

# SQL Project on Hotel Reservations Data

## Data Description -

This project focuses on building a hotel reservation system and analysing reservation data using a structured SQL database. The data includes a variety of attributes about hotel reservations, customer details, booking status, and other related metrics. Below is a detailed description of each field in the dataset and the potential insights that can be extracted through SQL queries.

## Queries –

### 1. Select all reservations.




```
SELECT
```

```
    *
```

```
FROM
```

```
    hotel;
```

## Output -

Result Grid  Filter Rows: <input type="text" value="Search"/> Export:  Fetch rows: 											
agent	company	days_in_waiting_l...	customer_ty...	adr	required_car_parking_spa...	total_of_special_reque...	reservation_stat...	reservation_status_d...	name	email	phone-numb... credit_card
		0	Transient	0	0	0	Check-Out	2015-07-01	Ernest Barnes	Ernest.Barnes31@outlook.com	669-792-1661 *****4322
		0	Transient	0	0	0	Check-Out	2015-07-01	Andrea Baker	Andrea_Baker94@aol.com	858-637-6955 *****9157
		0	Transient	75	0	0	Check-Out	2015-07-02	Rebecca Parker	Rebecca_Parker@comcast.net	652-885-2745 *****3734
304.0		0	Transient	75	0	0	Check-Out	2015-07-02	Laura Murray	Laura_M@gmail.com	364-656-8427 *****5677
240.0		0	Transient	98	0	1	Check-Out	2015-07-03	Linda Hines	LHines@verizon.com	713-226-5883 *****5498
240.0		0	Transient	98	0	1	Check-Out	2015-07-03	Jasmine Fletcher	JFletcher43@xfinity.com	190-271-6743 *****9263

**Objective** – Getting all the reservations of the hotel.

## 2. Count total number of reservations.

```
SELECT
  COUNT (*)
FROM
  hotel;
```

### Output –

Result Grid		Filter Rows:	Search	Export:
Total_count_of_Reservations				
119386				

**Objective -** Getting the total count of reservation in the hotel.

## 3. Get all canceled reservations.

```
SELECT
  *
FROM
  hotel
WHERE
  is_canceled = 1;
```

### Output –

Result Grid

Filter Rows:

Search

Export:

Fetch rows:




hotel	is_canceled	lead_time	arrival_date_ye...	arrival_date_mon...	arrival_date_week_num...	arrival_date_day_of_mo...	stays_in_weekend_nig...	stays_in_week_nig...	adults	children	babies	meal	country	market_segme...
Resort Hotel	1	85	2015	July	27	1	0	3	2	0	0	BB	PRT	Online TA
Resort Hotel	1	75	2015	July	27	1	0	3	2	0	0	HB	PRT	Offline TA/TO
Resort Hotel	1	23	2015	July	27	1	0	4	2	0	0	BB	PRT	Online TA
Resort Hotel	1	60	2015	July	27	1	2	5	2	0	0	BB	PRT	Online TA
Resort Hotel	1	96	2015	July	27	1	2	8	2	0	0	BB	PRT	Direct
Resort Hotel	1	45	2015	July	27	2	1	3	3	0	0	BB	PRT	Online TA

**Objective -** List of all canceled reservations in the hotel.

#### 4. Find reservations with lead time greater than 100 days.

```
SELECT
*
FROM
hotel
WHERE
lead_time > 100;
```

#### Output –




Result Grid  Filter Rows: <input type="text" value="Search"/> Export:  Fetch rows: 															
hotel	is_canceled	lead_time	arrival_date_year	arrival_date_mon	arrival_date_week_num	arrival_date_day_of_mo	stays_in_weekend_nig	stays_in_week_nig	adults	children	babies	meal	country	market_segme	
Resort Hotel	0	342	2015	July	27	1	0	0	2	0	0	BB	PRT	Direct	
Resort Hotel	0	737	2015	July	27	1	0	0	2	0	0	BB	PRT	Direct	
Resort Hotel	0	127	2015	July	27	1	2	5	2	0	0	HB	GBR	Offline TA/TO	
Resort Hotel	0	118	2015	July	27	1	4	10	1	0	0	BB		Direct	
Resort Hotel	0	107	2015	July	27	2	2	5	2	0	0	BB	PRT	Online TA	
Resort Hotel	0	113	2015	July	27	2	2	5	2	0	0	BB	NOR	Offline TA/TO	
Resort Hotel	0	113	2015	July	27	2	2	5	2	0	0	BB	NOR	Offline TA/TO	

**Objective –** Getting list of reservation where lead time is greater than 100.

#### 5. Get reservations for a specific year (e.g., 2023)

```
SELECT
*
FROM
hotel
WHERE
arrival_date_year = 2016;
```

#### Output –

Result Grid  Filter Rows: <input type="text" value="Search"/> Export:  Fetch rows: 															
hotel	is_canceled	lead_time	arrival_date_year	arrival_date_mon	arrival_date_week_num	arrival_date_day_of_mo	stays_in_weekend_nig	stays_in_week_nig	adults	children	babies	meal	country	market_segme	
Resort Hotel	0	109	2016	January	1	1	0	1	2	0	0	BB	RUS	Online TA	
Resort Hotel	0	109	2016	January	1	1	0	1	2	2	0	BB	RUS	Online TA	
Resort Hotel	1	2	2016	January	1	1	0	1	2	0	0	BB	PRT	Online TA	
Resort Hotel	0	88	2016	January	1	1	0	2	2	0	0	HB	ARG	Online TA	
Resort Hotel	1	20	2016	January	1	1	0	2	2	2	0	BB	PRT	Online TA	
Resort Hotel	1	76	2016	January	1	1	1	2	2	0	0	BB	PRT	Online TA	

**Objective –** Getting list of reservation for a specific year 2016.

## 6. Find reservations with more than 2 adults.

```
SELECT
    *
FROM
    hotel
WHERE
    adults > 2;
```

**Output –**

Result Grid															
Filter Rows: Search Export: Fetch rows:															
hotel	is_canceled	lead_time	arrival_date_ye...	arrival_date_mon...	arrival_date_week_num...	arrival_date_day_of_mo...	stays_in_weekend_nig...	stays_in_week_nig...	adults	children	babies	meal	country	market_segme...	
Resort Hotel	1	45	2015	July	27	2	1	3	3	0	0	BB	PRT	Online TA	
Resort Hotel	1	40	2015	July	27	2	1	3	3	0	0	BB	PRT	Online TA	
Resort Hotel	0	36	2015	July	27	2	1	3	3	0	0	BB	PRT	Online TA	
Resort Hotel	1	43	2015	July	27	2	1	3	3	0	0	BB	PRT	Online TA	
Resort Hotel	1	71	2015	July	27	3	0	2	3	0	0	BB	PRT	Offline TA/TO	
Resort Hotel	1	51	2015	July	27	3	0	2	3	0	0	BB	PRT	Online TA	

**Objective –** Getting list of reservations where adults more than 2.

## 7. Count reservations by market segment.

```
SELECT
    market_segment, COUNT(*)
FROM
    hotel
GROUP BY market_segment;
```

**Output –**




Result Grid			Filter Rows: Search		Export:	
	market_segme...	COUNT(*)				
	Direct	12605				
	Corporate	5295				
	Online TA	56476				
	Offline TA/TO	24219				
	Complementary	743				
	Groups	19811				
	Aviation	237				

**Objective –** Getting count of reservations by market segment.

## 8. Find reservations where the customer requested car parking.

```
SELECT
*
FROM
hotel
WHERE
required_car_parking_spaces = 1;
```

### Output –




Result Grid  Filter Rows: <input type="text" value="Search"/> Export:  Fetch rows: 											
company	days_in_waiting...	customer_ty...	adr	required_car_parking_spa...	total_of_special_reque...	reservation_stat...	reservation_status_d...	name	email	phone-numb...	credit_card
0		Transient	63.6	1	0	Check-Out	2015-07-08	Alexis King	King_Alexis70@hotmail.com	103-516-5853	*****6809
0		Transient	87.3	1	1	Check-Out	2015-07-08	Heather Hart	Heather.H@xfinity.com	431-329-6663	*****2780
0		Transient	88.2	1	0	Check-Out	2015-07-03	Scott Ward	Scott_Ward11@hotmail.com	463-281-5751	*****2726
0		Transient	147	1	0	Check-Out	2015-07-03	Derrick Bailey	Derrick_Bailey@protonmail.com	709-066-0652	*****6401
0		Transient	107	1	2	Check-Out	2015-07-03	Jessica Cole	Jessica_Cole@yahoo.com	179-191-0924	*****3609
0		Transient	135	1	2	Check-Out	2015-07-04	Nancy McCormick	Nancy.M@protonmail.com	199-421-8585	*****7707

**Objective** – List of reservations having parking request.

## 9. Find guests who made special requests (more than 1 request).

```
SELECT
*
FROM
hotel
WHERE
total_of_special_requests > 1;
```

### Output –




Result Grid  Filter Rows: <input type="text" value="Search"/> Export:  Fetch rows: 											
company	days_in_waiting...	customer_ty...	adr	required_car_parking_spa...	total_of_special_reque...	reservation_stat...	reservation_status_d...	name	email	phone-numb...	credit_card
0		Transient	63.6	1	0	Check-Out	2015-07-08	Alexis King	King_Alexis70@hotmail.com	103-516-5853	*****6809
0		Transient	87.3	1	1	Check-Out	2015-07-08	Heather Hart	Heather.H@xfinity.com	431-329-6663	*****2780
0		Transient	88.2	1	0	Check-Out	2015-07-03	Scott Ward	Scott_Ward11@hotmail.com	463-281-5751	*****2726
0		Transient	147	1	0	Check-Out	2015-07-03	Derrick Bailey	Derrick_Bailey@protonmail.com	709-066-0652	*****6401
0		Transient	107	1	2	Check-Out	2015-07-03	Jessica Cole	Jessica_Cole@yahoo.com	179-191-0924	*****3609
0		Transient	135	1	2	Check-Out	2015-07-04	Nancy McCormick	Nancy.M@protonmail.com	199-421-8585	*****7707

**Objective** – List of all reservations where guest made a special request more than 1.

## 10. List all repeated guests.

```
SELECT
*
FROM
hotel
WHERE
is_repeated_guest = 1;
```

### Output –



Result Grid  Filter Rows: <input type="text" value="Search"/> Export:  Fetch rows: 											
is_repeated_gu...	previous_cancellatio...	previous_bookings_not_cance...	reserved_room_ty...	assigned_room_ty...	booking_chang...	deposit_ty...	agent	company	days_in_waiting_L...	customer_ty...	adr
1	0	1	E	E	0	No Deposit	5.0		0	Transient	0
1	1	0	A	A	0	No Deposit	156.0		0	Contract	90.95
1	1	0	E	E	0	No Deposit	240.0		0	Transient	66
1	1	0	A	A	0	No Deposit	156.0		0	Contract	55.68
1	1	0	D	D	0	No Deposit	250.0		0	Transient	130.9
1	1	0	A	A	0	No Deposit	250.0		0	Transient	8

**Objective** – The list of all reservation of repeated guests.

## 11. Find reservations made through a specific agent (e.g., agent id 10).

```
SELECT
*
FROM
hotel
WHERE
agent = 10;
```

### Output –



Result Grid  Filter Rows: <input type="text" value="Search"/> Export: 												
agent	company	days_in_waiting_L...	customer_ty...	adr	required_car_parking_spa...	total_of_special_reque...	reservation_stat...	reservation_status_d...	name	email	phone-numb...	credit_card
10.0		0	Transient	41.4	0	0	Canceled	2016-12-07	Suzanne Johnson	SuzanneJohnson75@aol.com	146-919-2288	*****5219
10.0		0	Transient	41.4	0	0	Canceled	2016-12-07	Linda McKinney	Mckinney_Linda39@gmail.com	412-945-4787	*****2623
10.0		0	Transient	41	0	0	Canceled	2017-01-10	Robert Hall	Robert_Hall@aol.com	958-148-0981	*****7088
10.0		0	Transient	25	0	0	Check-Out	2016-01-13	James Bass	Bass_James62@verizon.com	650-551-1578	*****4600
10.0		0	Transient	31	1	0	Check-Out	2016-03-03	Sarah Chambers	Sarah_C82@xfinity.com	554-170-9154	*****3777
10.0		0	Transient	76.5	0	0	Check-Out	2016-10-13	Brian Roberts	Brian_R@yahoo.com	270-129-3873	*****9660

**Objective** – Getting the reservation who made through specific agent.

## 12. Find all guests who canceled previous reservations but kept at least one (non-canceled).

```
SELECT
    *
FROM
    hotel
WHERE
    previous_cancellations > 0
    AND previous_bookings_not_canceled > 0;
```

### Output –



Result Grid  Filter Rows: <input type="text"/> Search <input type="text"/> Export: 												
is_repeated_gu...	previous_cancellatio...	previous_bookings_not_cance...	reserved_room_ty...	assigned_room_ty...	booking_chang...	deposit_ty...	agent	company	days_in_waiting_L...	customer_ty...	adr	required_car_parking_spa...
0	1	3	A	A	0	No Deposit		94.0	0	Transient	37	0
0	1	1	E	E	1	No Deposit		0	0	Transient	126.6	0
0	1	1	E	E	0	No Deposit			0	Transient	195	0
0	1	2	A	A	0	No Deposit		530.0	0	Transient	142	0
0	1	2	A	A	0	No Deposit		135.0	0	Transient	53	0
0	1	4	E	E	0	No Deposit			0	Transient	70.8	0
0	2	2	A	E	1	No Deposit			0	Transient	108.4	0

**Objective** – List of all guests who canceled previous reservations but kept at least one (non-canceled).

## 13. Get the number of bookings per distribution channel.

```
SELECT
    distribution_channel, COUNT(*)
FROM
    hotel
GROUP BY distribution_channel;
```

### Output –



Result Grid  Filter Rows: <input type="text"/> Search <input type="text"/> Export: 		
	distribution_chan...	COUNT(*)
	Direct	14645
	Corporate	6677
	TA/TO	97870
	Undefined	1
	GDS	193

**Objective** - Getting the count of bookings per distribution channel.

#### 14. Find reservations with children but no adults.

```
SELECT
    *
FROM
    hotel
WHERE
    children >= 1 AND adults = 0;
```

#### Output –



Result Grid  Filter Rows: <input type="text" value="Search"/> Export: 														
adults	children	babies	meal	country	market_segme...	distribution_chan...	is_repeated_gu...	previous_cancellatio...	previous_bookings_not_cance...	reserved_room_ty...	assigned_room_ty...	booking_chang...	deposit_ty...	agent
0	3	0	BB	PRT	Direct	Direct	0	0	0	B	B	1	No Deposit	
0	2	0	BB	FRA	Online TA	TA/TO	0	0	0	B	B	1	No Deposit	7.0
0	2	0	BB	PRT	Direct	Direct	0	0	0	B	B	1	No Deposit	
0	2	0	BB	PRT	Complementary	Direct	0	0	0	B	B	0	No Deposit	
0	2	0	BB	PRT	Offline TA/TO	TA/TO	0	0	0	B	B	0	No Deposit	13.0
0	3	0	BB	PRT	Online TA	TA/TO	0	0	0	B	B	0	No Deposit	8.0

**Objective** – List of reservation where having children but no adults.

#### 15. Get the total number of bookings per month for a specific year.

```
SELECT
    arrival_date_month, COUNT(*)
FROM
    hotel
WHERE
    arrival_date_year = 2017
GROUP BY arrival_date_month;
```

#### Output –

Result Grid  Filter Rows: <input type="text" value="Search"/> Export: 		
arrival_date_mon...	COUNT(*)	
January	3681	
February	4177	
March	4970	
April	5661	
May	6313	
June	5647	
July	5313	
August	4925	




**Objective** - Getting the total number of bookings per month for a specific year.



## 16. Find reservations with more than 7 days in waiting list.

```
SELECT
*
FROM
    hotel
WHERE
    days_in_waiting_list > 7;
```

### Output –




Result Grid  Filter Rows: <input type="text" value="Search"/> Export:  Fetch rows: 											
t	company	days_in_waiting_l...	customer_type	adr	required_car_parking_spa...	total_of_special_reque...	reservation_stat...	reservation_status_d...	name	email	phone-numb... credit_card
50	Contract	45	0	0	0	Check-Out	2015-10-11	Heather Wood	Wood.Heather@yandex.com	751-811-4532	*****5146
47	Transient-Party	76.8	0	0	0	Check-Out	2015-10-24	Melissa Morrison	Melissa.Morrison@aol.com	599-860-5134	*****9417
47	Transient-Party	76.8	0	0	0	Check-Out	2015-10-24	Amanda Villarreal	Amanda.Villarreal@protonmail.com	512-543-8797	*****9635
47	Transient-Party	76.8	0	0	0	Check-Out	2015-10-24	Crystal Cain	Cain_Crystal@aol.com	159-866-2248	*****1355
47	Transient-Party	76.8	0	0	0	Check-Out	2015-10-24	Monica Allen	Monica_A50@protonmail.com	597-798-5211	*****5131
47	Transient-Party	76.8	0	0	0	Check-Out	2015-10-24	Maria Shaffer	Maria_S18@yahoo.com	702-504-5511	*****1987

**Objective** – The list of reservations having waiting more than 7 days.

## 17.Count the reservations that had booking changes.

```
SELECT
    COUNT(booking_changes) AS Booking_changes
FROM
    hotel
WHERE
    booking_changes > 0;
```

### Output –




Result Grid   Filter Rows: <input type="text" value="Search"/> Export: 	
Booking_changes	▼
18076	

**Objective** – The total count of reservation bookings had changes.

## 18. Find guests who booked a specific room type (e.g., room type 'A').

```
SELECT
    *
FROM
    hotel
WHERE
    reserved_room_type = 'A';
```

### Output –




Result Grid  Filter Rows: <input type="text" value="Search"/> Export:  Fetch rows: 												
reserved_room_ty...	assigned_room_ty...	booking_chang...	deposit_ty...	agent	company	days_in_waiting_...	customer_ty...	adr	required_car_parking_spa...	total_of_special_reque...	reservation_stat...	reservation_status_d...
A	C	0	No Deposit			0	Transient	75	0	0	Check-Out	2015-07-02
A	A	0	No Deposit	304.0		0	Transient	75	0	0	Check-Out	2015-07-02
A	A	0	No Deposit	240.0		0	Transient	98	0	1	Check-Out	2015-07-03
A	A	0	No Deposit	240.0		0	Transient	98	0	1	Check-Out	2015-07-03
A	A	0	No Deposit	240.0		0	Transient	82	0	1	Canceled	2015-05-06

**Objective** – All the reservations having special bookings of room.

## 19. Find guests whose assigned room type is different from reserved room type.

```
SELECT
    *
FROM
    hotel
WHERE
    reserved_room_type != assigned_room_type;
```

### Output –



Result Grid  Filter Rows: <input type="text" value="Search"/> Export:  Fetch rows: 												
reserved_room_ty...	assigned_room_ty...	booking_chang...	deposit_ty...	agent	company	days_in_waiting_...	customer_ty...	adr	required_car_parking_spa...	total_of_special_reque...	reservation_stat...	reservation_status_d...
A	C	0	No Deposit			0	Transient	75	0	0	Check-Out	2015-07-02
D	E	0	No Deposit	240.0		0	Transient	97	0	3	Check-Out	2015-07-05
D	E	0	No Deposit	240.0		0	Transient	97	0	3	Check-Out	2015-07-05
A	E	0	No Deposit	240.0		0	Transient	88.2	0	0	Check-Out	2015-07-02
A	G	0	No Deposit		110.0	0	Transient	107.42	0	0	Check-Out	2015-07-02
D	I	0	No Deposit	115.0		0	Contract	94.95	0	1	Check-Out	2015-07-01

**Objective** – List of guests whose assigned room type is different from reserved room type.

## 20. Get reservation details for a specific guest using their email.

```
SELECT
    *
FROM
    hotel
WHERE
    email = 'AnnSullivan@att.com';
```

### Output –

Result Grid  Filter Rows: <input type="text" value="Search"/> Export: 													
deposit_ty...	agent	company	days_in_waiting_L...	customer_ty...	adr	required_car_parking_spa...	total_of_special_reque...	reservation_stat...	reservation_status_d...	name	email	phone-numb...	credit_card
No Deposit	134.0		0	Transient	58.95	0	1	Check-Out	2015-07-09	Ann Sullivan	AnnSullivan@att.com	947-577-3720	*****4782

**Objective** - Getting reservation details for a specific guest using their email.

### Conclusion –

This SQL project can be extended to create dashboards for hotel management, providing key insights to improve operations, customer service, and business strategy.

By applying various SQL techniques, we were able to extract meaningful insights, such as booking patterns, customer behaviour, revenue generation, and occupancy trends. These insights can be used by hotel management to make informed decisions regarding pricing strategies, marketing efforts, and operational efficiency.

**Thank You..**

