HOTEL Reservation Analysis By Using SQL

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Hotel Reservation Overview

Hotel reservation analysis using SQL allows businesses to gain insights into booking patterns and trends.

By analyzing reservation data, hotels can optimize pricing strategies and improve overall customer experience.

SQL queries can help identify peak booking periods, popular room types, and customer preferences.

Reservation Table Variable Descriptions

- **booking_id**: Unique identifier for each reservation.
- **no_of_adults**: Number of adults included in the reservation.
- **no_of_children** : Number of children included in the reservation.
- **arrival_date** : The date when the guests are scheduled to check in.
- **market_segment_type**: The source or category of the reservation (e.g., Online, Corporate).
- **avg_price_per_room**: The average price charged per room for the reservation.
- **booking_status**: The current status of the reservation (e.g., Confirmed, Cancelled).
- **no_of_weekend_nights**: Number of weekend nights included in the reservation.
- **no_of_week_nights**: Number of weeknights included in the reservation.
- **type_of_meal_plan**: The meal plan selected by the guests (e.g., Breakfast, Full board).
- **room_type_reserved**: The type of room reserved by the guests (e.g., Deluxe, Suite).
- **lead_time**: The number of days between the booking date and the arrival date.

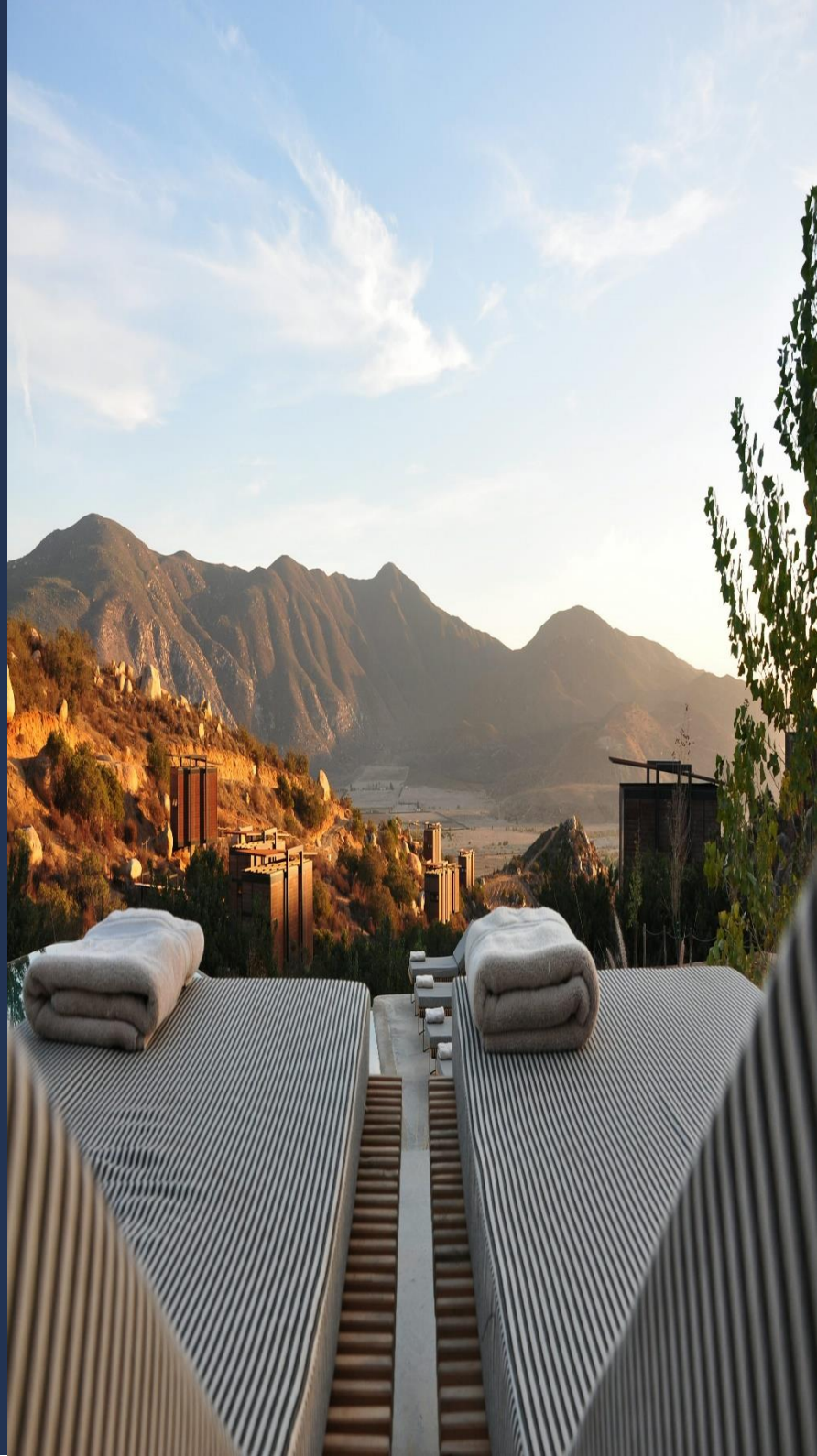
1.Database Setup
(Create the Database and Table)

```sql
CREATE DATABASE hotel_reservation_analysis;

USE hotel_reservation_analysis;
CREATE TABLE reservations (
    booking_id INT PRIMARY KEY,
    no_of_adults INT,
    no_of_children INT,
    arrival_date DATE,
    market_segment_type VARCHAR(50),
    avg_price_per_room DECIMAL(10, 2),
    booking_status VARCHAR(50),
    no_of_weekend_nights INT,
    no_of_week_nights INT,
    type_of_meal_plan VARCHAR(50),
    room_type_reserved VARCHAR(50),
    lead_time INT
);
```

2.Insert Sample Data
(Insert Random Sample Data)

```
INSERT INTO reservations VALUES
(1, 2, 1, '2023-05-14', 'Online', 120.00, 'Confirmed', 1, 2, 'Breakfast', 'Deluxe', 30),
(2, 1, 0, '2023-06-21', 'Corporate', 150.00, 'Cancelled', 0, 3, 'Full board', 'Suite', 45),
(3, 2, 2, '2023-07-10', 'Direct', 100.00, 'Confirmed', 2, 2, 'Breakfast', 'Standard', 15),
(4, 3, 1, '2017-08-18', 'Travel Agent', 180.00, 'Confirmed', 1, 4, 'Half board', 'Family', 60),
(5, 1, 1, '2017-09-12', 'Online', 130.00, 'Checked-Out', 1, 3, 'Breakfast', 'Suite', 25),
(6, 2, 0, '2023-11-23', 'Corporate', 110.00, 'Confirmed', 0, 5, 'Full board', 'Standard', 50),
(7, 1, 2, '2017-12-31', 'Direct', 90.00, 'Cancelled', 2, 1, 'Half board', 'Deluxe', 10),
(8, 3, 0, '2023-01-05', 'Travel Agent', 160.00, 'Confirmed', 0, 4, 'Breakfast', 'Family', 35),
(9, 2, 1, '2023-03-15', 'Online', 140.00, 'Confirmed', 1, 2, 'Full board', 'Deluxe', 20),
(10, 2, 2, '2023-02-20', 'Corporate', 115.00, 'Confirmed', 0, 3, 'Half board', 'Suite', 55),
(11, 1, 0, '2023-04-17', 'Direct', 125.00, 'Cancelled', 1, 1, 'Breakfast', 'Standard', 40),
(12, 2, 1, '2017-06-14', 'Travel Agent', 175.00, 'Confirmed', 1, 4, 'Full board', 'Family', 70),
(13, 3, 2, '2023-08-23', 'Online', 150.00, 'Checked-Out', 2, 2, 'Half board', 'Suite', 30),
(14, 1, 0, '2023-09-11', 'Corporate', 145.00, 'Cancelled', 0, 5, 'Breakfast', 'Deluxe', 50),
(15, 2, 2, '2023-10-19', 'Direct', 135.00, 'Confirmed', 2, 2, 'Full board', 'Standard', 20);
```



3.Run the Queries (Total Number of Reservations):

```
1 •  SELECT COUNT(*) AS total_reservations FROM reservations;
```

Result Grid | Filter Rows: | Export:

total_reservations
15

This query calculates the total number of reservations in the database.

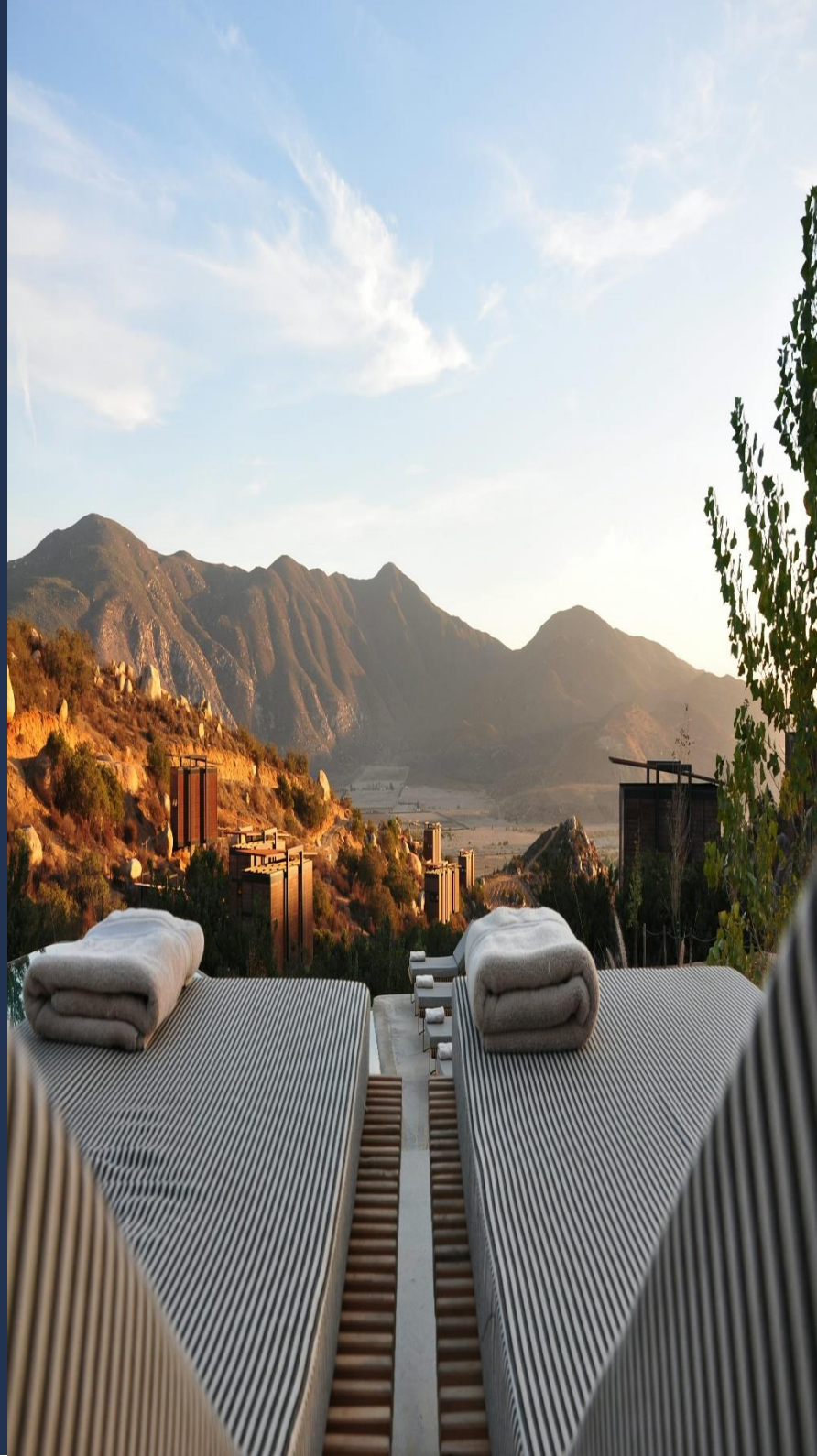
4.Most Popular Meal Plan

```
SELECT type_of_meal_plan, COUNT(*) AS count
FROM reservations
GROUP BY type_of_meal_plan
ORDER BY count DESC
LIMIT 1;
```

Result Grid | Filter Rows: | Export:

type_of_meal_plan	count
Breakfast	6

This query identifies the most frequently chosen meal plan.



5.Average Price per Room for Reservations Involving Children:

```
SELECT AVG(avg_price_per_room) AS average_price
FROM reservations
WHERE no_of_children > 0;
```

Result Grid | Filter Rows: | Export:

average_price
133.500000

This query calculates the average price per room for reservations that include children.

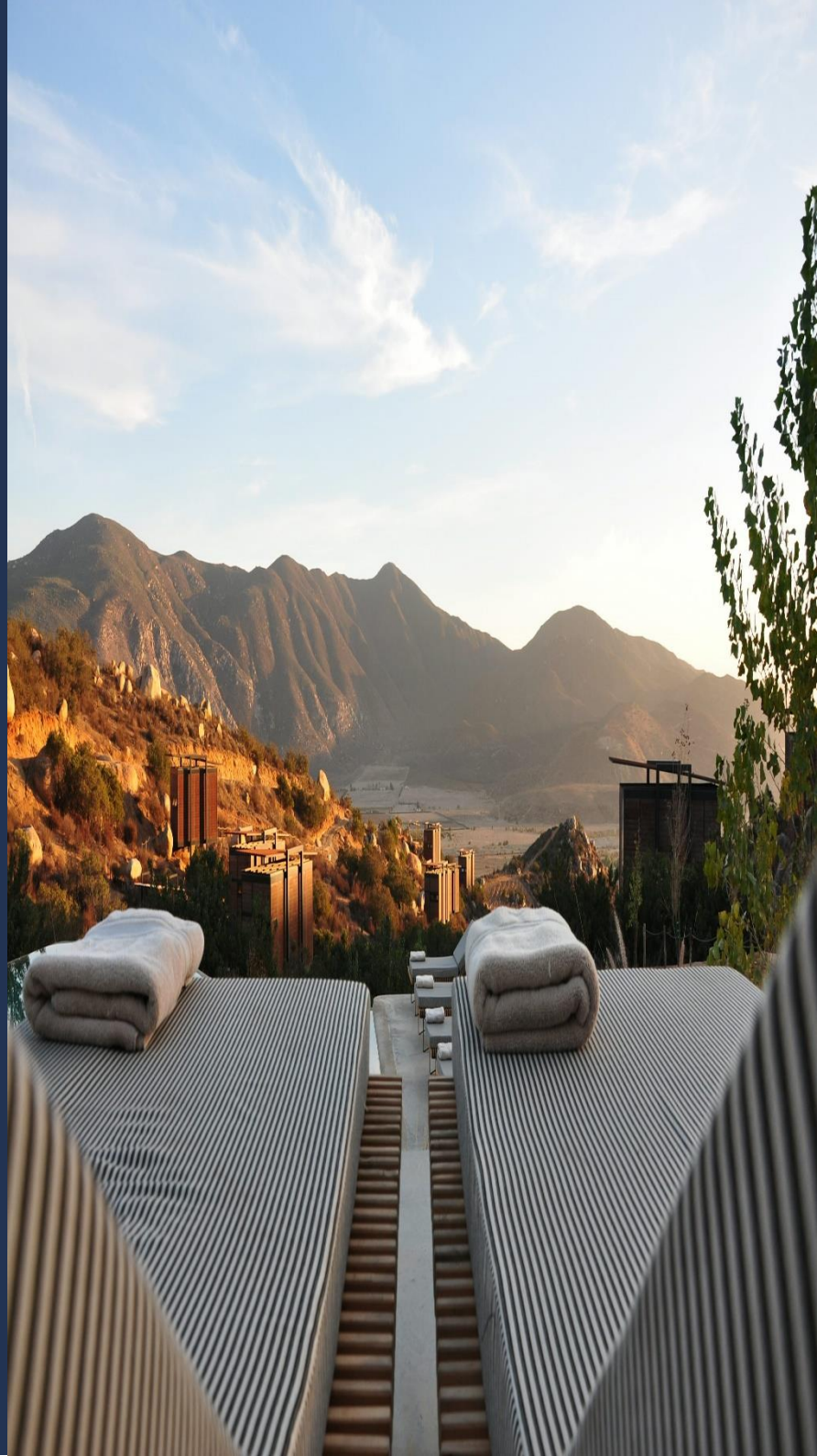
6.Reservations Made in 2017

```
SELECT COUNT(*) AS reservations_2017
FROM reservations
WHERE YEAR(arrival_date) = 2017;
```

Result Grid | Filter Rows: | Export:

reservations_2017
4

This query counts the number of reservations made in the year 2017.



7.Most Commonly Booked Room Type

```
SELECT room_type_reserved, COUNT(*) AS count
FROM reservations
GROUP BY room_type_reserved
ORDER BY count DESC
LIMIT 1;
```

Result Grid | Filter Rows: | Export:

room_type_reserved	count
Deluxe	4

This query identifies the most commonly reserved room type.

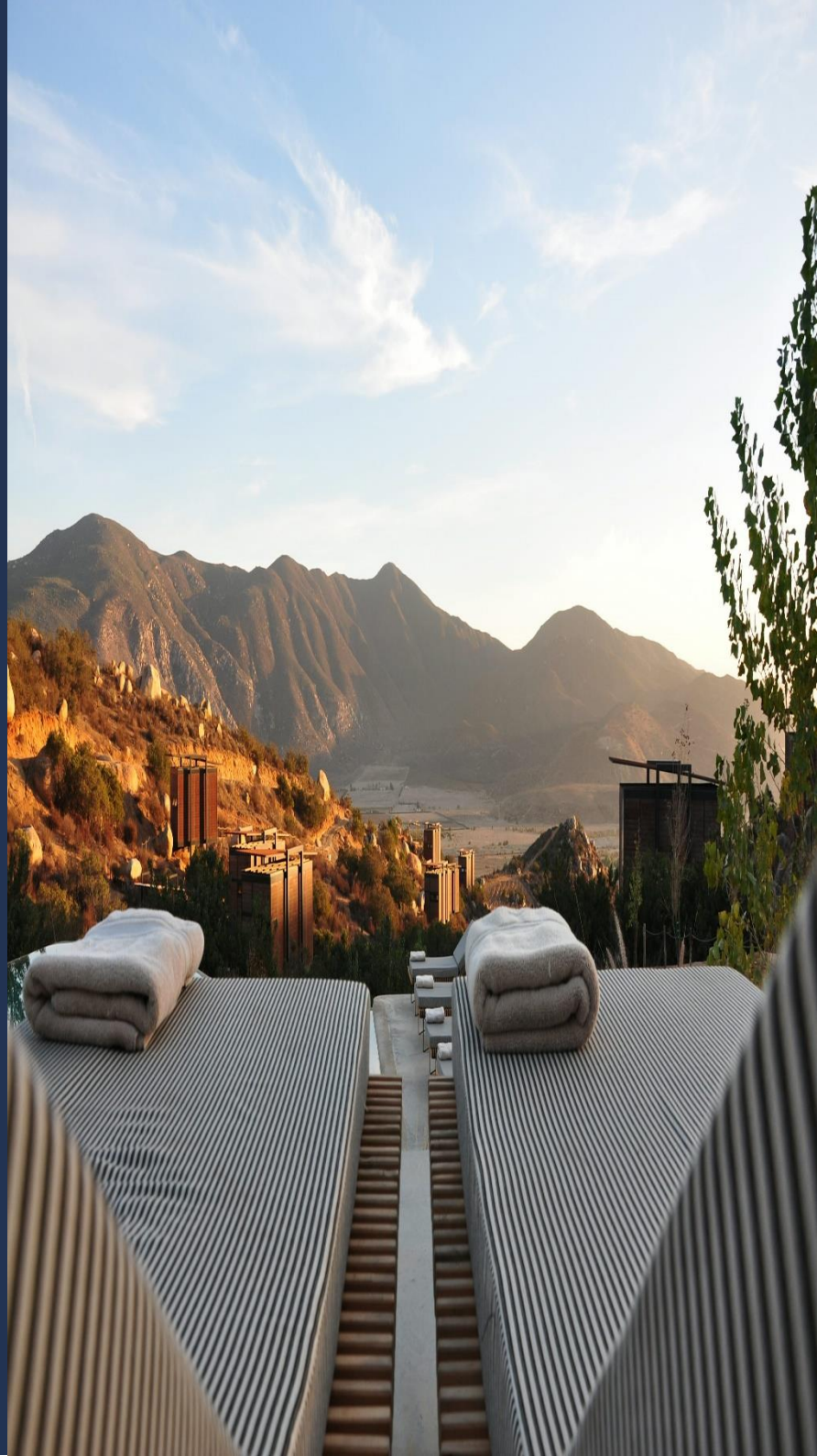
8.Reservations Falling on a Weekend

```
SELECT COUNT(*) AS weekend_reservations
FROM reservations
WHERE no_of_weekend_nights > 0;
```

Result Grid | Filter Rows: | Export:

weekend_reservations
10

This query counts the number of reservations that include weekend nights.



9.Highest and Lowest Lead Time

```
SELECT MAX(lead_time) AS highest_lead_time, MIN(lead_time) AS lowest_lead_time
FROM reservations;
```

Result Grid | Filter Rows: | Export:

	highest_lead_time	lowest_lead_time
▶	70	10

This query finds the highest and lowest lead times for reservations.

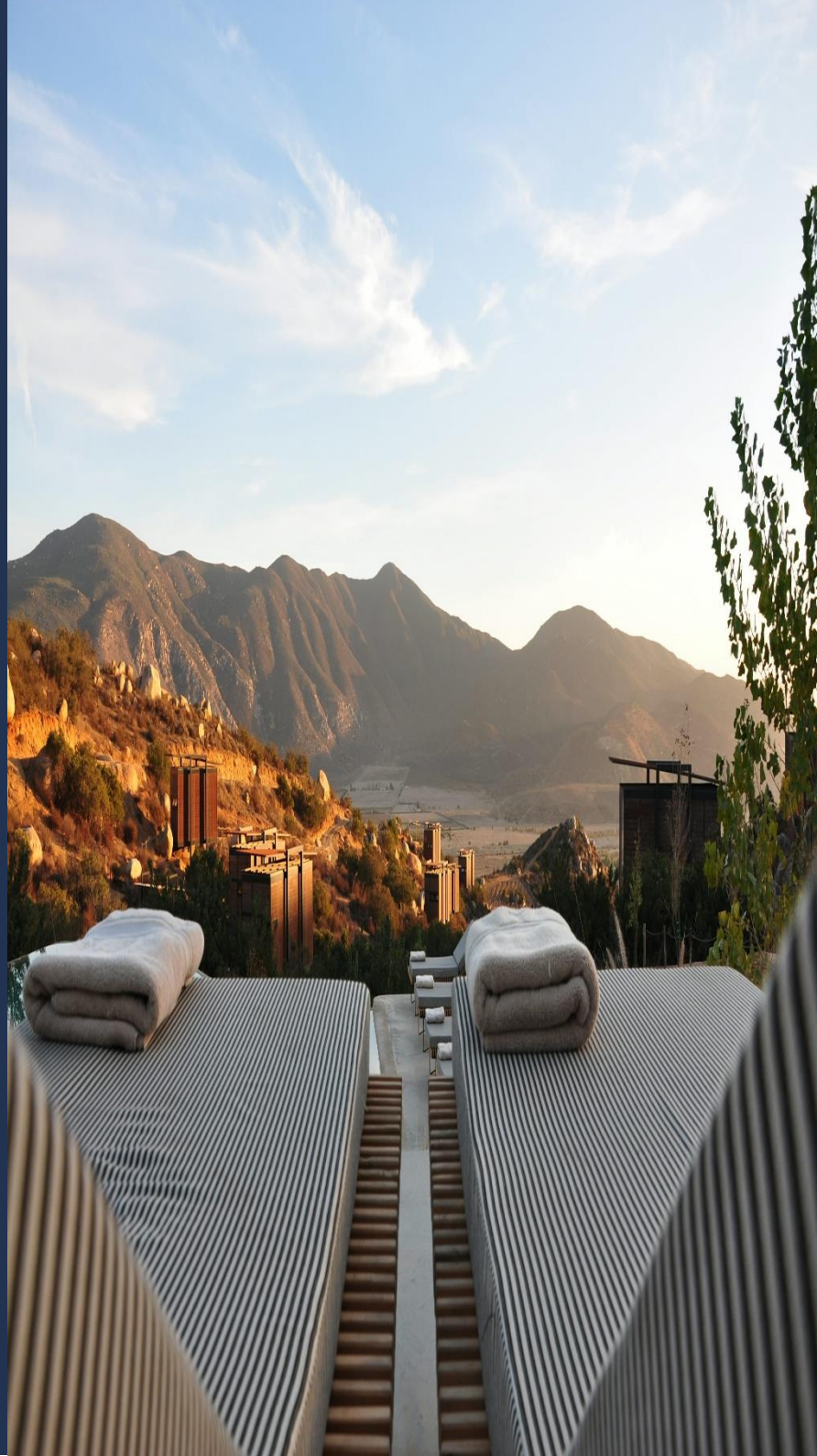
10.Most Common Market Segment Type

```
SELECT market_segment_type, COUNT(*) AS count
FROM reservations
GROUP BY market_segment_type
ORDER BY count DESC
LIMIT 1;
```

Result Grid | Filter Rows: | Export:

	market_segment_type	count
▶	Online	4

This query identifies the most common market segment type among the reservations.



11.Reservations with "Confirmed" Status

```
SELECT COUNT(*) AS confirmed_reservations
FROM reservations
WHERE booking_status = 'Confirmed';
```

Result Grid | Filter Rows: | Export:

confirmed_reservations
9

This query counts the number of reservations with a status of "Confirmed".

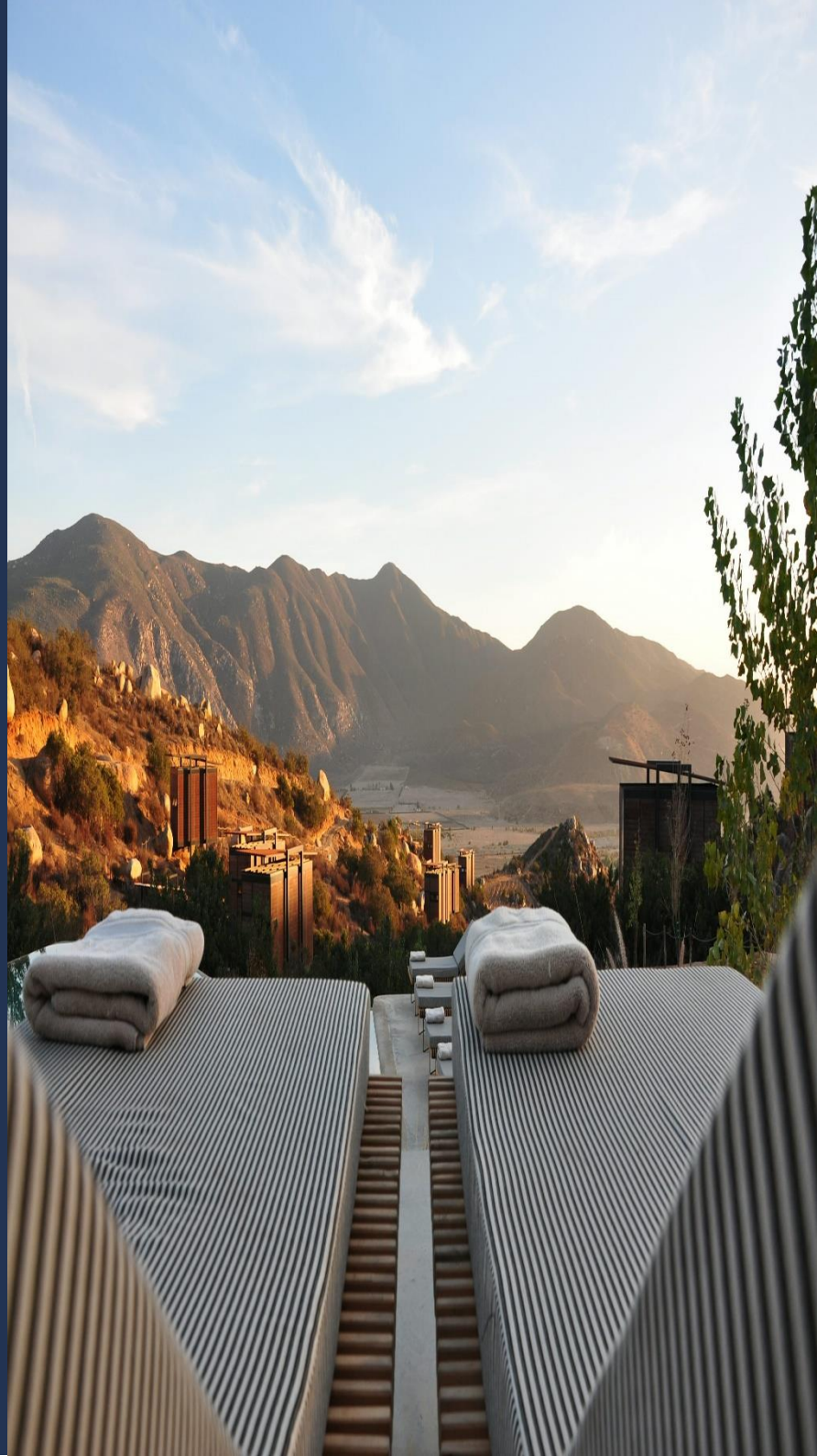
12.Total Number of Adults and Children

```
SELECT SUM(no_of_adults) AS total_adults, SUM(no_of_children) AS total_children
FROM reservations;
```

Result Grid | Filter Rows: | Export:

total_adults	total_children
28	15

This query calculates the total number of adults and children in all reservations.



13.Average Number of Weekend Nights for Reservations Involving Children

```
SELECT AVG(no_of_weekend_nights) AS average_weekend_nights
FROM reservations
WHERE no_of_children > 0;
```

Result Grid | Filter Rows: | Export:

average_weekend_nights
1.3000

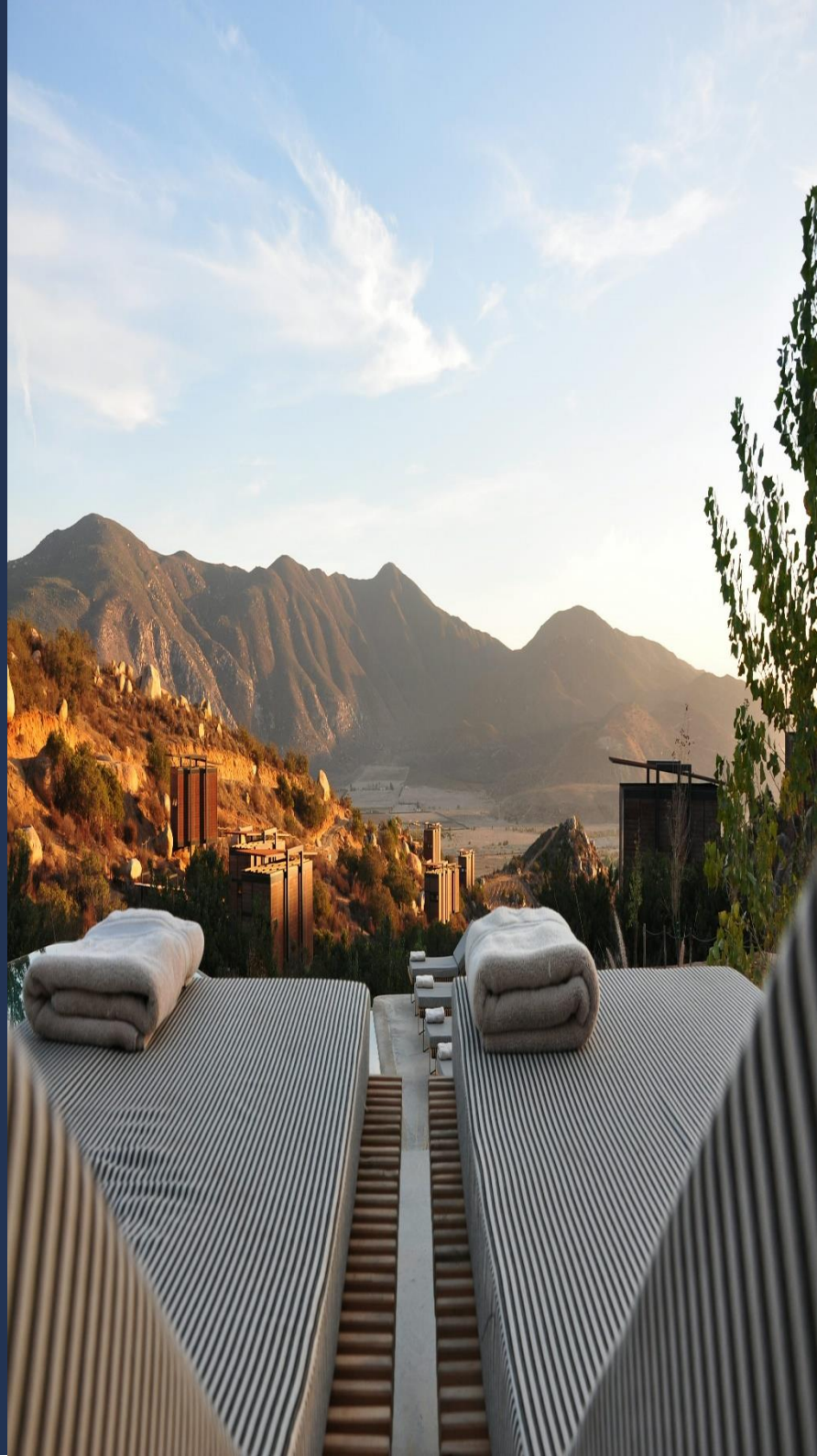
This query calculates the average number of weekend nights for reservations involving children.

14.Reservations by Month

```
SELECT MONTH(arrival_date) AS month, COUNT(*) AS count
FROM reservations
GROUP BY month
ORDER BY month;
```

Result Grid | Filter Rows: | Export:

month	count
1	1
2	1
3	1
4	1
5	1
6	2
7	1
8	2
9	2
10	1
11	1
12	1



15.Average Number of Nights Spent by Room Type

```
SELECT room_type_reserved, AVG(no_of_weekend_nights + no_of_week_nights)
 AS average_nights FROM reservations
GROUP BY room_type_reserved;
```

Result Grid | Filter Rows: | Export:

room_type_reserved	average_nights
Deluxe	3.5000
Suite	3.5000
Standard	3.7500
Family	4.6667

This query calculates the average number of nights spent in each room type.

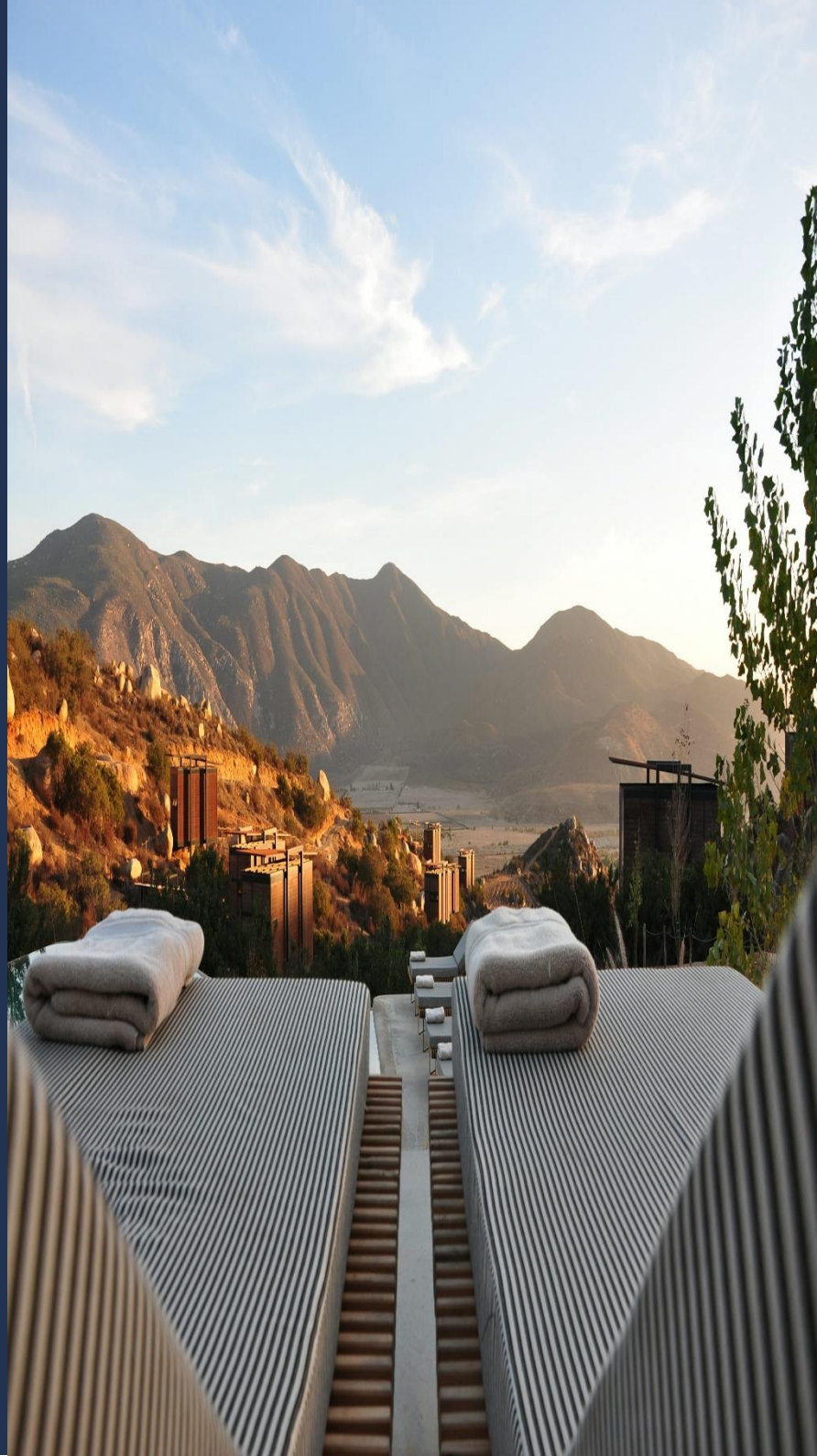
16.Most Common Room Type and Average Price for Reservations Involving Children

```
SELECT room_type_reserved, COUNT(*) AS count, AVG(avg_price_per_room)
AS average_price FROM reservations WHERE no_of_children > 0
GROUP BY room_type_reserved
ORDER BY count DESC LIMIT 1;
```

Result Grid | Filter Rows: | Export:

room_type_reserved	count	average_price
Deluxe	3	116.666667

This query identifies the most common room type for reservations involving children and the average price for those reservations.



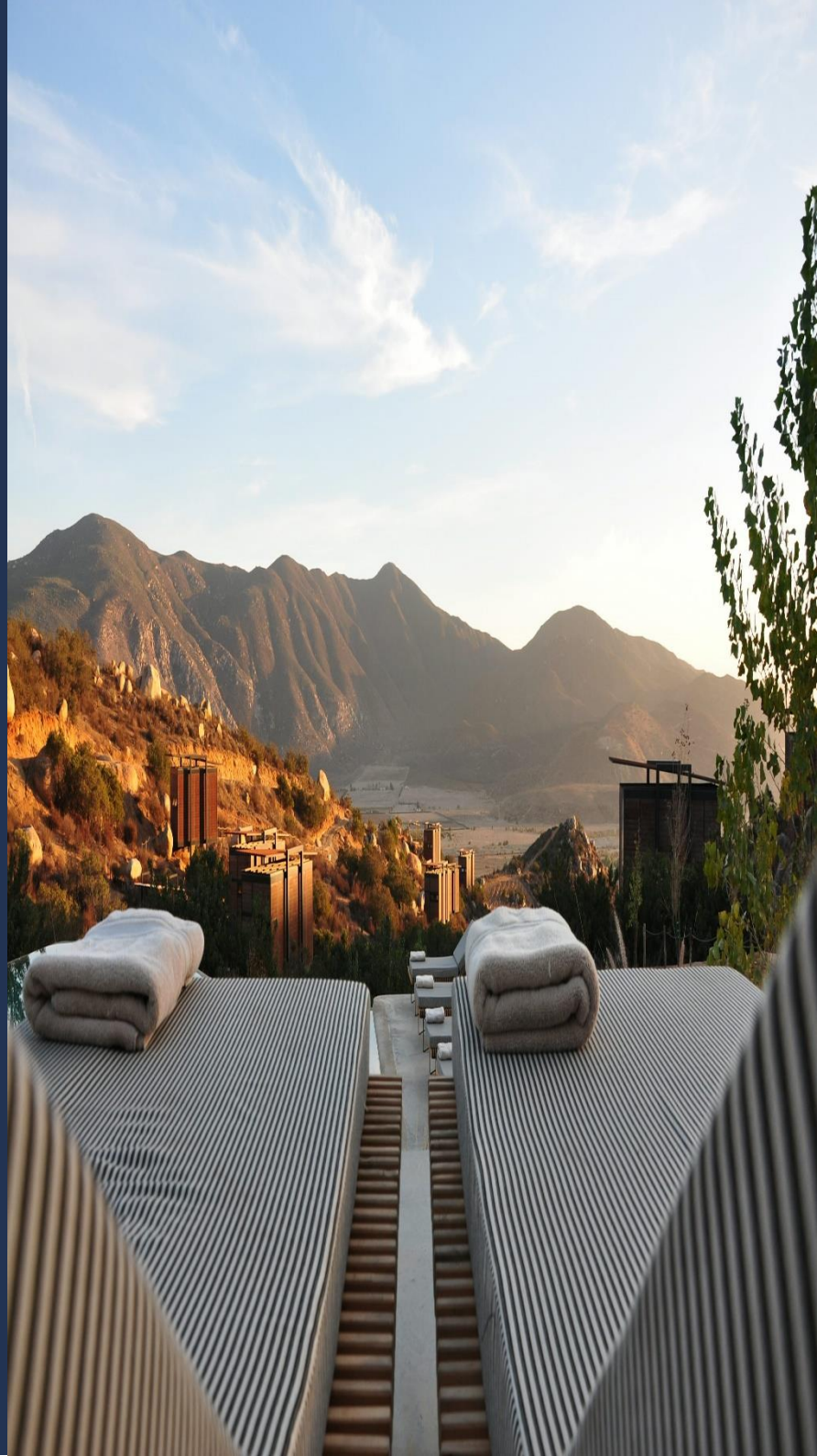
17.Market Segment Type with Highest Average Price per Room

```sql
SELECT market_segment_type, AVG(avg_price_per_room) AS average_price
FROM reservations
GROUP BY market_segment_type
ORDER BY average_price DESC
LIMIT 1;
```

Result Grid | Filter Rows: | Export:

market_segment_type	average_price
Travel Agent	171.666667

This query identifies the market segment type with the highest average price per room.



Thank You for Your Attention!

Contact Information.
Contact us for further inquiries or collaboration opportunities.

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