HOTEL RESERVATION ANALYSIS WITH SQL

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Batch: MIP-DA-10

INTRODUCTION

Objective: Welcome to this presentation on analyzing a hotel reservation dataset to uncover insights into guest preferences, booking trends, and operational factors crucial to enhancing guest experiences and optimizing hotel operations.

DATASET OVERVIEW: THE DATASET WE ARE EXPLORING CONTAINS COMPREHENSIVE INFORMATION ABOUT HOTEL RESERVATIONS, INCLUDING BOOKING DETAILS, GUEST DEMOGRAPHICS, STAY DURATION, AND BOOKING STATUS. BY LEVERAGING SQL QUERIES, WE AIM TO EXTRACT MEANINGFUL INSIGHTS THAT WILL INFORM STRATEGIC DECISIONS AND IMPROVE OVERALL SERVICE DELIVERY.

COLUMNS

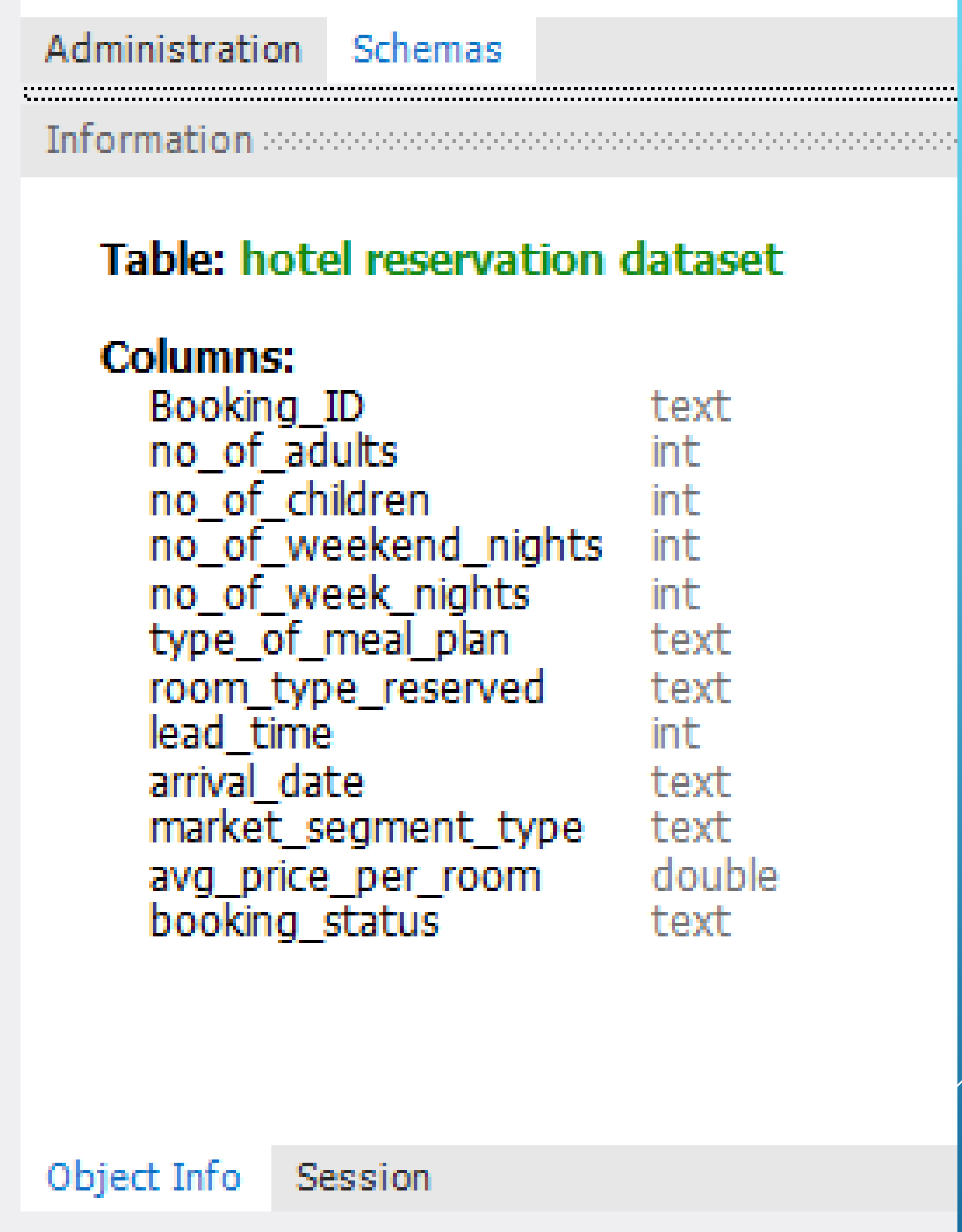
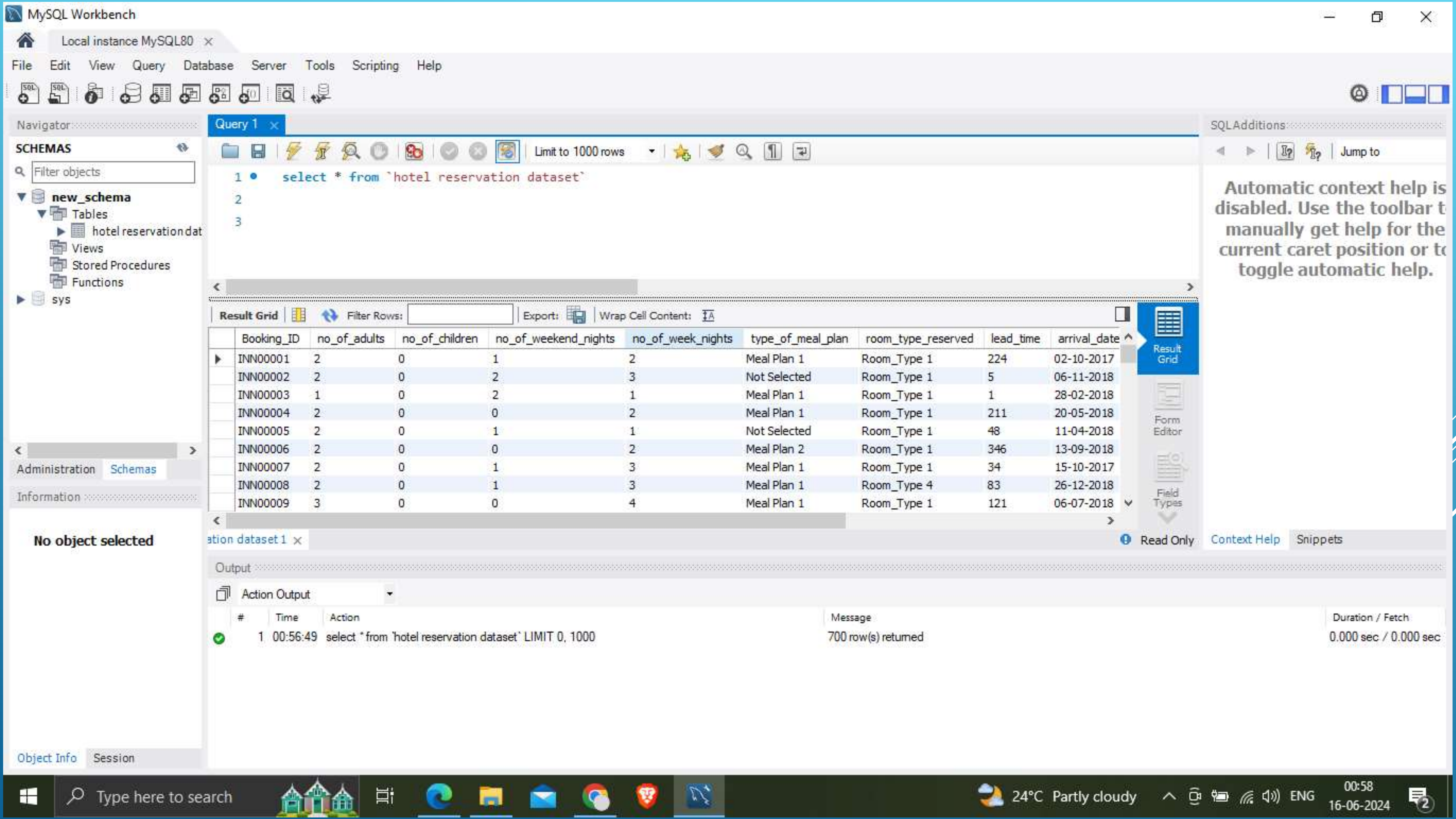


Table: hotel reservation dataset

Columns:

Booking_ID	text
no_of_adults	int
no_of_children	int
no_of_weekend_nights	int
no_of_week_nights	int
type_of_meal_plan	text
room_type_reserved	text
lead_time	int
arrival_date	text
market_segment_type	text
avg_price_per_room	double
booking_status	text

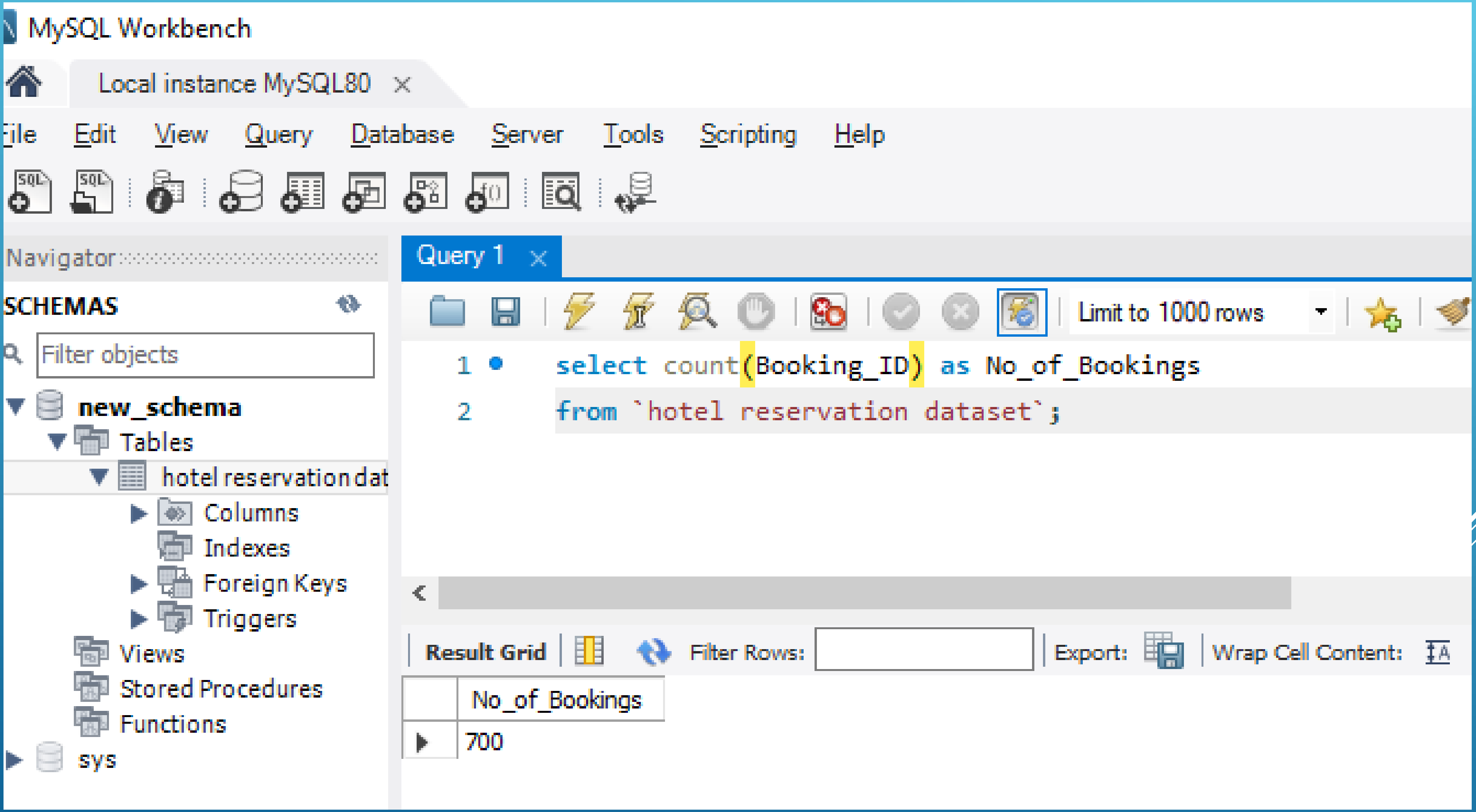


```sql
select * from `hotel reservation dataset`
```

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
INN00001	2	0	1	2	Meal Plan 1	Room_Type 1	224	02-10-2017
INN00002	2	0	2	3	Not Selected	Room_Type 1	5	06-11-2018
INN00003	1	0	2	1	Meal Plan 1	Room_Type 1	1	28-02-2018
INN00004	2	0	0	2	Meal Plan 1	Room_Type 1	211	20-05-2018
INN00005	2	0	1	1	Not Selected	Room_Type 1	48	11-04-2018
INN00006	2	0	0	2	Meal Plan 2	Room_Type 1	346	13-09-2018
INN00007	2	0	1	3	Meal Plan 1	Room_Type 1	34	15-10-2017
INN00008	2	0	1	3	Meal Plan 1	Room_Type 4	83	26-12-2018
INN00009	3	0	0	4	Meal Plan 1	Room_Type 1	121	06-07-2018

```
#   Time      Action                                                  Message              Duration / Fetch
1   00:56:49  select * from `hotel reservation dataset` LIMIT 0, 1000  700 row(s) returned  0.000 sec / 0.000 sec
```

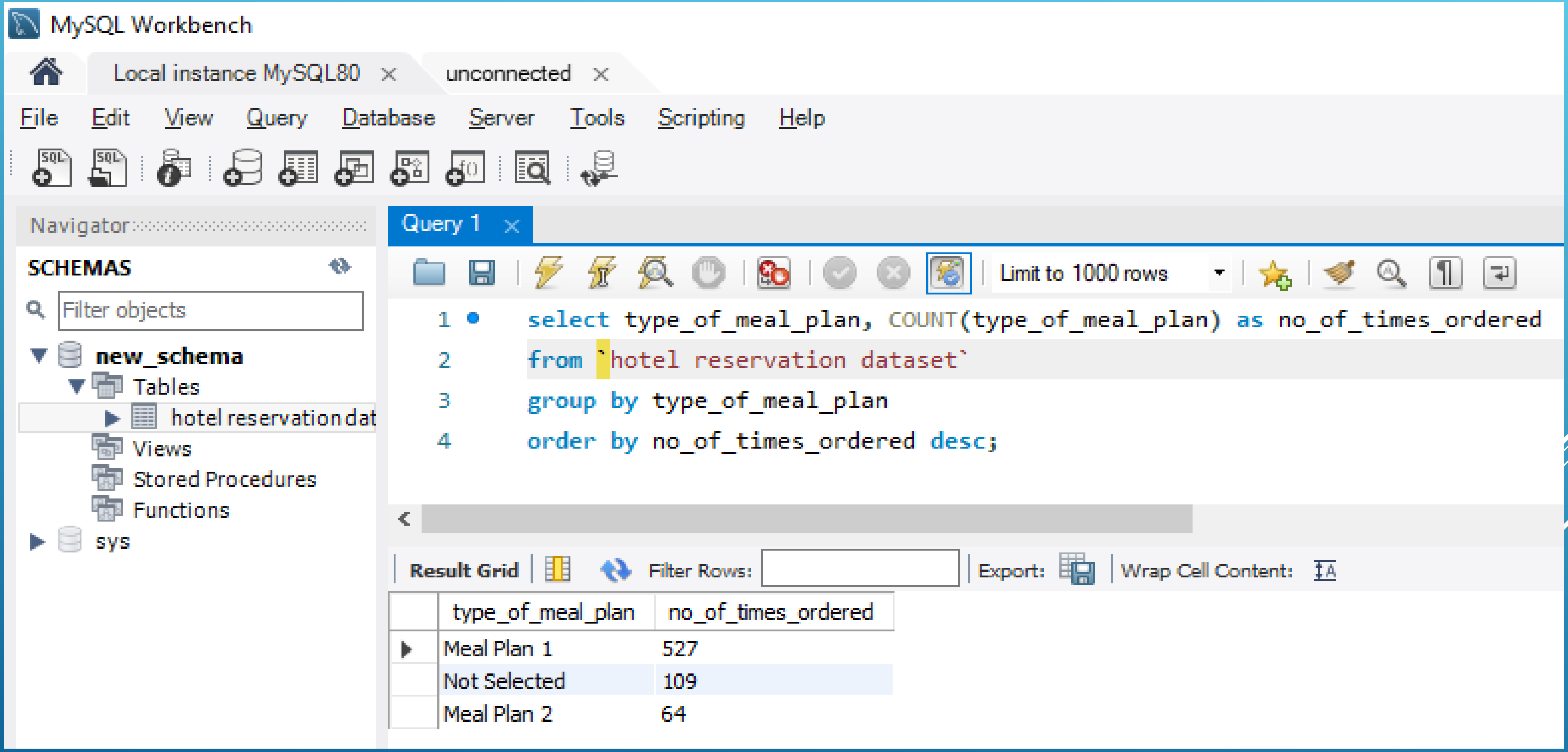
1. TOTAL NUMBER OF RESERVATIONS



```sql
select count(Booking_ID) as No_of_Bookings
from `hotel reservation dataset`;
```

No_of_Bookings
700

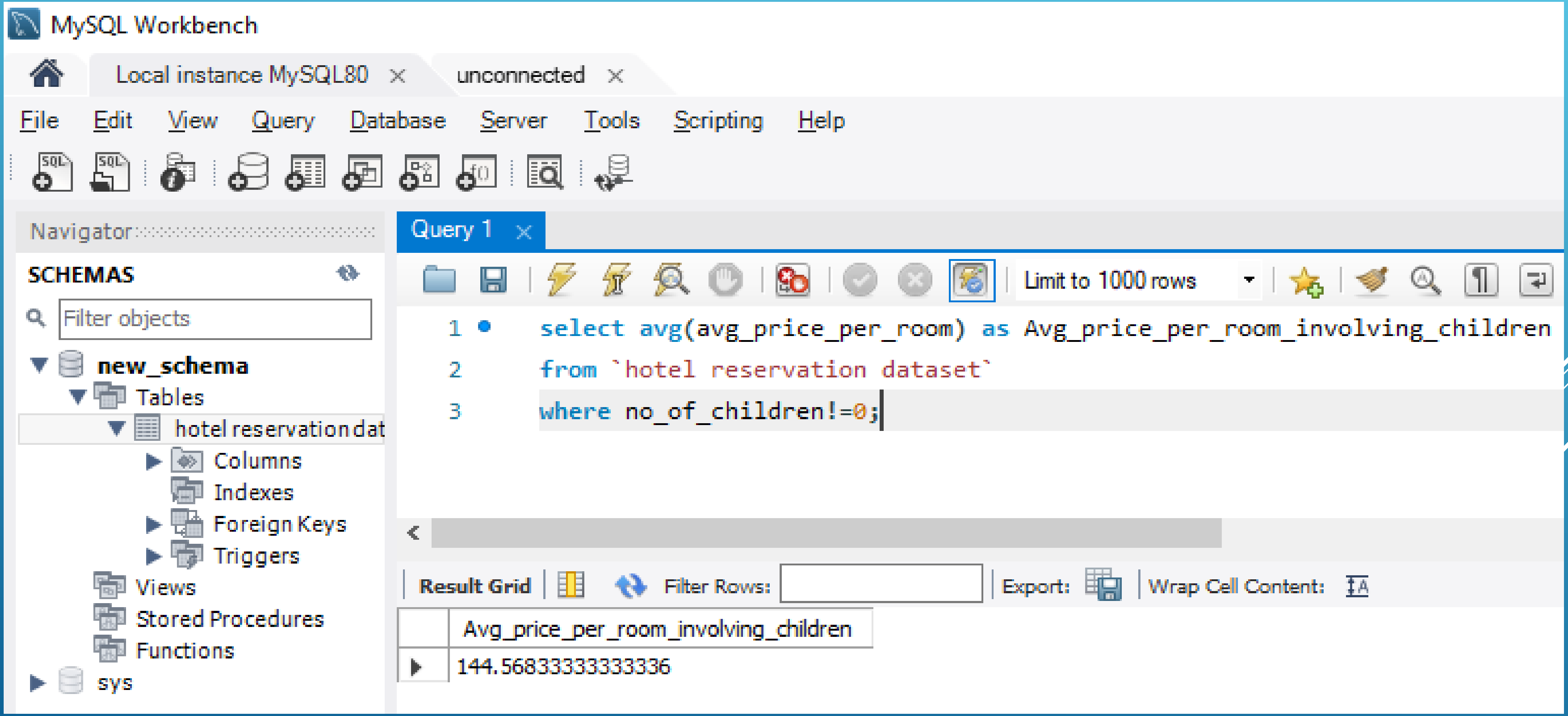
2. MOST POPULAR MEAL PLAN



```sql
select type_of_meal_plan, COUNT(type_of_meal_plan) as no_of_times_ordered
from `hotel reservation dataset`
group by type_of_meal_plan
order by no_of_times_ordered desc;
```

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

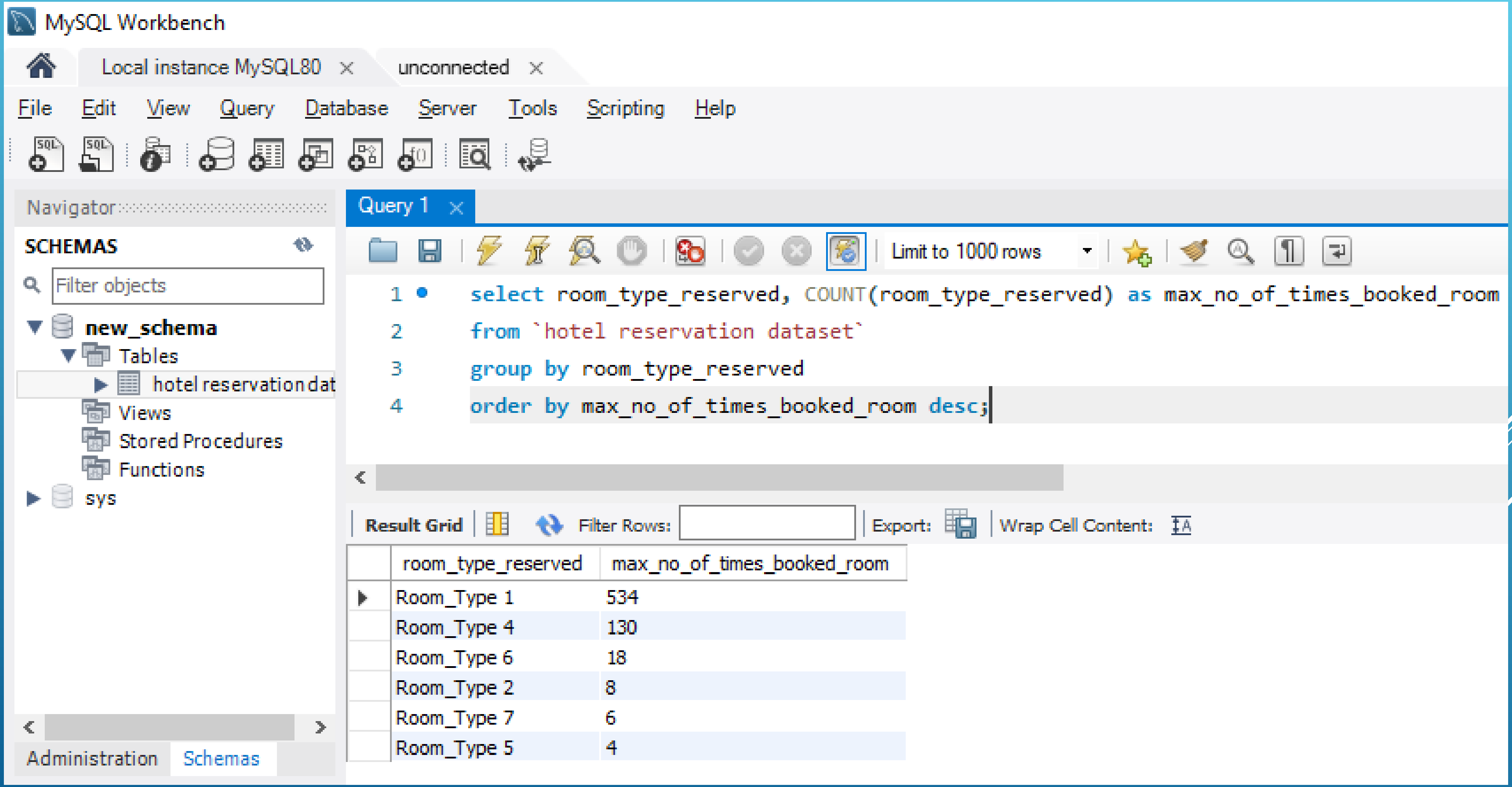
3. AVERAGE PRICE PER ROOM FOR RESERVATIONS INVOLVING CHILDREN



```
select avg(avg_price_per_room) as Avg_price_per_room_involving_children
from `hotel reservation dataset`
where no_of_children!=0;
```

Avg_price_per_room_involving_children
144.56833333333336

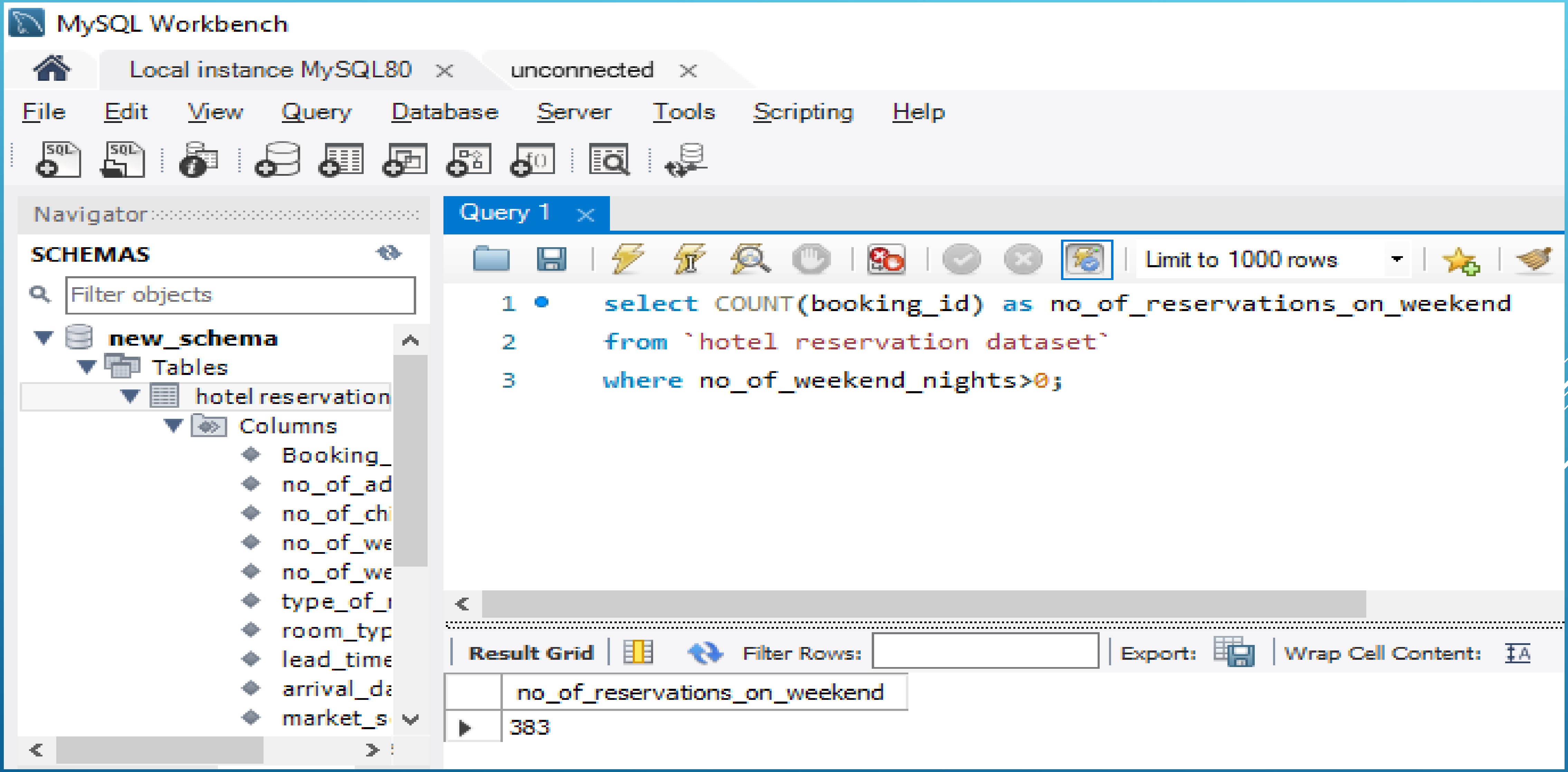
4. MOST COMMONLY BOOKED ROOM TYPE



```sql
select room_type_reserved, COUNT(room_type_reserved) as max_no_of_times_booked_room
from `hotel reservation dataset`
group by room_type_reserved
order by max_no_of_times_booked_room desc;
```

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

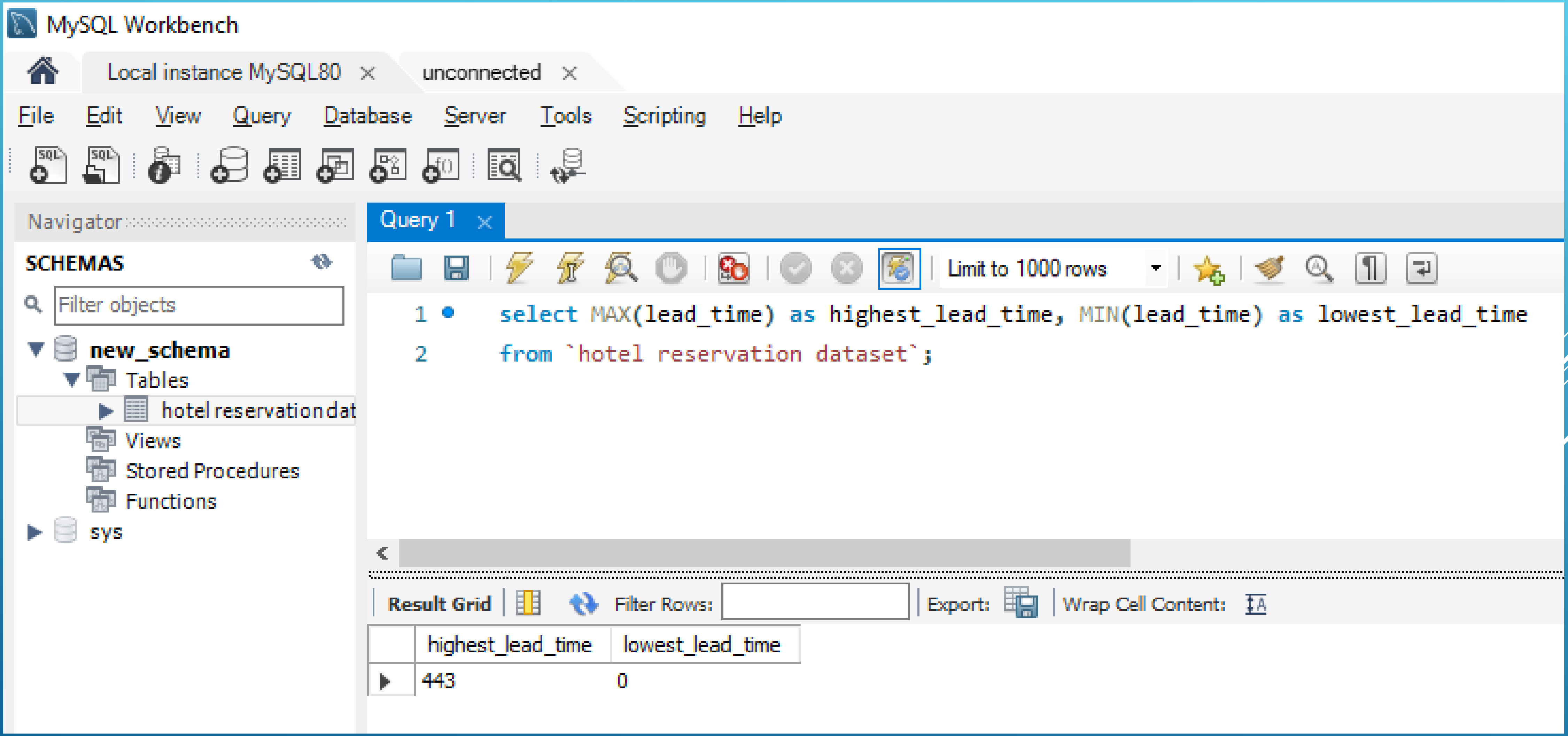
5. RESERVATIONS ON WEEKENDS



```sql
select COUNT(booking_id) as no_of_reservations_on_weekend
from `hotel reservation dataset`
where no_of_weekend_nights>0;
```

no_of_reservations_on_weekend
383

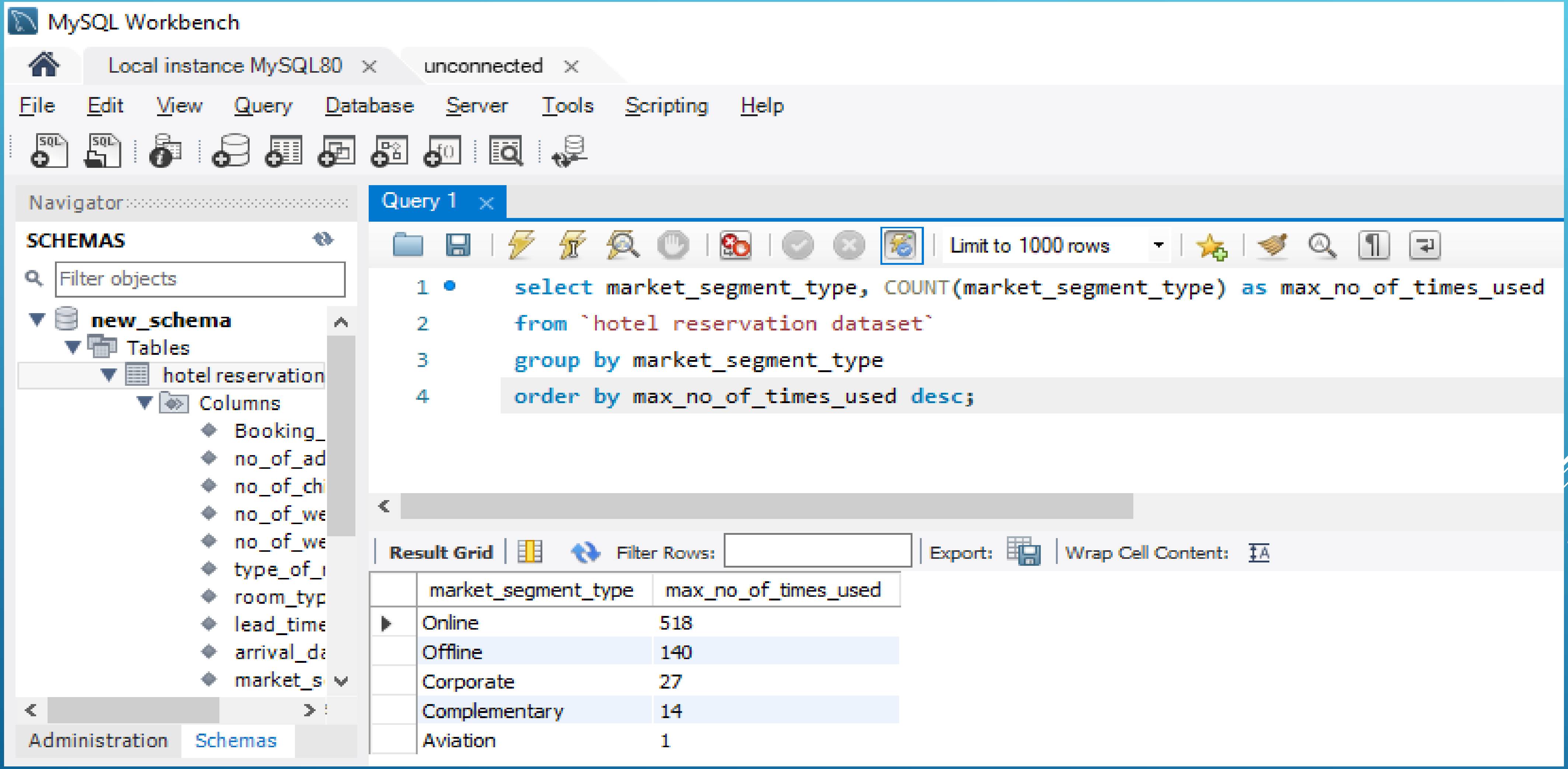
6. HIGHEST AND LOWEST LEAD TIME



```sql
select MAX(lead_time) as highest_lead_time, MIN(lead_time) as lowest_lead_time
from `hotel reservation dataset`;
```

highest_lead_time	lowest_lead_time
443	0

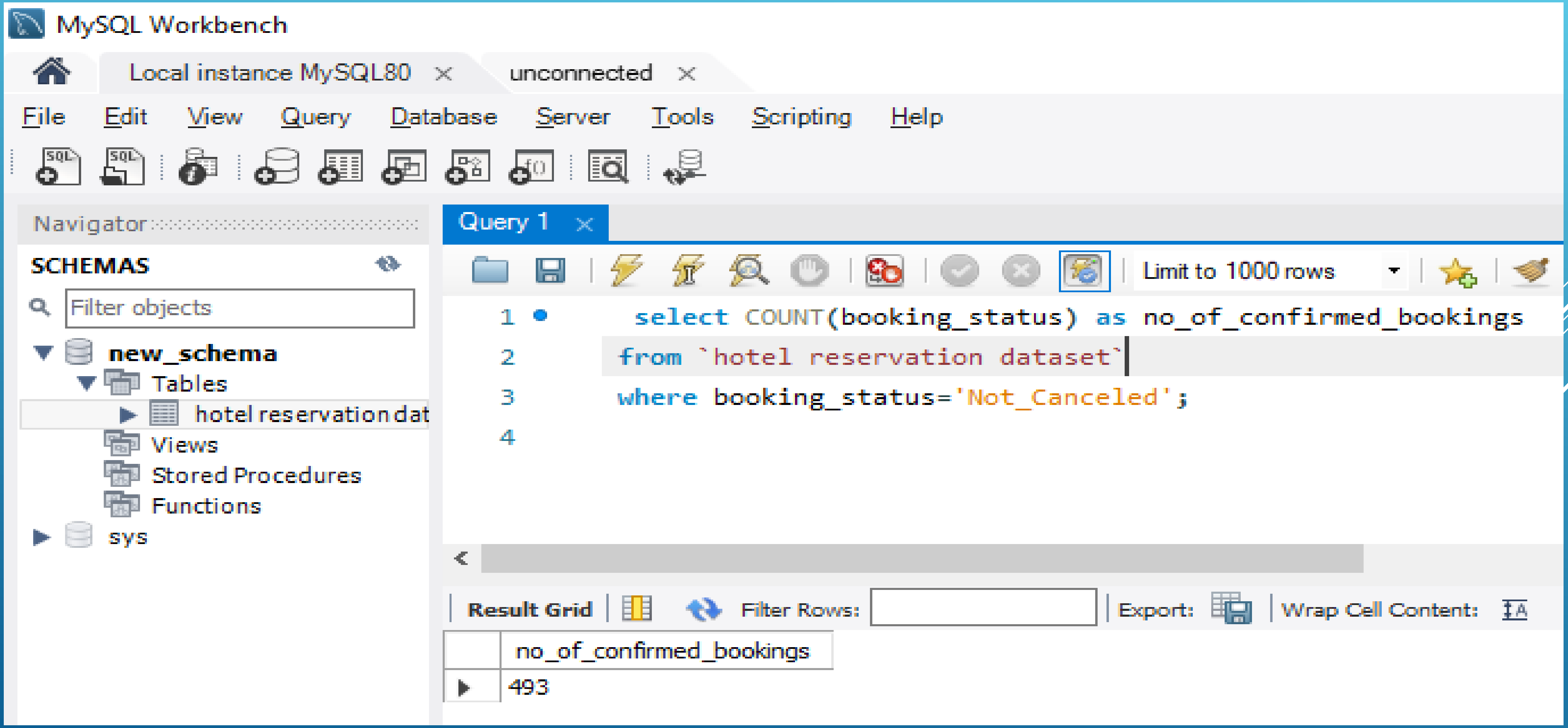
7. MOST COMMON MARKET SEGMENT TYPE



```
select market_segment_type, COUNT(market_segment_type) as max_no_of_times_used
from `hotel reservation dataset`
group by market_segment_type
order by max_no_of_times_used desc;
```

market_segment_type	max_no_of_times_used
Online	518
Offline	140
Corporate	27
Complementary	14
Aviation	1

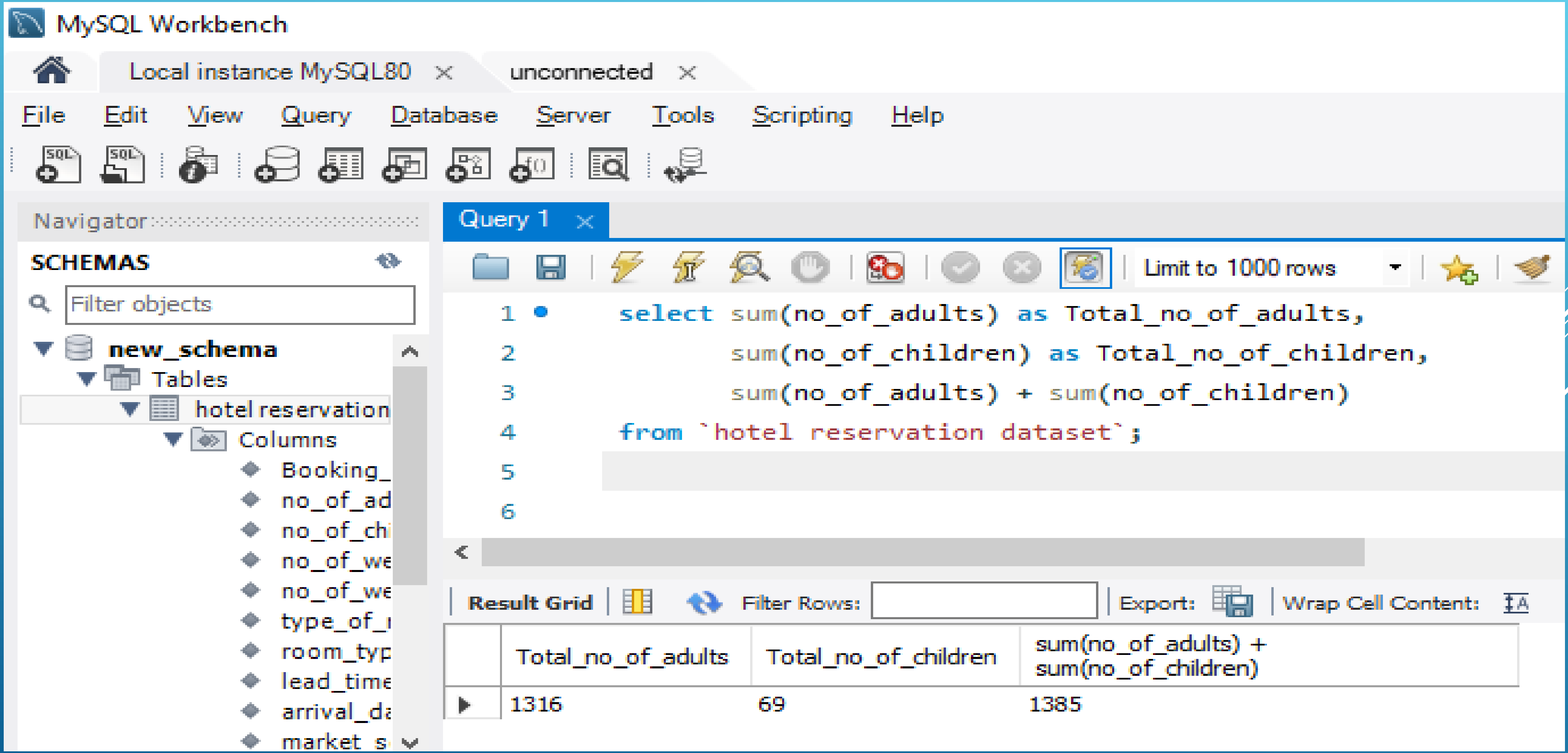
8. RESERVATIONS WITH CONFIRMED BOOKING STATUS



```sql
select COUNT(booking_status) as no_of_confirmed_bookings
from `hotel reservation dataset`
where booking_status='Not_Canceled';
```

no_of_confirmed_bookings
493

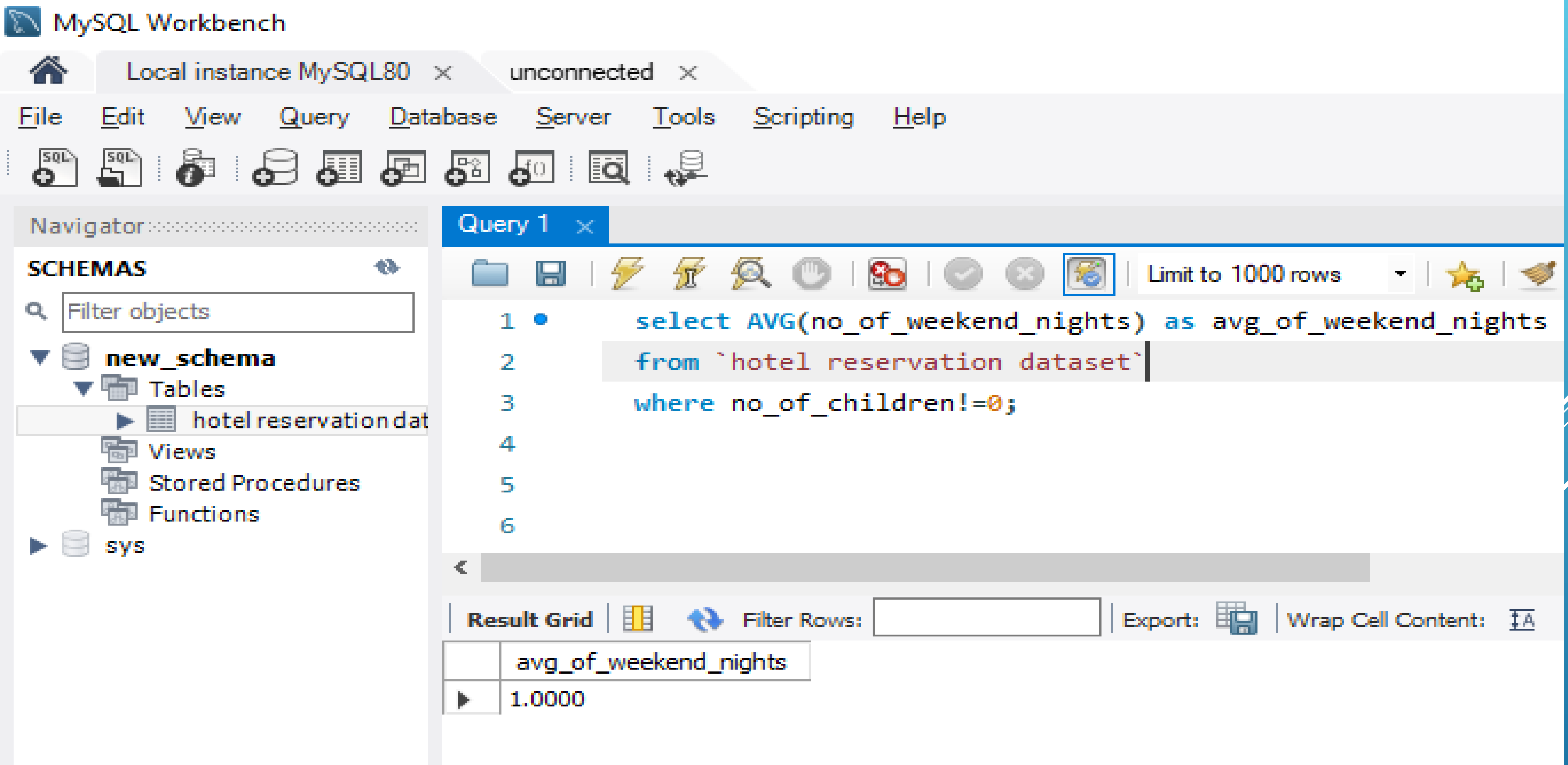
9. TOTAL NUMBER OF ADULTS AND CHILDREN



```sql
select sum(no_of_adults) as Total_no_of_adults,
       sum(no_of_children) as Total_no_of_children,
       sum(no_of_adults) + sum(no_of_children)
from `hotel reservation dataset`;
```

Total_no_of_adults	Total_no_of_children	sum(no_of_adults) + sum(no_of_children)
1316	69	1385

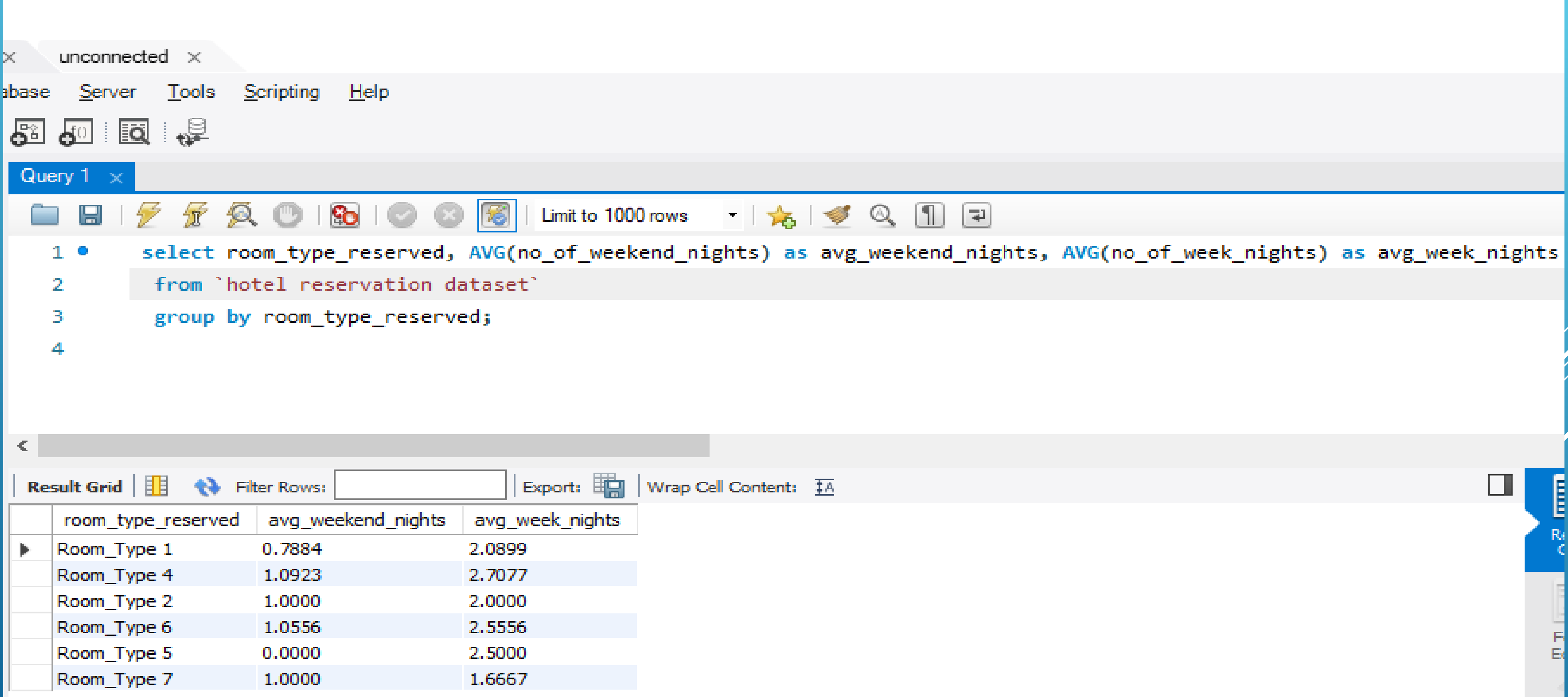
10. AVERAGE WEEKEND NIGHTS FOR RESERVATIONS INVOLVING CHILDREN



```
select AVG(no_of_weekend_nights) as avg_of_weekend_nights
from `hotel reservation dataset`
where no_of_children!=0;
```

```
avg_of_weekend_nights
1.0000
```

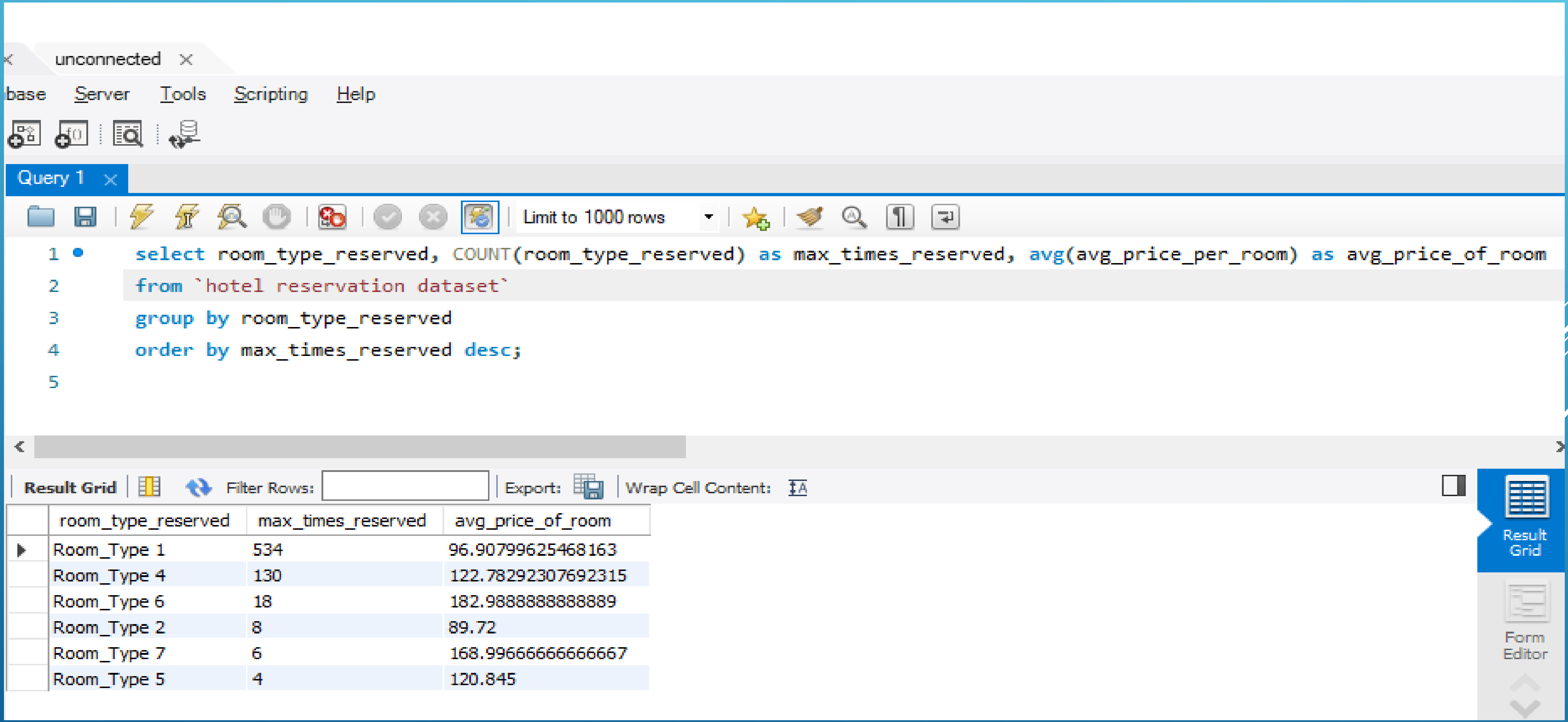
11. AVERAGE NIGHTS SPENT BY GUESTS FOR EACH ROOM TYPE



```sql
select room_type_reserved, AVG(no_of_weekend_nights) as avg_weekend_nights, AVG(no_of_week_nights) as avg_week_nights
 from `hotel reservation dataset`
 group by room_type_reserved;
```

room_type_reserved	avg_weekend_nights	avg_week_nights
Room_Type 1	0.7884	2.0899
Room_Type 4	1.0923	2.7077
Room_Type 2	1.0000	2.0000
Room_Type 6	1.0556	2.5556
Room_Type 5	0.0000	2.5000
Room_Type 7	1.0000	1.6667

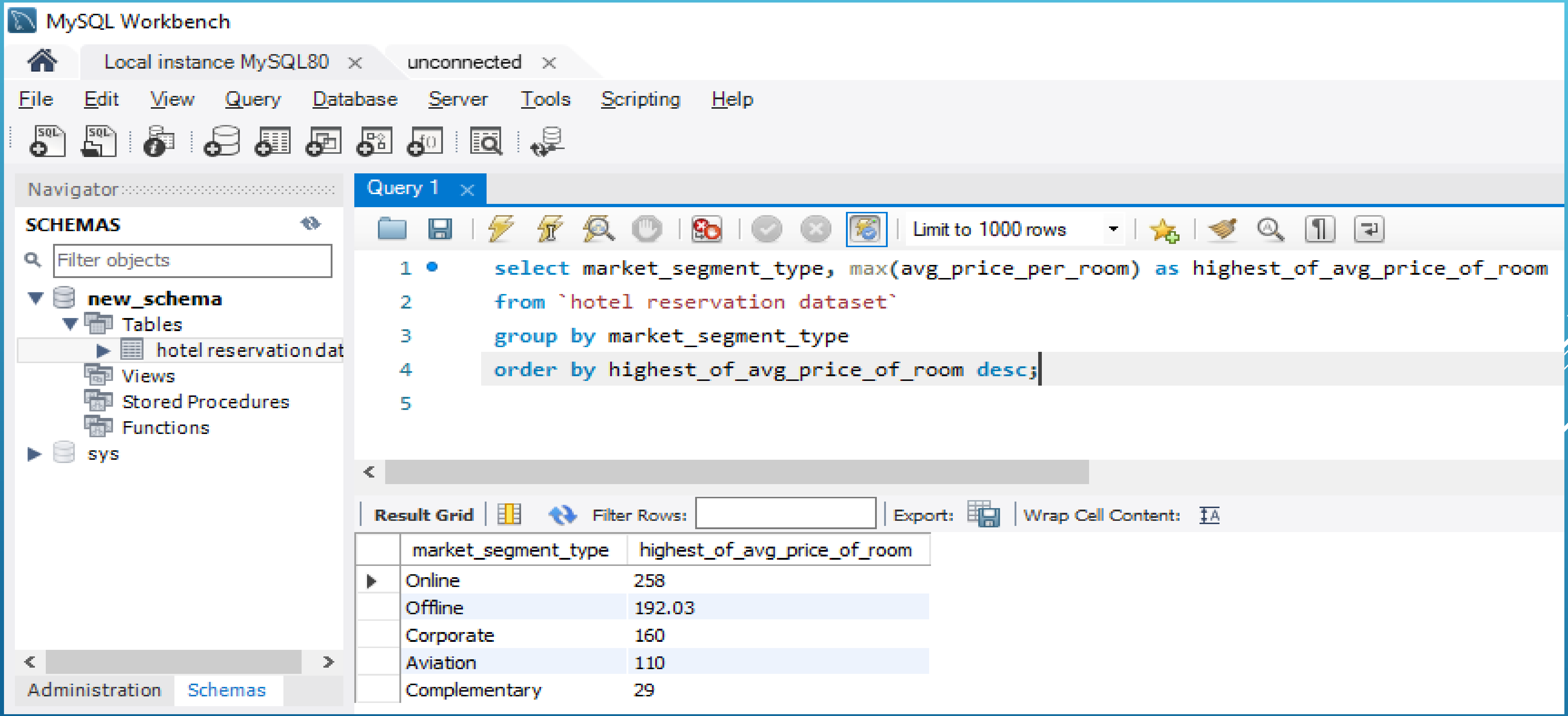
12. MOST COMMON ROOM TYPE WITH CHILDREN AND AVERAGE PRICE



```sql
select room_type_reserved, COUNT(room_type_reserved) as max_times_reserved, avg(avg_price_per_room) as avg_price_of_room
from `hotel reservation dataset`
group by room_type_reserved
order by max_times_reserved desc;
```

room_type_reserved	max_times_reserved	avg_price_of_room
Room_Type 1	534	96.90799625468163
Room_Type 4	130	122.78292307692315
Room_Type 6	18	182.9888888888889
Room_Type 2	8	89.72
Room_Type 7	6	168.9966666666667
Room_Type 5	4	120.845

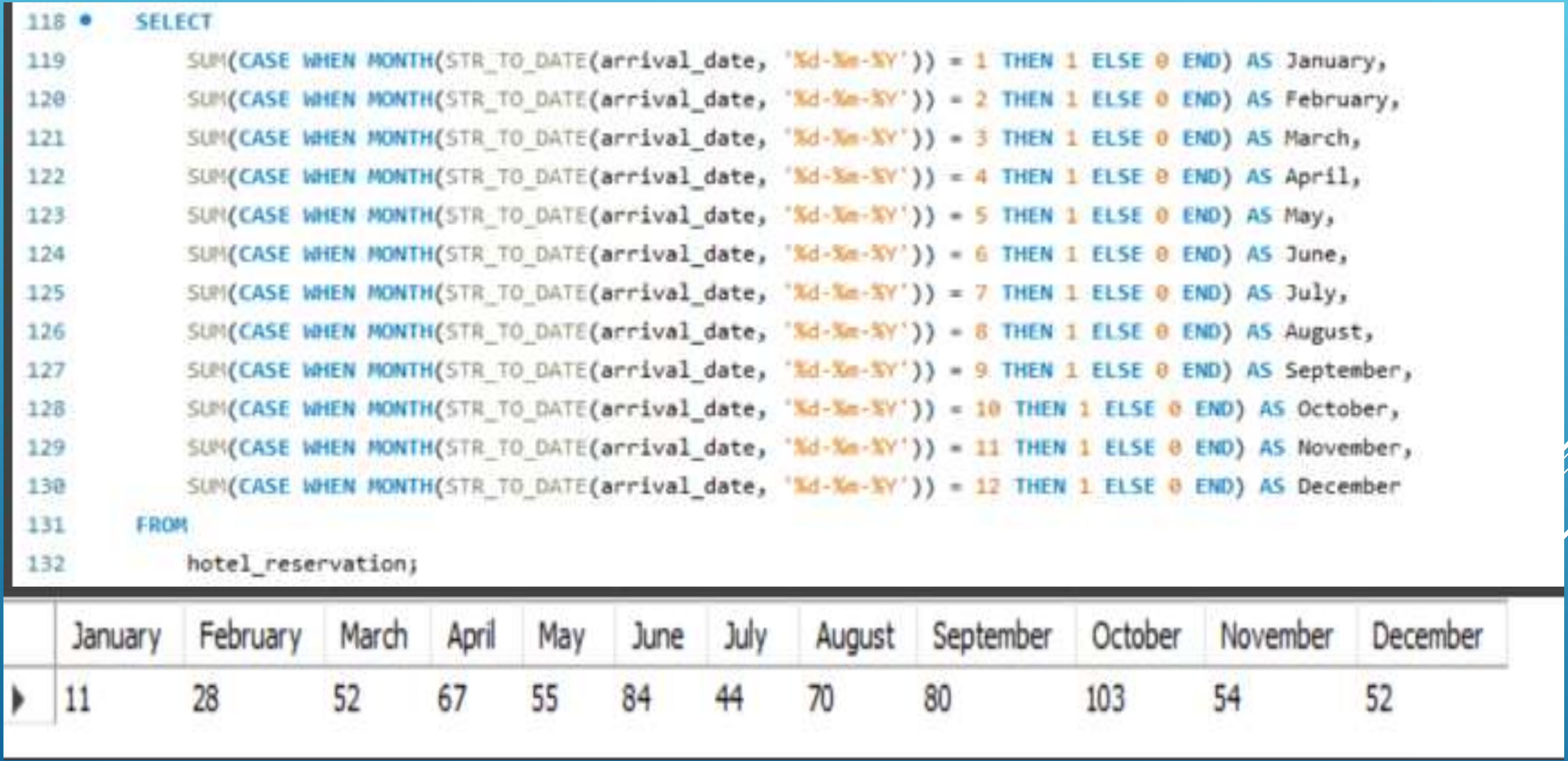
13. MARKET SEGMENT TYPE WITH HIGHEST AVERAGE PRICE



```
select market_segment_type, max(avg_price_per_room) as highest_of_avg_price_of_room
from `hotel reservation dataset`
group by market_segment_type
order by highest_of_avg_price_of_room desc;
```

market_segment_type	highest_of_avg_price_of_room
Online	258
Offline	192.03
Corporate	160
Aviation	110
Complementary	29

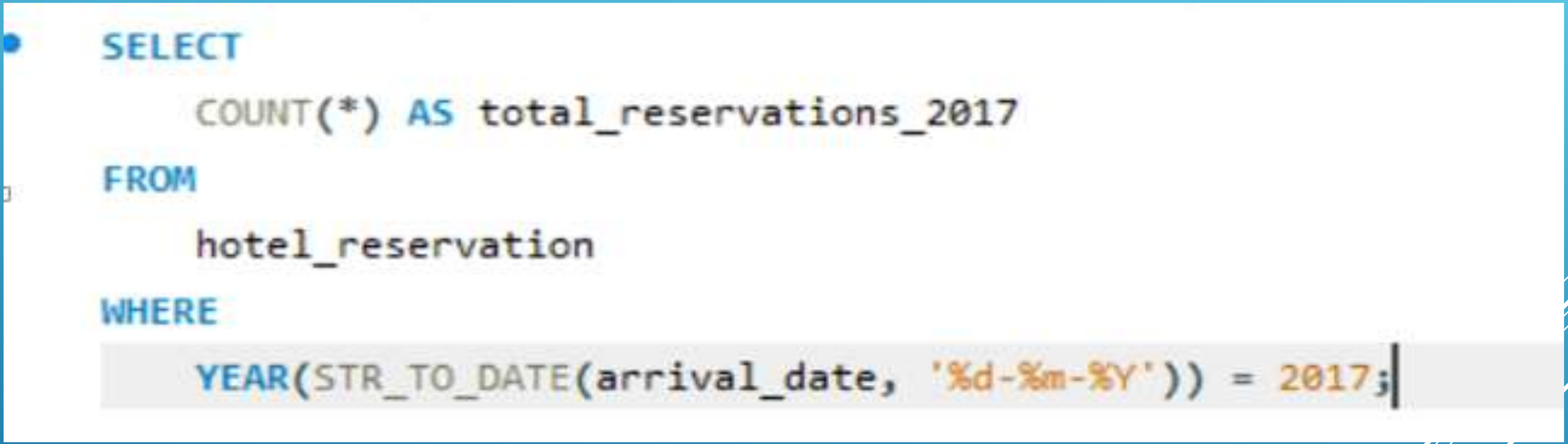
14. RESERVATIONS MADE IN EACH MONTH OF THE YEAR



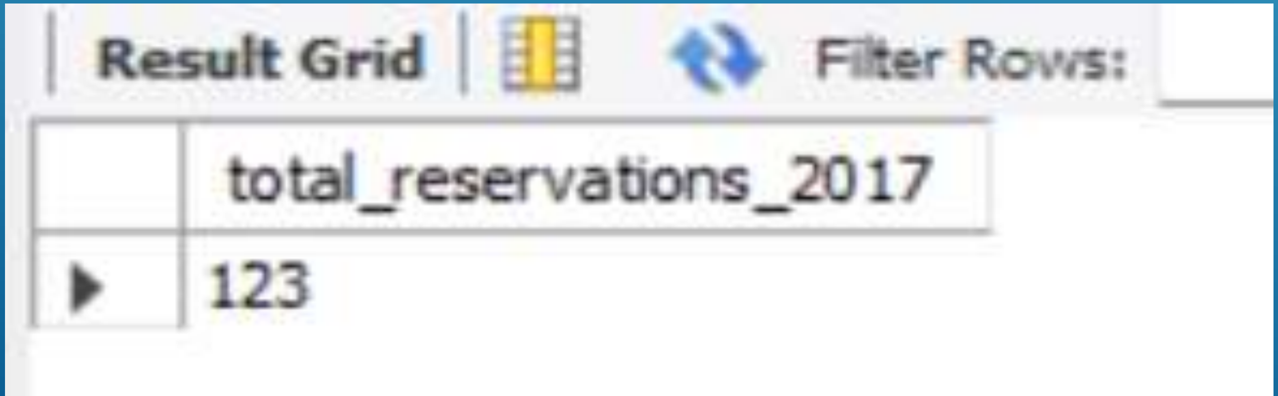
```
SELECT
    SUM(CASE WHEN MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 1 THEN 1 ELSE 0 END) AS January,
    SUM(CASE WHEN MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 2 THEN 1 ELSE 0 END) AS February,
    SUM(CASE WHEN MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 3 THEN 1 ELSE 0 END) AS March,
    SUM(CASE WHEN MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 4 THEN 1 ELSE 0 END) AS April,
    SUM(CASE WHEN MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 5 THEN 1 ELSE 0 END) AS May,
    SUM(CASE WHEN MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 6 THEN 1 ELSE 0 END) AS June,
    SUM(CASE WHEN MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 7 THEN 1 ELSE 0 END) AS July,
    SUM(CASE WHEN MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 8 THEN 1 ELSE 0 END) AS August,
    SUM(CASE WHEN MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 9 THEN 1 ELSE 0 END) AS September,
    SUM(CASE WHEN MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 10 THEN 1 ELSE 0 END) AS October,
    SUM(CASE WHEN MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 11 THEN 1 ELSE 0 END) AS November,
    SUM(CASE WHEN MONTH(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 12 THEN 1 ELSE 0 END) AS December
FROM
    hotel_reservation;
```

January	February	March	April	May	June	July	August	September	October	November	December
11	28	52	67	55	84	44	70	80	103	54	52

15. RESERVATIONS MADE FOR A SPECIFIC YEAR



```
SELECT
    COUNT(*) AS total_reservations_2017
FROM
    hotel_reservation
WHERE
    YEAR(STR_TO_DATE(arrival_date, '%d-%m-%Y')) = 2017;
```



total_reservations_2017
123

CONCLUSION

The hotel reservation dataset provides valuable insights into guest preferences and booking trends. Key findings include Meal Plan 1 as the favoured choice among guests, with Room type 1 being the most frequently booked. Analysis of lead times reveals varied booking behaviours, while the majority of reservations are confirmed, indicating robust booking management. Market segmentation highlights online, influencing pricing strategies. Reservations involving children command 125+ , reflecting family-friendly offerings. These insights equip hotels to refine marketing approaches and optimize guest experiences, ensuring competitive edge and guest satisfaction.