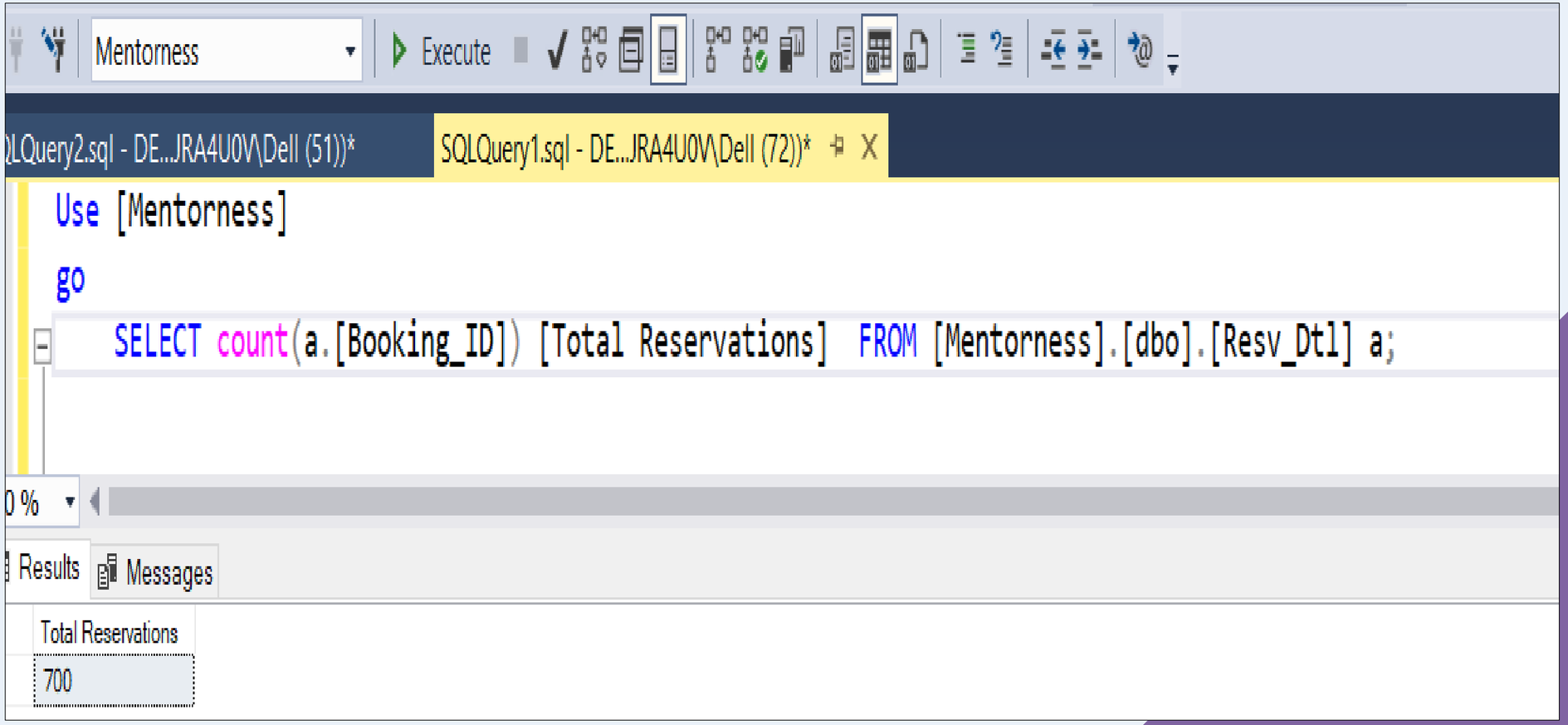
Hotel Reservation Analysis With SQL

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

Q-1



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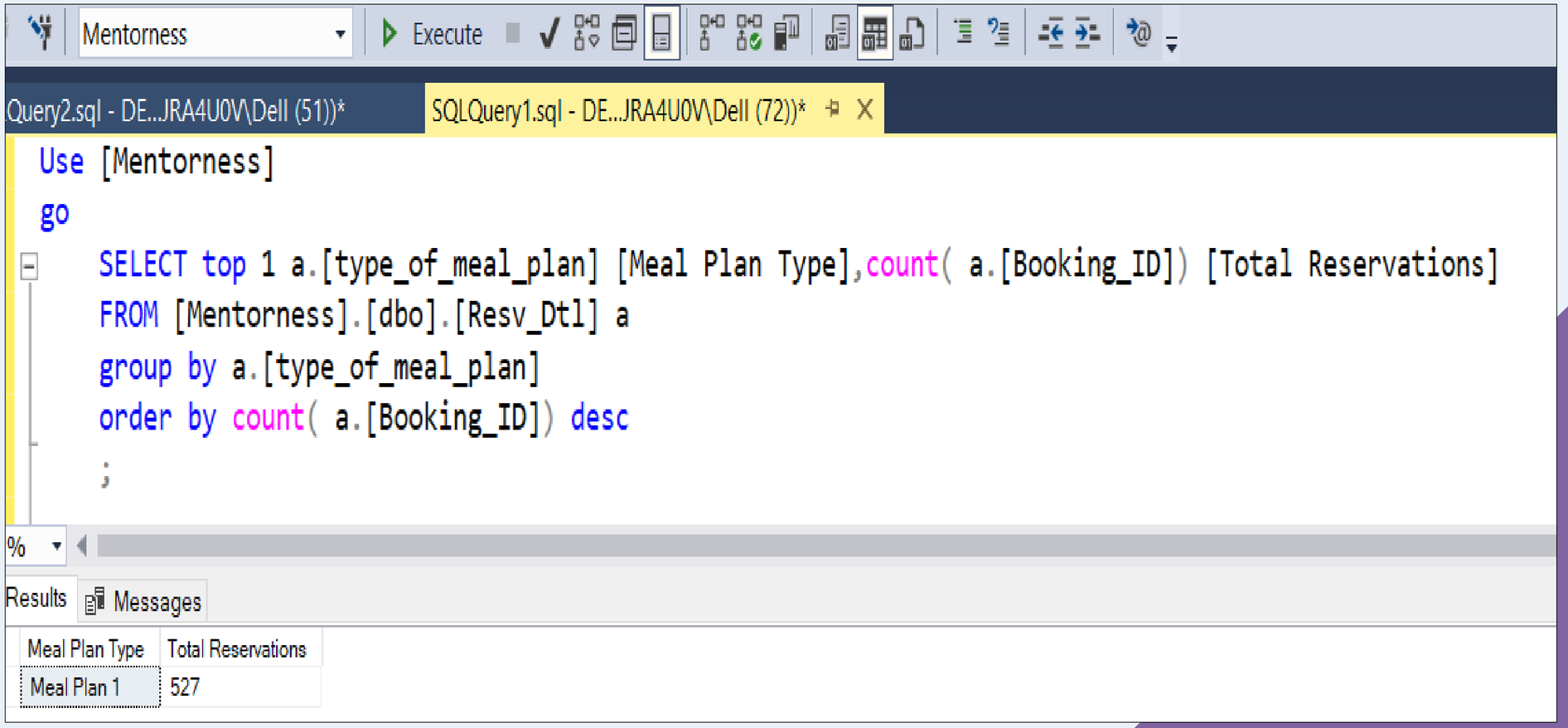
Hotel Reservation Analysis With SQL

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

Q-2



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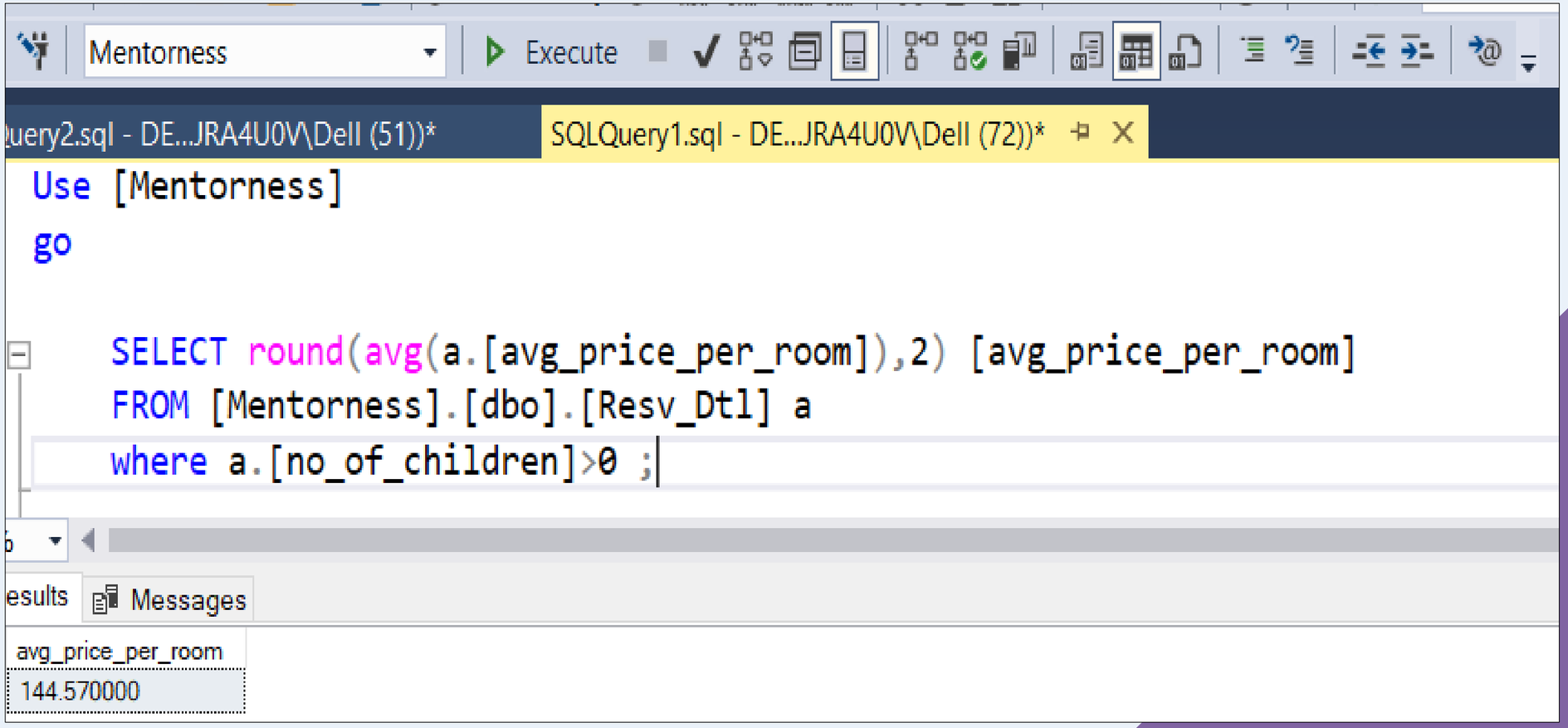
Hotel Reservation Analysis With SQL

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

Q-3



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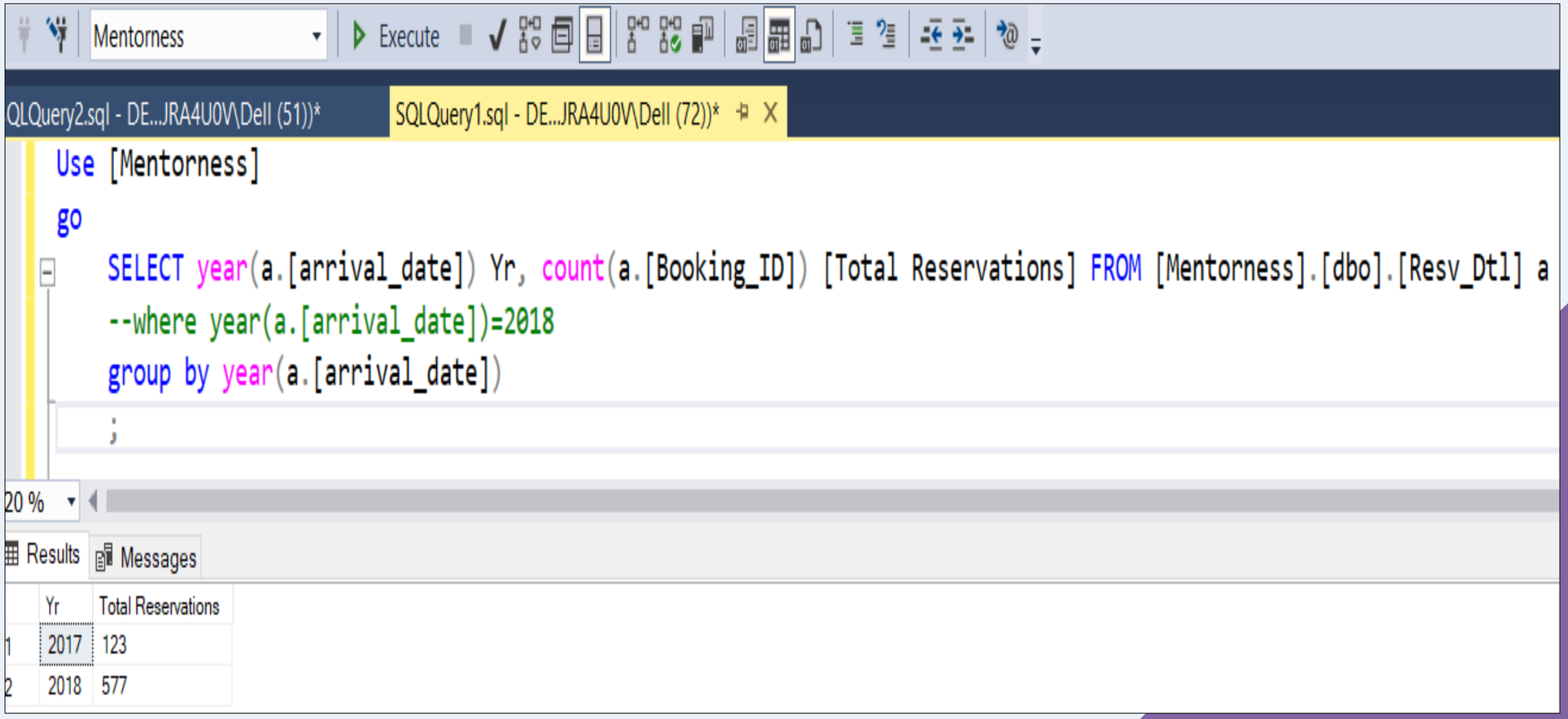
Hotel Reservation Analysis With SQL

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

Q-4



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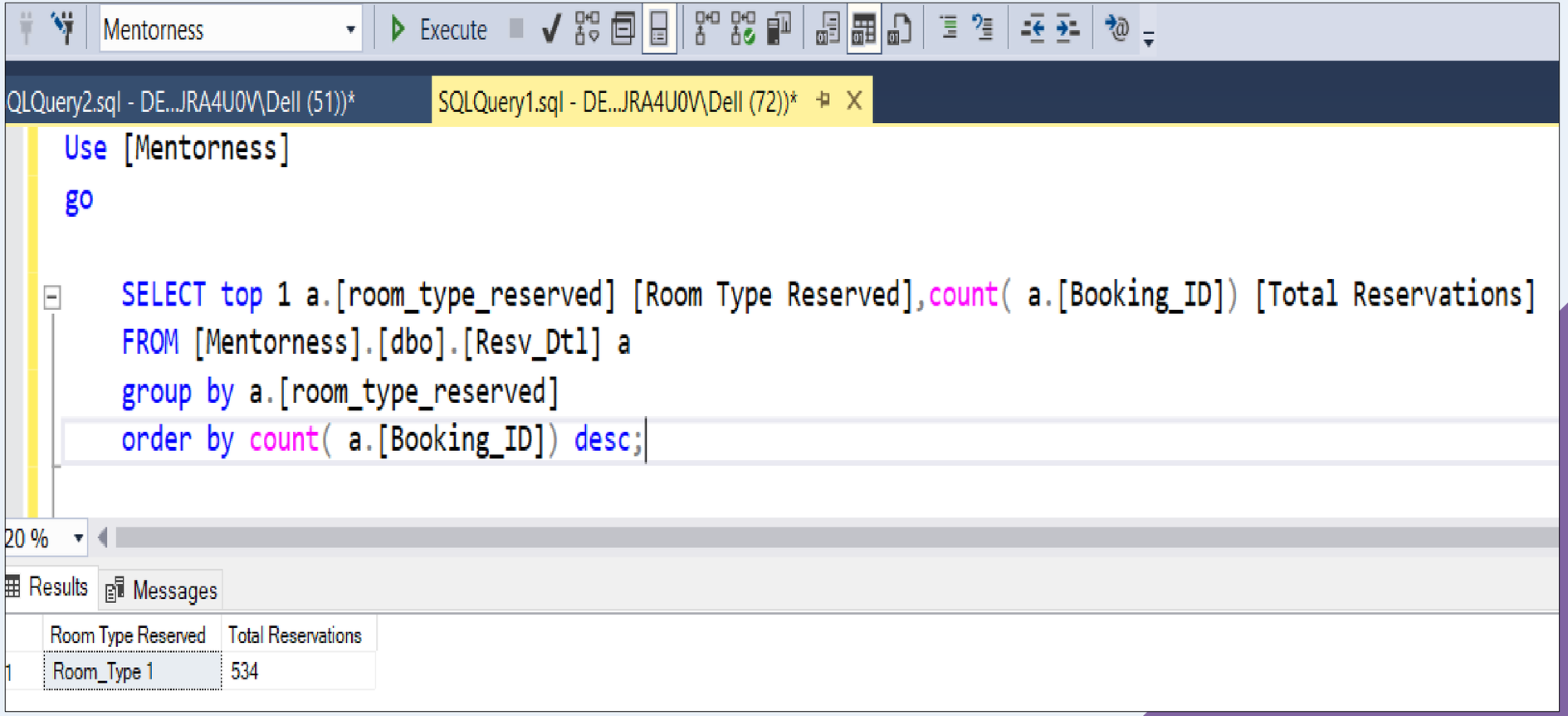
5. What is the most commonly booked room type?

Q-5



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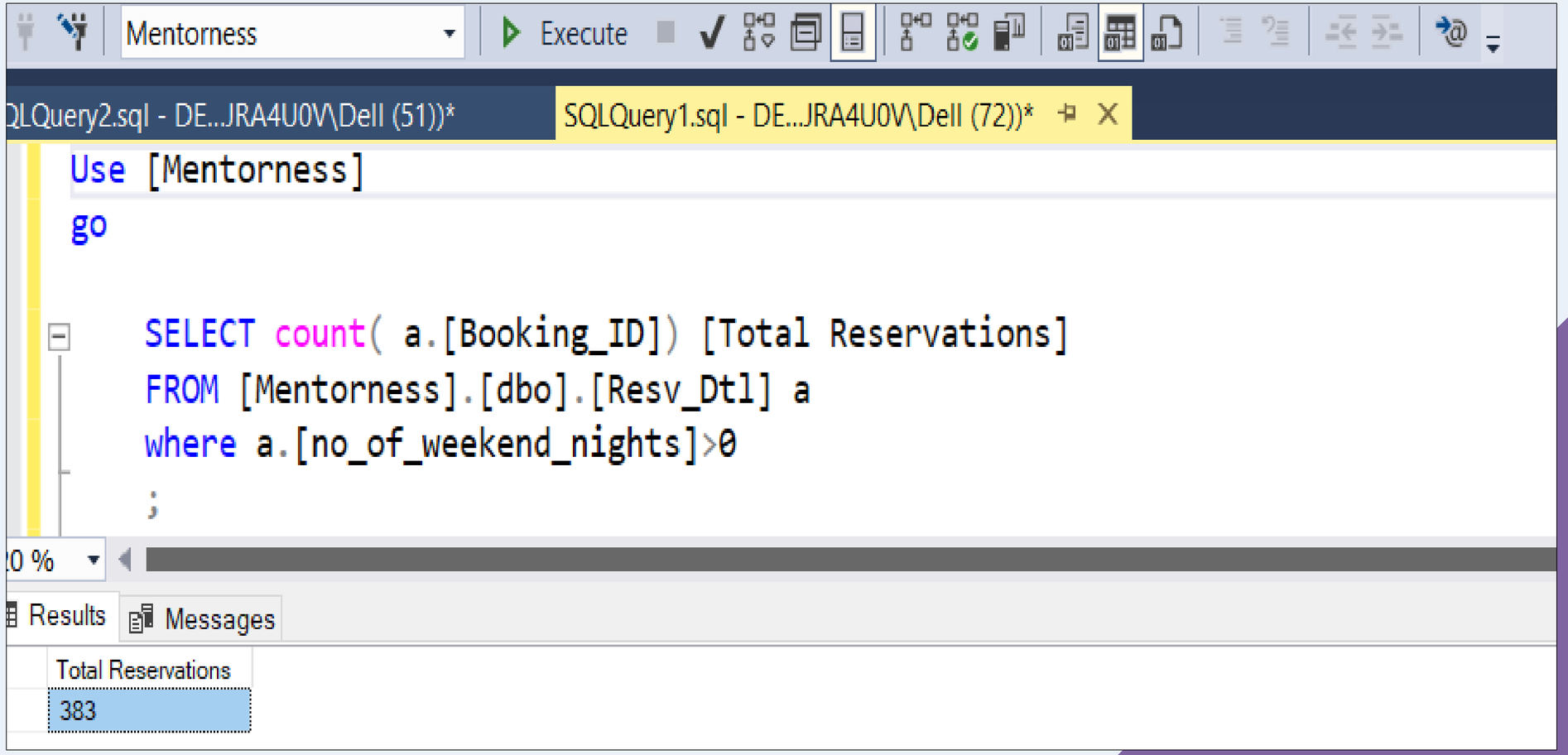
6. How many reservations fall on a weekend (no_of_weekend_nights > 0)?

Q-6



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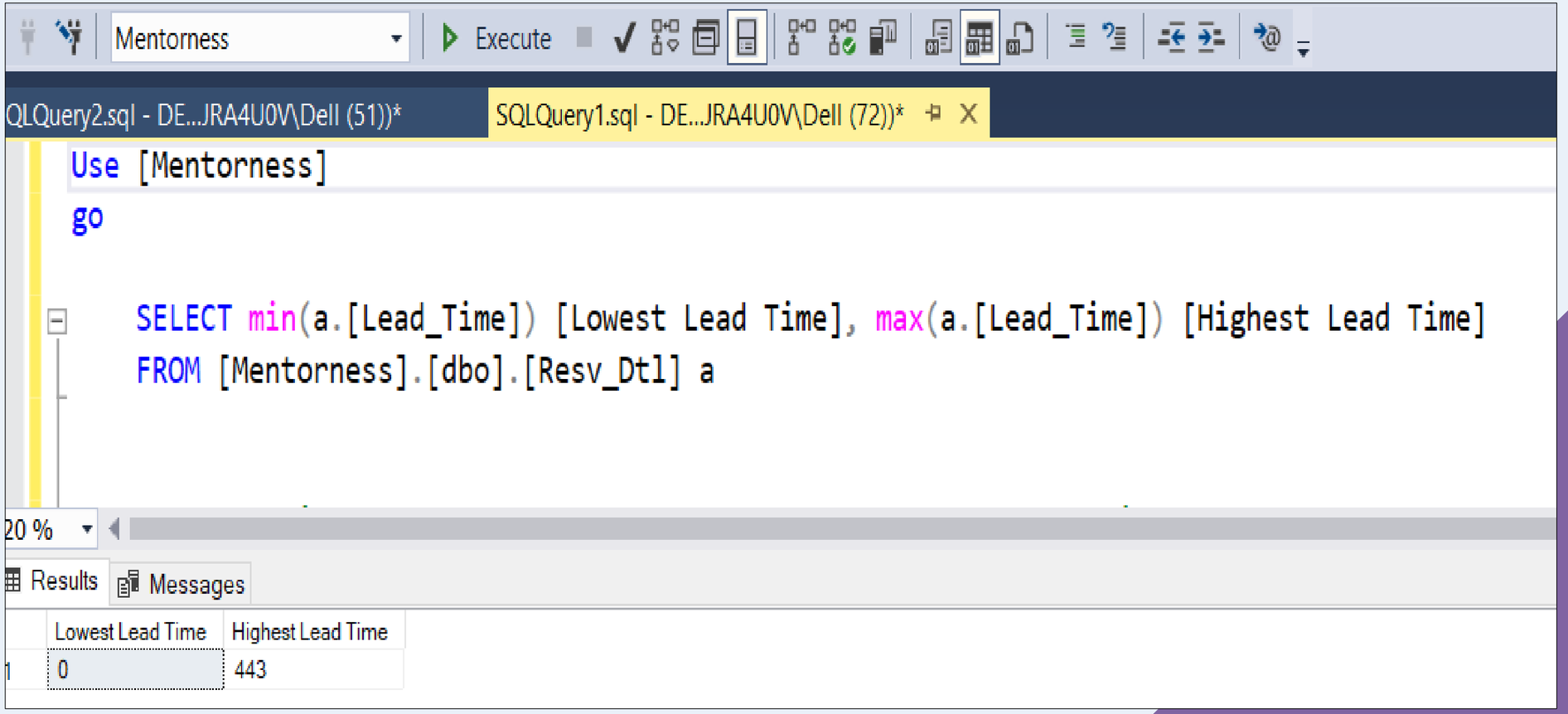
7. What is the highest and lowest lead time for reservations?

Q-7



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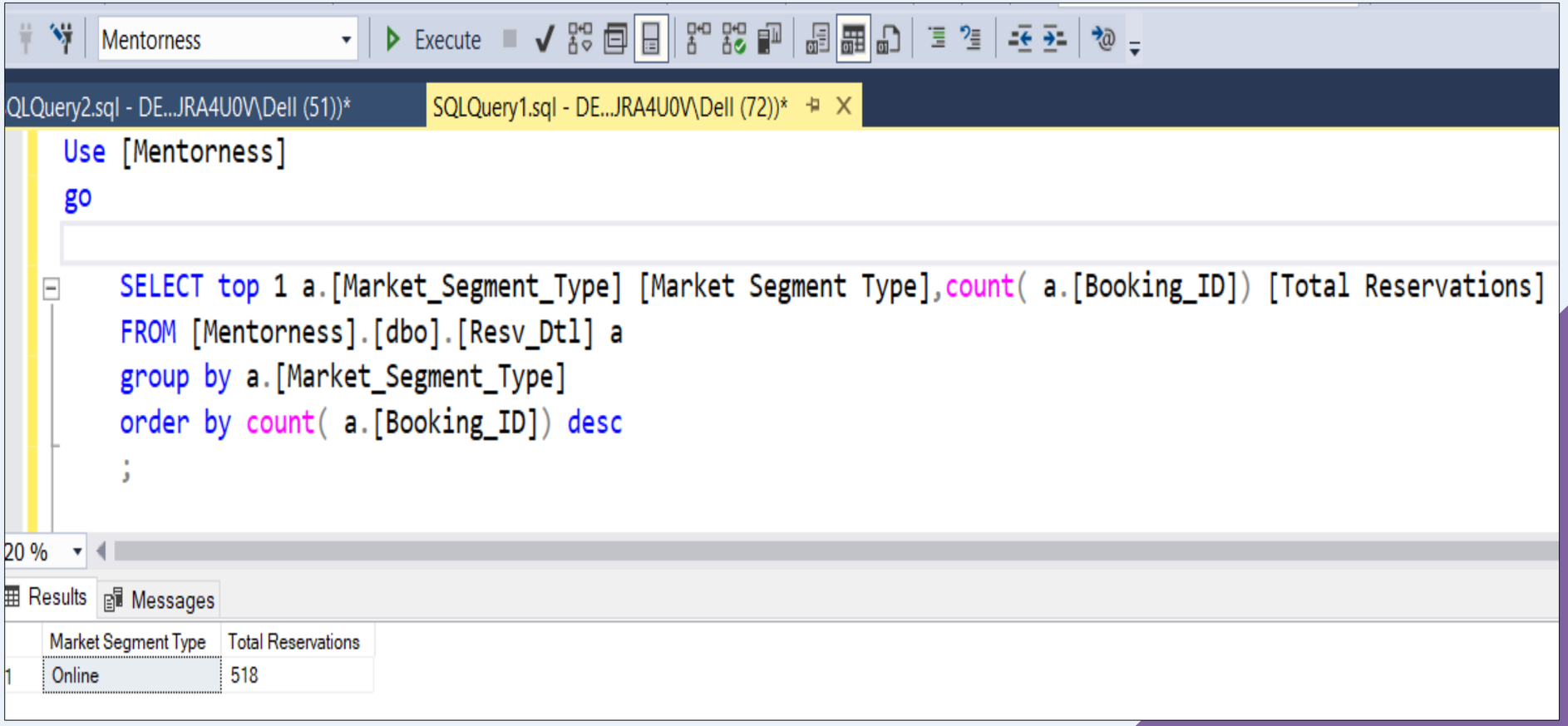
8. What is the most common market segment type for reservations?

Q-8



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

Q-9

Mentorness | Execute

SQLQuery2.sql - DE...JRA4U0V\Dell (51))* | SQLQuery1.sql - DE...JRA4U0V\Dell (72))*

```
Use [Mentorness]
go

    SELECT a.[Booking_Status] [Booking Status],count( a.[Booking_ID]) [Total Reservations]
    FROM [Mentorness].[dbo].[Resv_Dtl] a
    where a.[booking_status]=  'Not_Canceled'
    group by a.[Booking_Status]
    order by count( a.[Booking_ID]) desc;
```

20 %

Results | Messages

	Booking Status	Total Reservations
1	Not_Canceled	493

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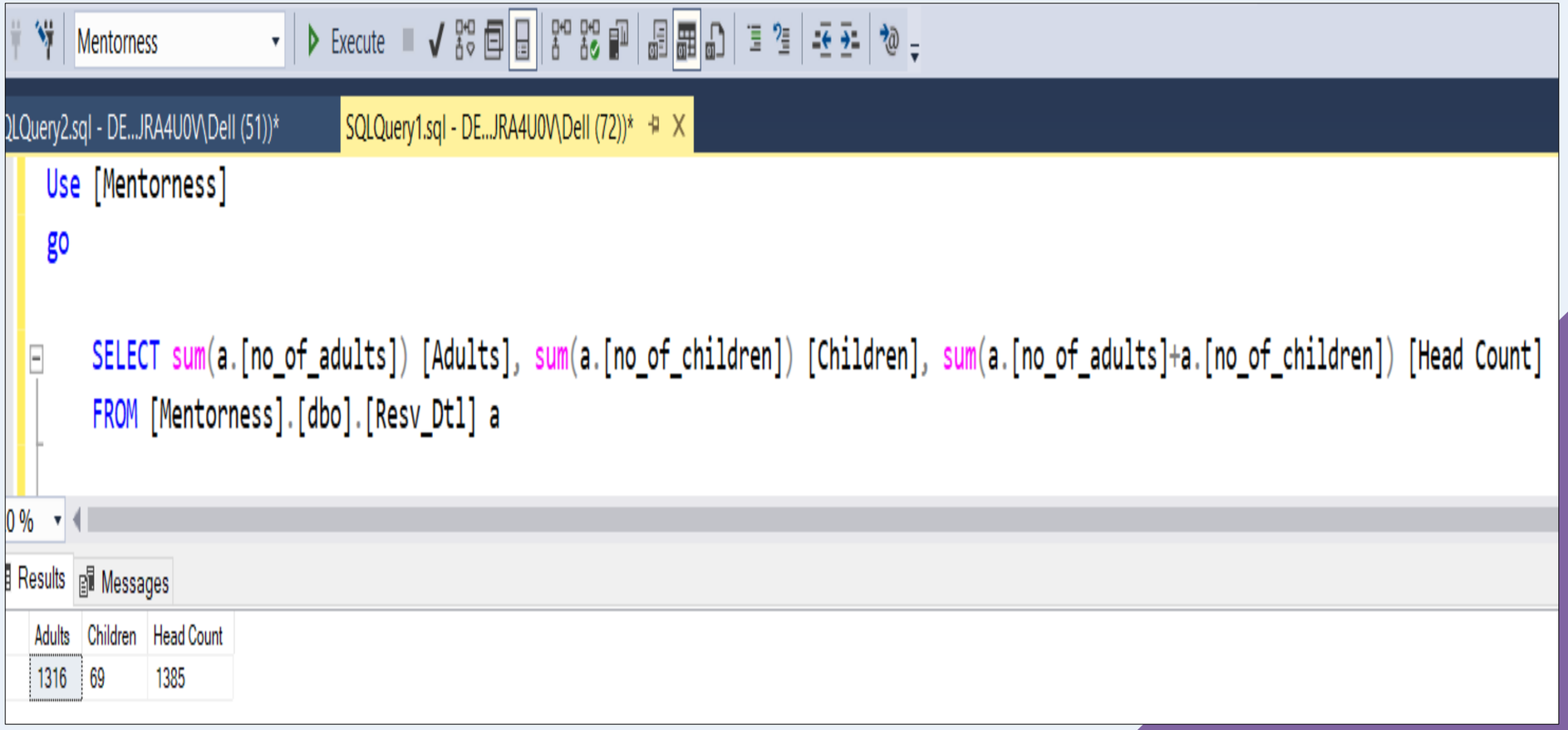
Hotel Reservation Analysis With SQL

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

Q-10



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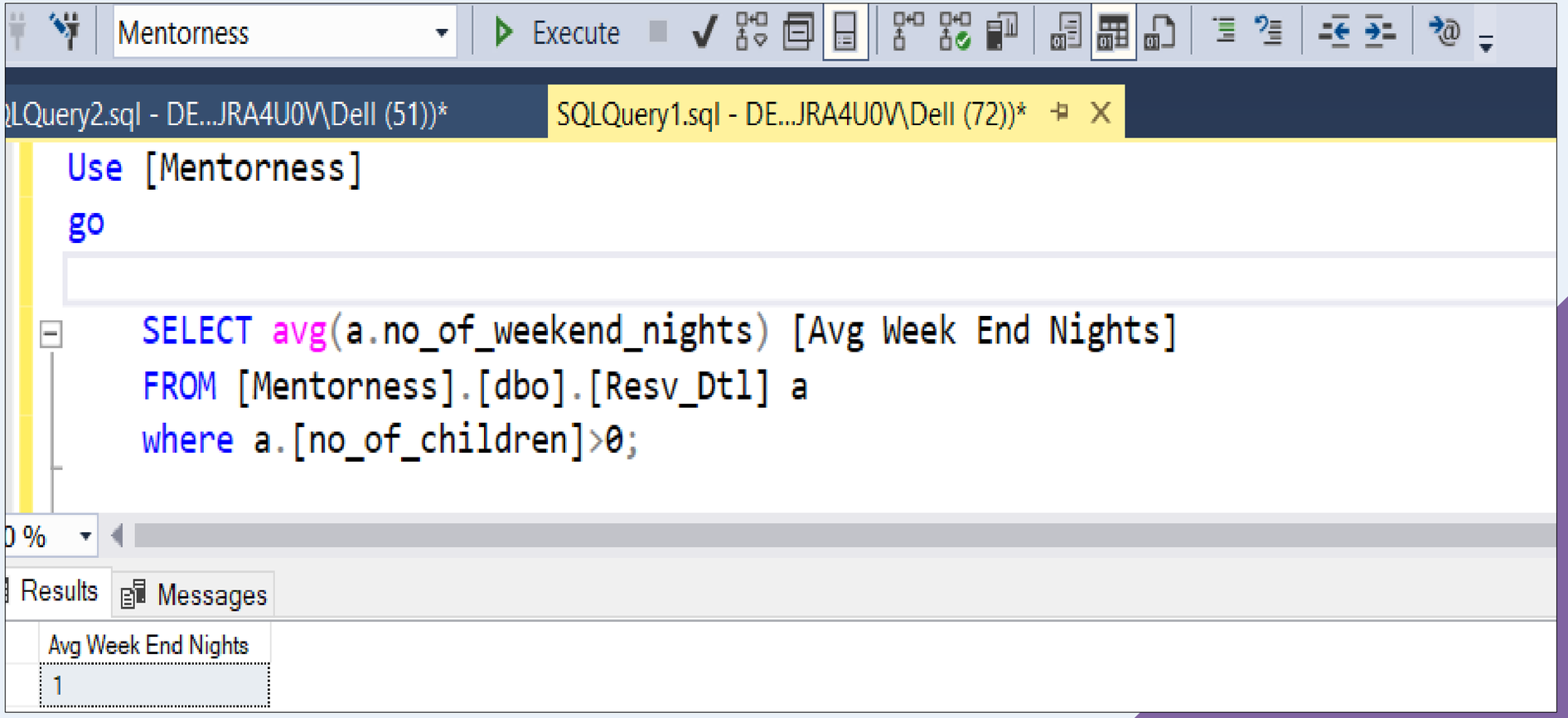
Hotel Reservation Analysis With SQL

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

Q-11



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Hotel Reservation Analysis With SQL

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

Q-12

Mentorness | Execute

SQLQuery2.sql - DE...JRA4U0V\Dell (51))* | SQLQuery1.sql - DE...JRA4U0V\Dell (72))*

```
Use [Mentorness]
go

    SELECT format(a.[arrival_date],'MMM') [MonthName],count( a.[Booking_ID]) [Total Reservations]
    FROM [Mentorness].[dbo].[Resv_Dtl] a
    group by Month(a.[arrival_date]),format(a.[arrival_date],'MMM')
    order by Month(a.[arrival_date])
    ;
```

120 %

Results | Messages

	MonthName	Total Reservations
1	Jan	11
2	Feb	28
3	Mar	52
4	Apr	67
5	May	55
6	Jun	84
7	Jul	44
8	Aug	70
9	Sep	80
10	Oct	103
11	Nov	54
12	Dec	52

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Hotel Reservation Analysis With SQL

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

Q-13

Mentorness | Execute

SQLQuery2.sql - DE...JRA4U0V\Dell (51))* | SQLQuery1.sql - DE...JRA4U0V\Dell (72))*

```
Use [Mentorness]
go

    SELECT  a.[room_type_reserved] [Room Type],  isnull(avg(a.no_of_weekend_nights),0) [Avg Week End Nights]
    , isnull(avg(a.no_of_week_nights),0) [Avg Week Nights]
    FROM [Mentorness].[dbo].[Resv_Dtl] a
    group by a.[room_type_reserved];
```

120 %

Results | Messages

	Room Type	Avg Week End 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

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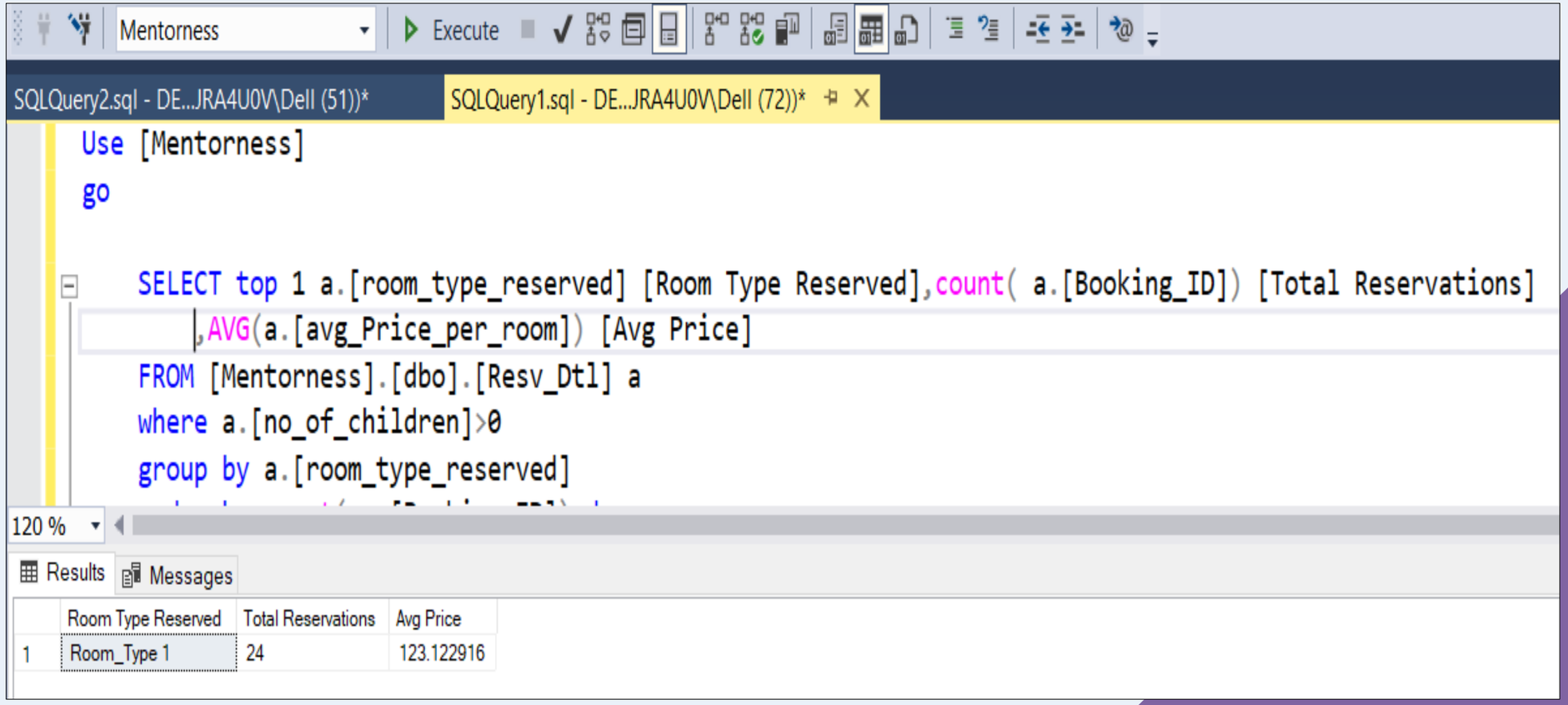
14. For reservations involving children, what is the most common room type, and what is the average price for that room type?

Q-14



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

Q-15

Mentorness | Execute

SQLQuery2.sql - DE...JRA4U0V\Dell (51))* | SQLQuery1.sql - DE...JRA4U0V\Dell (72))*

```
Use [Mentorness]
go


    SELECT top 1 a.[market_segment_type] [Market Segment Type],sum(a.[avg_Price_per_room]) [Avg Price]
    FROM [Mentorness].[dbo].[Resv_Dtl] a
    group by a.[market_segment_type]
    order by sum(a.[avg_Price_per_room]) desc;
```

120 %

Results | Messages

	Room Type Reserved	Total Reservations	Avg Price
1	Room_Type 1	24	123.122916

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Hotel Reservation Analysis With SQL

Insights &Recommendations

- Based on the analysis of the hotel reservation dataset, it's evident that MEAL plan 1 is the most ordered among guests.
- Improving feedback collection, customizing the menu to suit guests' tastes, and adjusting prices strategically will make people like MEAL plan 1 even more.
- Using online ads can help attract more guests to choose MEAL plan 1.

- The most booked room type is Room 1. However, there exists a significant variation in the booking trends across other types of rooms. This variance indicates an opportunity to implement effective measures aimed at increasing the booking rates of other room types as well.
- Understanding what guests like about the popular rooms can help hotels make the other rooms more appealing to guests too.&

- Insights suggest that guests prefer online booking due to its convenience, accessibility.
- Hotels can use this information to focus more on promoting their services online, improve their websites for booking, and offer special deals to make people want to book online even more.

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Hotel Reservation Analysis With SQL

Thanks !!

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