**Data Dictionary**

* **Booking\_ID**: unique identifier of each booking
* **type\_of\_meal\_plan**: Type of meal plan booked by the customer:
* **room\_type\_reserved**: Type of room reserved by the customer. The values are ciphered (encoded) by INN Hotels.
* **arrival\_year**: Year of arrival date
* **arrival\_month**: Month of arrival date
* **arrival\_date**: Date of the month
* **market\_segment\_type**: Market segment designation.
* **avg\_price\_per\_room**: Average price per day of the reservation; prices of the rooms are dynamic. (in euros)
* **no\_of\_special\_requests**: Total number of special requests made by the customer (e.g. high floor, view from the room, etc)
* **booking\_status**: Flag indicating if the booking was canceled or not.

CREATE TABLE hotel\_reservations (

Booking\_ID VARCHAR(255),

type\_of\_meal\_plan VARCHAR(255),

room\_type\_reserved VARCHAR(255),

arrival\_year INT,

arrival\_month INT,

arrival\_date INT,

market\_segment\_type VARCHAR(255),

avg\_price\_per\_room FLOAT,

booking\_status VARCHAR(255)

);

-- Add Foreign Key Constraint for Room Type

ALTER TABLE hotel\_reservations

ADD CONSTRAINT fk\_room\_type

FOREIGN KEY (room\_type\_id) REFERENCES room\_type(id);

### ****1. Total Bookings by Room Type****

-- Query to calculate total bookings for each room type

SELECT

rt.room\_type AS room\_type, -- Fetch the room type name

COUNT(hr.booking\_id) AS total\_bookings -- Count the number of bookings

FROM

hotel\_reservations hr -- Main table

JOIN

room\_type rt ON hr.room\_type\_id = rt.id -- Join with room\_type table using room\_type\_id

GROUP BY

rt.room\_type; -- Group the results by room type

**Business Question:**  
Which room types are most popular among guests?

**Explanation:**  
This query calculates the total number of bookings for each room type (Deluxe Room, Standard Room, etc.). It uses a JOIN to map room\_type\_id from hotel\_reservations to the room\_type table.  
  
**Expected Outcome:**  
This query will show the distribution of bookings across different room types (e.g., Deluxe Room, Standard Room, VIP Suite). If certain room types have significantly higher bookings, the hotel may focus on promoting those further or expanding their availability.

**2. Total Bookings by Meal Plan**

-- Query to calculate total bookings for each meal plan

SELECT

mp.meal\_plan AS meal\_plan, -- Fetch the meal plan name

COUNT(hr.booking\_id) AS total\_bookings -- Count the number of bookings

FROM

hotel\_reservations hr -- Main table

JOIN

meal\_plan mp ON hr.meal\_plan\_id = mp.id -- Join with meal\_plan table using meal\_plan\_id

GROUP BY

mp.meal\_plan; -- Group the results by meal plan

**Business Question:**  
What are the most preferred meal plans among guests?

**Explanation:**  
This query shows how many bookings have been made under each meal plan (Breakfast, Lunch, Dinner). It joins the meal\_plan table to retrieve text values.

**Expected Outcome:**  
The query will identify which meal plans (e.g., Breakfast, Lunch, Dinner) are most frequently chosen. Popular meal plans can help the hotel refine its menu offerings and allocate resources accordingly.

**3. Total Bookings by Market Segment**

sql

Copy code

-- Query to calculate total bookings for each market segment

SELECT

ms.market\_segment AS market\_segment, -- Fetch the market segment name

COUNT(hr.booking\_id) AS total\_bookings -- Count the number of bookings

FROM

hotel\_reservations hr -- Main table

JOIN

market\_segment ms ON hr.market\_segment\_id = ms.id -- Join with market\_segment table using market\_segment\_id

GROUP BY

ms.market\_segment; -- Group the results by market segment

**Business Question:**  
Which market segments (e.g., Corporate, Direct) bring the most bookings?

**Explanation:**  
This query calculates the total bookings for each market segment (Corporate, Direct, etc.). It ensures human-readable output by mapping IDs to names through a JOIN.

**Expected Outcome:**  
The query helps identify the most valuable customer segments. If Corporate bookings dominate, the hotel can focus on enhancing corporate packages, whereas if Direct bookings are high, promotions targeting individual travelers might be more effective.

**4. Total Bookings by Booking Status**

sql

Copy code

-- Query to calculate total bookings for each booking status

SELECT

bs.status AS booking\_status, -- Fetch the booking status name

COUNT(hr.booking\_id) AS total\_bookings -- Count the number of bookings

FROM

hotel\_reservations hr -- Main table

JOIN

booking\_status bs ON hr.booking\_status\_id = bs.id -- Join with booking\_status table using booking\_status\_id

GROUP BY

bs.status; -- Group the results by booking status

**Business Question:**  
What is the distribution of bookings by status (e.g., Confirmed, Canceled)?

**Explanation:**  
This query gives a summary of bookings based on their status (Confirmed, Cancelled, Not Cancelled). The JOIN maps IDs to descriptive text.

**Expected Outcome:**  
This query reveals trends in booking confirmations and cancellations. A high cancellation rate may indicate issues such as a lack of flexibility in policies or customer dissatisfaction.

**5. Average Price per Room by Room Type**

sql

Copy code

-- Query to calculate average price per room for each room type

SELECT

rt.room\_type AS room\_type, -- Fetch the room type name

AVG(hr.avg\_price\_per\_room) AS average\_price -- Calculate the average price per room

FROM

hotel\_reservations hr -- Main table

JOIN

room\_type rt ON hr.room\_type\_id = rt.id -- Join with room\_type table using room\_type\_id

GROUP BY

rt.room\_type; -- Group the results by room type

**Business Question:**  
What is the average price per room for each room type?

**Explanation:**  
This query computes the average price per room for each room type. For example, it shows the average price of Deluxe Room, Standard Room, etc.

**Expected Outcome:**  
This query highlights the pricing trends for different room types. It can help the hotel evaluate its pricing strategy and compare it with demand to maximize revenue.

### ****6. High-Value Bookings****

**Query:**

sql

Copy code

SELECT

hr.booking\_id,

rt.room\_type AS room\_type,

ms.market\_segment AS market\_segment,

hr.avg\_price\_per\_room AS price\_per\_room

FROM

hotel\_reservations hr

JOIN

room\_type rt

ON

hr.room\_type\_id = rt.id

JOIN

market\_segment ms

ON

hr.market\_segment\_id = ms.id

WHERE

hr.avg\_price\_per\_room > 90;  
  
**Business Question:**  
Which bookings have a high price per room, and what are their details?

**Scenario:**  
Identify bookings with a high average price per room to target premium customers.

**Explanation:**  
The WHERE clause filters bookings where the price exceeds a certain threshold, helping the hotel identify and analyze high-value transactions.

**Expected Outcome:**  
The query identifies premium bookings, providing insight into high-value customers and their preferences (e.g., room types and market segments). This can guide targeted marketing and loyalty programs.

### ****7. Monthly Booking Trends****

**Query:**

sql

Copy code

SELECT

hr.arrival\_month AS month,

COUNT(hr.booking\_id) AS total\_bookings

FROM

hotel\_reservations hr

GROUP BY

hr.arrival\_month

ORDER BY

hr.arrival\_month;

**Business Question:**  
What are the monthly booking trends?

**Scenario:**  
Discover the months with the highest number of bookings.

**Explanation:**  
Grouping by month and counting bookings reveals seasonal trends, aiding in resource planning and marketing strategies.

**Expected Outcome:**  
The query shows seasonal booking patterns. If some months consistently show low bookings, targeted promotions can be implemented during those periods.

### ****8. Bookings with Specific Room Types and Meal Plans****

**Query:**

sql

Copy code

SELECT

rt.room\_type AS room\_type,

mp.meal\_plan AS meal\_plan,

COUNT(hr.booking\_id) AS total\_bookings

FROM

hotel\_reservations hr

JOIN

room\_type rt

ON

hr.room\_type\_id = rt.id

JOIN

meal\_plan mp

ON

hr.meal\_plan\_id = mp.id

GROUP BY

rt.room\_type, mp.meal\_plan;

**Business Question:**  
Which combinations of room types and meal plans are most frequently booked?

**Scenario:**  
Understand combinations of room types and meal plans that are most commonly booked.

**Explanation:**  
This query identifies patterns in customer preferences, such as which room types are usually booked with a specific meal plan.

**Expected Outcome:**  
This query highlights popular combinations, helping the hotel design package deals to cater to customer preferences.

### ****9. Total Revenue by Market Segment****

**Query:**

sql

Copy code

SELECT

ms.market\_segment AS market\_segment,

SUM(hr.avg\_price\_per\_room) AS total\_revenue

FROM

hotel\_reservations hr

JOIN

market\_segment ms

ON

hr.market\_segment\_id = ms.id

GROUP BY

ms.market\_segment;

**Business Question:**  
How much revenue does each market segment generate?

**Scenario:**  
Analyze how much revenue each market segment is generating.

**Explanation:**  
The SUM function calculates the total revenue for each market segment, helping in revenue tracking and forecasting.

**Expected Outcome:**  
This query identifies the revenue contribution of different market segments, assisting in budget allocation and strategic focus.