



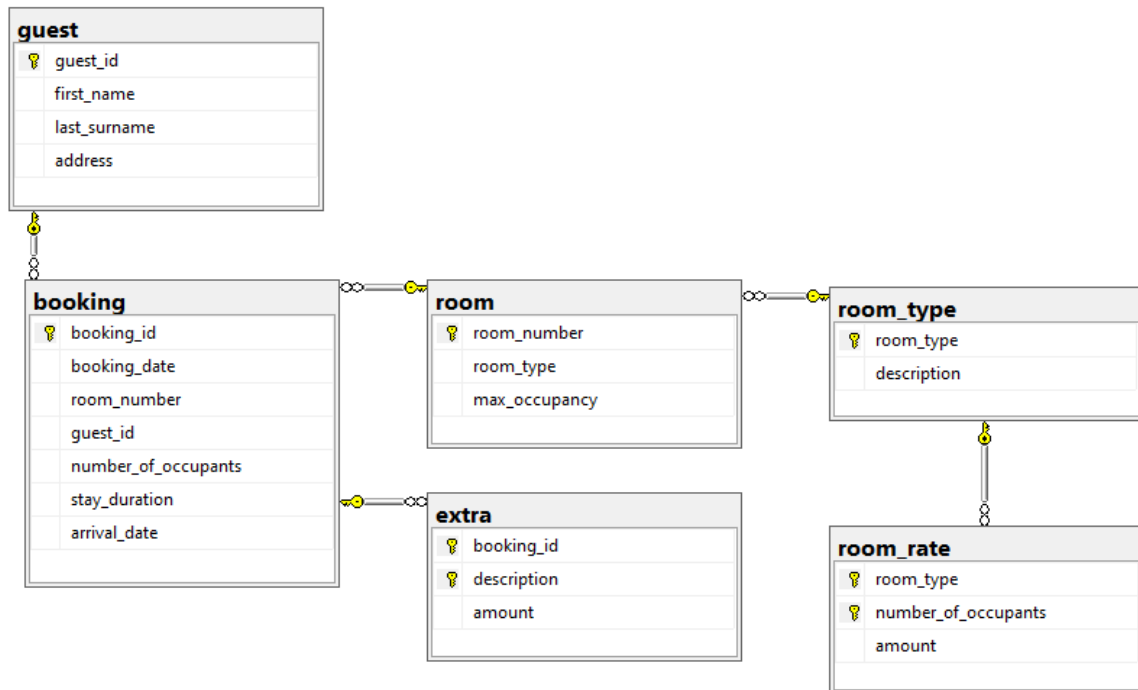
# DATABASE DESIGN PORTFOLIO – PART A

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## Evidence

Screenshots are provided as evidence of items I have done:

1. A physical ERD generated from my database.



2. Each table of my database as given in the SSMS Object Explorer, showing the columns, keys, and constraints (one screenshot per table):

The screenshot shows the SSMS interface. On the left, the Object Explorer displays the structure of the `dbo.booking` table:

- Columns**:
  - `booking_id` (PK, smallint, not null)
  - `booking_date` (date, not null)
  - `room_number` (FK, smallint, not null)
  - `guest_id` (FK, smallint, not null)
  - `number_of_occupants` (smallint, not null)
  - `stay_duration` (smallint, not null)
  - `arrival_date` (date, not null)
- Keys**:
  - `PK_booking_5DE3A5B12D9B2203`
  - `FK_booking_guest_i_30F848ED`
  - `FK_booking_room_nu_300424B4`
- Constraints**:
  - `chk_booking_booking_date`
- Triggers**: (none listed)
- Indexes**: (none listed)
- Statistics**: (none listed)

On the right, the SQL Server Enterprise Manager shows the execution of the following command:

```
93  
94 ALTER TABLE booking  
95     ADD CONSTRAINT chk_booking_booking_date  
96     CHECK (booking_date > '2022-10-01');  
97
```

The Messages pane at the bottom indicates:

```
Commands completed successfully.  
  
Completion time: 2022-11-21T10:15:35.5401413+13:00
```

## Portfolio Part A

The screenshot displays the SQL Server Enterprise Manager interface, showing the database schema for three tables: **dbo.extra**, **dbo.guest**, and **dbo.room**. The schema details are as follows:

- dbo.extra**
  - Columns**
    - booking\_id (PK, FK, smallint, not null)
    - description (PK, varchar(100), not null)
    - amount (smallmoney, not null)
  - Keys**
    - extra\_pk
    - FK\_extra\_booking\_i\_2E1BDC42
  - Constraints**
  - Triggers**
  - Indexes**
  - Statistics**
- dbo.guest**
  - Columns**
    - guest\_id (PK, smallint, not null)
    - first\_name (varchar(35), not null)
    - last\_surname (varchar(35), not null)
    - address (varchar(35), not null)
  - Keys**
    - PK\_guest\_19778E35ECE2BC58
  - Constraints**
  - Triggers**
  - Indexes**
  - Statistics**
- dbo.room**
  - Columns**
    - room\_number (PK, smallint, not null)
    - room\_type (FK, varchar(10), not null)
    - max\_occupancy (tinyint, not null)
  - Keys**
    - PK\_room\_FE22F61A988140B5
    - FK\_room\_room\_type\_2F10007B
  - Constraints**
    - chk\_room\_room\_number
  - Triggers**
  - Indexes**
  - Statistics**

Below the schema view, the SQL commands and execution messages are shown:

```
86 ALTER TABLE room
87 ADD CONSTRAINT chk_room_room_number
88 CHECK (room_number BETWEEN 1 AND 50);
89
90
```

119 %

Messages

Commands completed successfully.

Completion time: 2022-11-21T10:15:35.5401413+13:00

93 ALTER TABLE room\_rate
94 ADD CONSTRAINT chk\_room\_rate\_number\_of\_occupants
95 CHECK (number\_of\_occupants BETWEEN 1 AND 6);
96

119 %

Messages

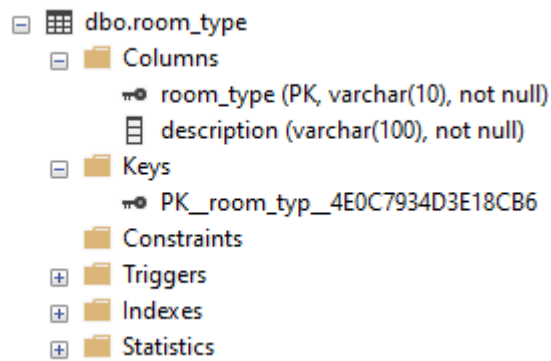
Commands completed successfully.

Completion time: 2022-11-21T10:15:35.5401413+13:00

The schema for **dbo.room\_rate** is also visible on the left:

- dbo.room\_rate**
  - Columns**
    - room\_type (PK, FK, varchar(10), not null)
    - number\_of\_occupants (PK, smallint, not null)
    - amount (smallmoney, not null)
  - Keys**
    - room\_rate\_pk
    - FK\_room\_rate\_room\_\_31EC6D26
  - Constraints**
    - chk\_room\_rate\_number\_of\_occupants
  - Triggers**
  - Indexes**
  - Statistics**

## Portfolio Part A



### 3. Data Dictionary

- A Data Dictionary was done to organize myself and choose data types, tables names, attributes, constraints;
- I choose all data types to be NOT NULL because attributes in each table represent just the essential basic and important information needed;
- The `room_type` attribute is VARCHAR (10) because the biggest room type available has the length of 10 digits: Twin Share;
- The constraints were created taking into account that this hotel have only 50 rooms, the maximum number of occupants in a room is 6, the hotel was inaugurated on 01/10/2022.

Bookings Data Dictionary									
Table Name	Column Name	Data Type	Length	Identity	P Key	F Key	Table Name of Foreign Key	Check Constraint	Description
guest	guest_id	smallint		Y	PK		booking		
	first_name	VARCHAR	35						
	last_surname	VARCHAR	35						
	address	VARCHAR	35						
room_type	room_type	VARCHAR	10		PK		room_rate, room		the biggest room type length is 10 digits: Twin Share
	description	VARCHAR	100						
room	room_number	smallint			PK		booking	between 1 and 50	
	room_type	VARCHAR	10			FK			
	max_occupancy	TINYINT							
room_rate	room_type	VARCHAR	10		PK	FK			
	number_of_occupants	smallint			PK		booking	between 1 and 6	
	amount	smallmoney							
booking	booking_id	smallint		Y	PK				
	booking_date	date						greater than 1/10/2022	Format: YYYY-MM-DD
	room_number	smallint				FK			
	guest_id	smallint				FK			
	number_of_occupants	smallint							
	stay_duration	smallint							
	arrival_date	date							Format: YYYY-MM-DD
extra	booking_id	smallint		Y	PK	FK	booking		
	description	VARCHAR	100		PK				
	amount	smallmoney							