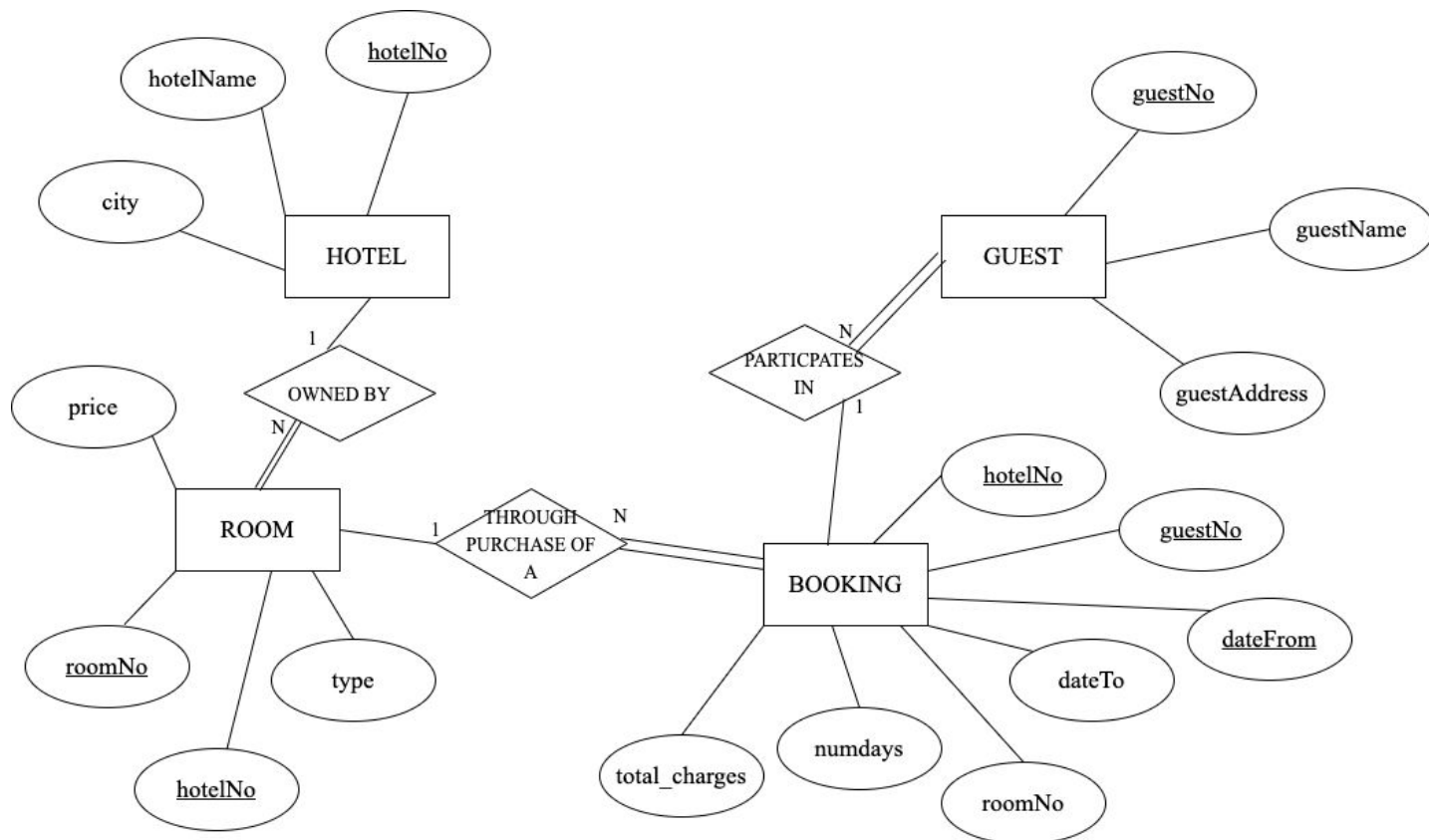**The Hotel Business Database**

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The images showing the ER diagram showing the tables, fields, keys relationships of the database.

Below are images and screenshots regarding the Hotel Business Database. They include the entity relationship diagram, tables, fields, keys, and relationships inside of this database.
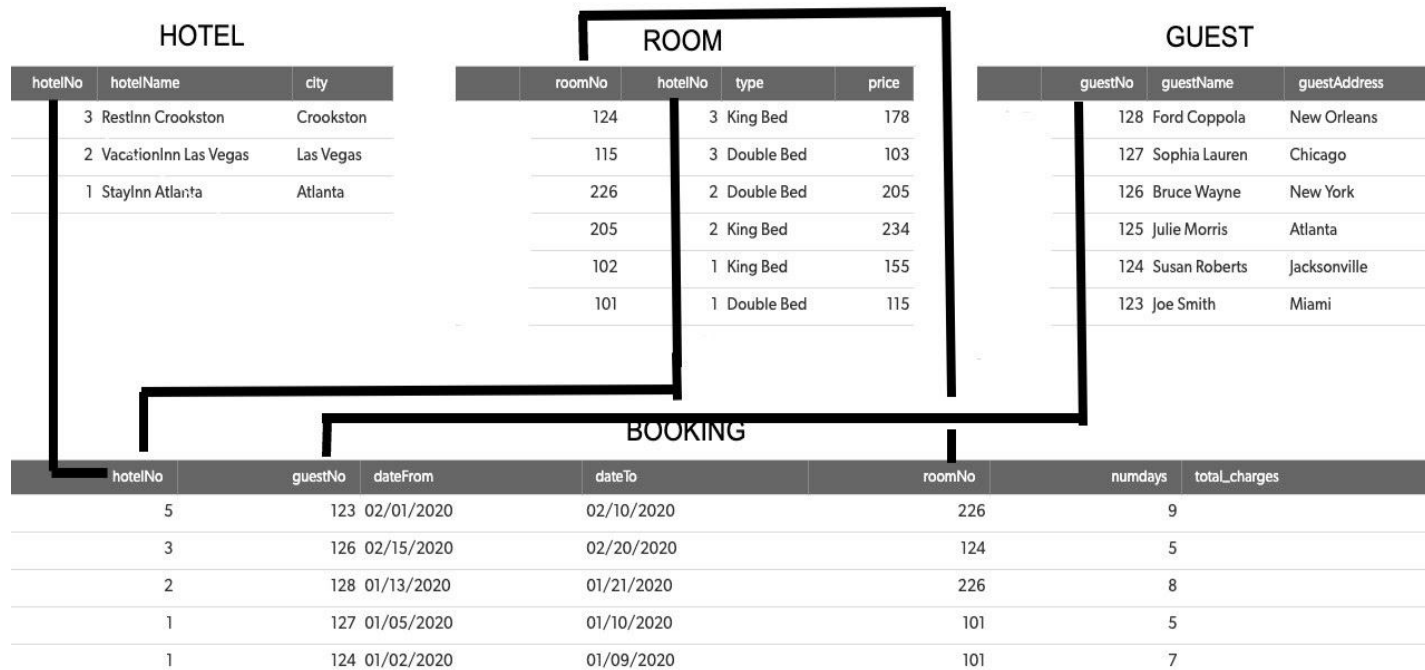
ER Diagram

Tables, Fields, and Keys

HOTEL

hotelNo	hotelName	city
3	RestInn Crookston	Crookston
2	VacationInn Las Vegas	Las Vegas
1	StayInn Atlanta	Atlanta

ROOM

roomNo	hotelNo	type	price
124	3	King Bed	178
115	3	Double Bed	103
226	2	Double Bed	205
205	2	King Bed	234
102	1	King Bed	155
101	1	Double Bed	115

GUEST

guestNo	guestName	guestAddres
128	Ford Coppola	New Orleans
127	Sophia Lauren	Chicago
126	Bruce Wayne	New York
125	Julie Morris	Atlanta
124	Susan Roberts	Jacksonville
123	Joe Smith	Miami

BOOKING

hotelNo	guestNo	dateFrom	dateTo	roomNo	numdays	total_charges
5	123	02/01/2020	02/10/2020	226	9	
3	126	02/15/2020	02/20/2020	124	5	
2	128	01/13/2020	01/21/2020	226	8	
1	127	01/05/2020	01/10/2020	101	5	
1	124	01/02/2020	01/09/2020	101	7	

In the Hotel Business Database, there are several relationships. In the image shown below, it is clear that the relationships in the Hotel Business Database system exist between all four entities. One relationship in this database is located between the entities 'BOOKING' and 'GUEST'. The relationship between these two entities lies within the attribute 'guestNo' because both of the entities hold this attribute. The second relationship in this database exists between the entities 'HOTEL', 'ROOM' and 'BOOKING'. As shown below, the attribute 'hotelNo', exists in all three of these entities. The third relationship in this database is located between the entities 'BOOKING' and 'ROOM'. The relationship between these two entities lies within the attribute 'roomNo' because both of the entities hold this attribute. The figure shown below displays the relationships in the Hotel Business Database.

Relationships

The design and images of the structure of each table, as well as the SQL INSERT

statements used to insert rows in the tables.

Below are images and screenshots regarding the Hotel Business Database. They include screenshots of the overall layout and structure of each table, while also providing screenshots of the SQL INSERT function that was used to insert the rows within the tables.

Structure of Hotel Table

Structure of Room Table

roomNo	hotelNo	type	price
124	3	King Bed	178
115	3	Double Bed	103
226	2	Double Bed	205
205	2	King Bed	234
102	1	King Bed	155
101	1	Double Bed	115

Structure of Guest Table

guestNo	guestName	guestAddress
128	Ford Coppola	New Orleans
127	Sophia Lauren	Chicago
126	Bruce Wayne	New York
125	Julie Morris	Atlanta
124	Susan Roberts	Jacksonville
123	Joe Smith	Miami

Structure of Booking Table

hotelNo	guestNo	dateFrom	dateTo	roomNo	numdays	total_charges
5	123	02/01/2020	02/10/2020	226	9	
3	126	02/15/2020	02/20/2020	124	5	
2	128	01/13/2020	01/21/2020	226	8	
1	127	01/05/2020	01/10/2020	101	5	
1	124	01/02/2020	01/09/2020	101	7	

SQL INSERT statements for HOTEL table.

SQL INSERT Statements for Entering "RestInn Crookston" Row Into the HOTEL Table

```
Last login: Thu Mar  5 12:02:34 on ttys001
/Library/PostgreSQL/12/scripts/runpsql.sh; exit
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
hotel_business=# insert into hotel values ('3', 'RestInn Crookston', 'Crookston');
```

SQL INSERT Statements for Entering "VacationInn Las Vegas" Row Into the HOTEL Table

```
Last login: Thu Mar  5 12:05:44 on ttys001
/Library/PostgreSQL/12/scripts/runpsql.sh; exit
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
hotel_business=# insert into hotel values ('2', 'VacationInn Las Vegas', 'Las Vegas'?
```

SQL INSERT statements for ROOM table.

SQL INSERT Statements for Entering Room Number "124" Row Into the ROOM Table

```
Last login: Thu Mar  5 12:07:46 on ttys001
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
hotel_business=# insert into room values (124, '3', 'King Bed', $178.00);
```

SQL INSERT Statements for Entering Room Number "115" Row Into the ROOM Table

```
Last login: Thu Mar  5 12:18:25 on ttys001
/Library/PostgreSQL/12/scripts/runpsql.sh; exit
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
hotel_business=# insert into room values (115, '3', 'Double Bed', $103.00);
```

SQL INSERT statements for GUEST table.

SQL INSERT Statements for Entering "Ford Coppola" Row Into the GUEST Table

```
Last login: Thu Mar  5 12:18:35 on ttys001
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
hotel_business=# insert into guest values (128, 'Ford Coppola', 'New Orleans');
```

SQL INSERT Statements for Entering "Sophia Lauren" Row Into the GUEST Table

```
Last login: Thu Mar  5 12:18:35 on ttys001
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
hotel_business=# insert into guest values (127, 'Sophia Lauren', 'Chicago');
```

SQL INSERT statements for BOOKING table.

SQL INSERT Statements for Entering a Row Into the BOOKING Table

```
Last login: Thu Mar  5 12:23:16 on ttys001
/Library/PostgreSQL/12/scripts/runpsql.sh; exit
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
hotel_business=# insert into booking values ('1', 124, '01/02/2020', '01/09/2020', 101, 7);
```

SQL INSERT Statements for Entering a Second Row Into the BOOKING Table

```
Last login: Thu Mar  5 12:28:13 on ttys001
/Library/PostgreSQL/12/scripts/runpsql.sh; exit
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
hotel_business=# insert into booking values ('1', 127, '01/05/2020', '01/10/2020', 102, 5);
```

Creating an INSERT trigger to calculate the numdays value and total_charges for each booking.

In the images shown below, I have taken the steps to implement an INSERT trigger, which is used to calculate the number of days stayed in the hotel, as well as the total charges for the guests.

Creating the INSERT Trigger

Adding the Calculation to the Trigger

Entering Data for the Trigger to Add to the Table

```
Last login: Thu Mar  5 12:23:16 on ttys001
/Library/PostgreSQL/12/scripts/runpsql.sh; exit
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
hotel_business=# insert into booking values ('1', 124, '01/02/2020', '01/09/2020', 101, 7);
```

Results After Trigger Adds New Data into BOOKING Table

hotelNo	guestNo	dateFrom	dateTo	roomNo	numdays	total_char
1	124	01/02/2020	01/09/2020	101	7	$805.00

Final Results for all Rows in the BOOKING Table

guestNo	dateFrom	dateTo	roomNo	numdays	total_charges
127	01/05/2020	01/10/2020	101	5	$575.00
128	01/13/2020	01/21/2020	226	8	$1640.00
126	02/15/2020	02/20/2020	124	5	$890.00
123	02/01/2020	02/10/2020	226	9	$1845.00
124	01/02/2020	01/09/2020	101	7	$805.00

The SQL queries and results selecting all data from all tables. Creating a separate SQL

Select statement for each table.

Separate SQL Select Statement for HOTEL Table

```
Last login: Thu Mar  5 13:16:42 on ttys001
/Library/PostgreSQL/12/scripts/runpsql.sh; exit
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
[hotel_business=# SELECT(
[hotel_business(# hotelNo, hotelName, city)
hotel_business-# FROM HOTEL;
```

Separate SQL Select Statement for ROOM Table

```
Last login: Thu Mar  5 13:17:36 on ttys001
/Library/PostgreSQL/12/scripts/runpsql.sh; exit
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
[hotel_business=# SELECT(
[hotel_business(# roomNo, hotelNo, type, price)
hotel_business-# FROM ROOM;
```

Separate SQL Select Statement for GUEST Table

Separate SQL Select Statement for BOOKING Table

Screenshot of the Separately Displayed Results

hotelNo	hotelName	city
3	RestInn Crookston	Crookston
2	VacationInn Las Vegas	Las Vegas
1	StayInn Atlanta	Atlanta

roomNo	hotelNo	type	price
124	3	King Bed	178
115	3	Double Bed	103
226	2	Double Bed	205
205	2	King Bed	234
102	1	King Bed	155
101	1	Double Bed	115

guestNo	guestName	guestAddress
128	Ford Coppola	New Orleans
127	Sophia Lauren	Chicago
126	Bruce Wayne	New York
125	Julie Morris	Atlanta
124	Susan Roberts	Jacksonville
123	Joe Smith	Miami

hotelNo	guestNo	dateFrom	dateTo	roomNo	numdays	total_charges
5	123	02/01/2020	02/10/2020	226	9	
3	126	02/15/2020	02/20/2020	124	5	
2	128	01/13/2020	01/21/2020	226	8	
1	127	01/05/2020	01/10/2020	101	5	
1	124	01/02/2020	01/09/2020	101	7	

SQL query and results selecting the details of all hotels, using a JOIN and displaying the hotel name, city, the type of rooms, and the price for each room.

Using JOIN to Create the Query

Results From the JOIN

hotelName	city	type	price
RestInn	Crookston	Double Bed	103
VacationInn	Las Vegas	King Bed	234
StayInn	Atlanta	Double Bed	115

The SQL query and results showing the name of all guests and their hotel name, the hotel city, and room number.

Creating the Query

```
Last login: Thu Mar  5 13:36:58 on ttys001
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
hotel_business=# SELECT GUEST.guestName, HOTEL.hotelName, HOTEL.city, ROOM.roomNo
hotel_business-# FROM GUEST
[hotel_business-# FULL OUTER JOIN GUEST ON GUEST.guestName=HOTEL.hotelName
[hotel_business-# ORDER BY GUEST.guestName;
```

The Results From the Query

guestName	hotelName	city	roomNo
Ford Coppola	VacationInn	Les Vegas	226
Sophia Lauren	StayInn	Atlanta	102
Bruce Wayne	RestInn	Crookston	124
Julie Morris	RestInn	Crookston	124
Susan Roberts	StayInn	Atlanta	101
Joe Smith	VacationInn	Las Vegas	226

The SQL query and results showing the name of the guests and the name of the hotel that have made bookings for February.

Creating the Query

```
Last login: Thu Mar  5 14:15:43 on ttys001
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (12.2)
Type "help" for help.

postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
hotel_business=# SELECT GUEST.guestName, HOTEL.hotelName
hotel_business-# WHERE (dateFrom <= DATE'2020/02/01' AND dateTo >= DATE'2020/02/01)
OR (dateFrom >= DATE'2020/02/01' AND dateFrom <= DATE'2020/02/28')
```

Results From the Query

guestName	hotelName
Bruce Wayne	RestInn
Joe Smith	VacationInn

The SQL query and results showing the names of all guests booked at the hotel in Crookston.

Creating the Query

```
Last login: Thu Mar  5 14:21:29 on ttys000
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (12.2)
Type "help" for help.

postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
hotel_business=# SELECT GUEST.guestName
hotel_business-# WHERE hotelName='RestInn';
```

Results From the Query

guestName
Bruce Wayne

The SQL query and results showing the name of each guest, the total number of days of their stay, and their total charges.

Creating the Query

```
Last login: Thu Mar  5 14:34:36 on ttys000
Bens-MacBook-Air:~ benhanson$ /Library/PostgreSQL/12/scripts/runpsql.sh; exit
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
[Password for user postgres:
psql (12.2)
Type "help" for help.

[postgres=# \c hotel_business
You are now connected to database "hotel_business" as user "postgres".
[hotel_business=# SELECT GUEST.guestName, BOOKING.numdays, BOOKING.total_charges
[hotel_business-# FROM BOOKING
[hotel_business-# FULL OUTER JOIN GUEST on GUEST.guestName=BOOKING.numdays
hotel_business-# ORDER BY GUEST.guestName;
```

Results From the Query

guestName	numdays	total_charges
Ford Coppola	8	1640
Sophia Lauren	5	775
Bruce Wayne	5	890
Julie Morris	5	890
Susan Roberts	7	805
Joe Smith	9	1845

References

Silberschatz, A., Galvin, P. B., & Gagne, G. (2018). Operating system concepts. Hoboken, N.J:

    Wiley.