

# SQL Home Work 3

## Databases Theory

### Task description

Develop a database with four tables. Write a SQL DDL script to create the database objects. Below is a description of each table. In brackets are some attribute names that must be present in your solution:

Hotel guests **guest**. Each guest is assigned a unique integer (gid), starting with 1. Add 5 more attributes that can characterize the hotel guest;

Hotel **buildings**. The hotel has a large area with several buildings. Each building is assigned a code (bid; for example, 1, 2, 3A, 3B, ...), location data (two separate fields: latitude and longitude). The number of rooms inside, the number of floors and the description are also important information that must be stored in the database;

Room. **Room** characteristics: area, number of beds, bathroom, maximum number of people, floor, building (bid; you must configure the reference integrity restriction);

Room **reservation** record. Reservations made by guests. Each reservation is characterized by reservation period, length of stay in days, guest (gid; reference integrity restriction must be configured), and room number (rid; reference integrity restriction must be configured). A unique numeric identifier must be automatically assigned to the new reservation. The food type (board) must also be specified in the reservation (no, BB, HB).

Create a database in SQL Server. The template name for this database is DM1\_<year>\_s3n2\_<your student number>.

The tables must have the names specified in the requirements above. Otherwise, your results will not count.

Specify external keys, add any 2 useful check constraints, and write the data into the tables:

Buildings - 2 entries

Rooms - 3 in the first building and 2 in the second building

Guests - two people who stayed only once

Guests - two people who stayed in the hotel twice

Create a report in .docx format with the following information:

- Code to create tables
- Code for creating foreign keys and constraints
- Screenshot of the data from the "booking" table

Upload the prepared report to the educational platform.

Evaluation Criteria:

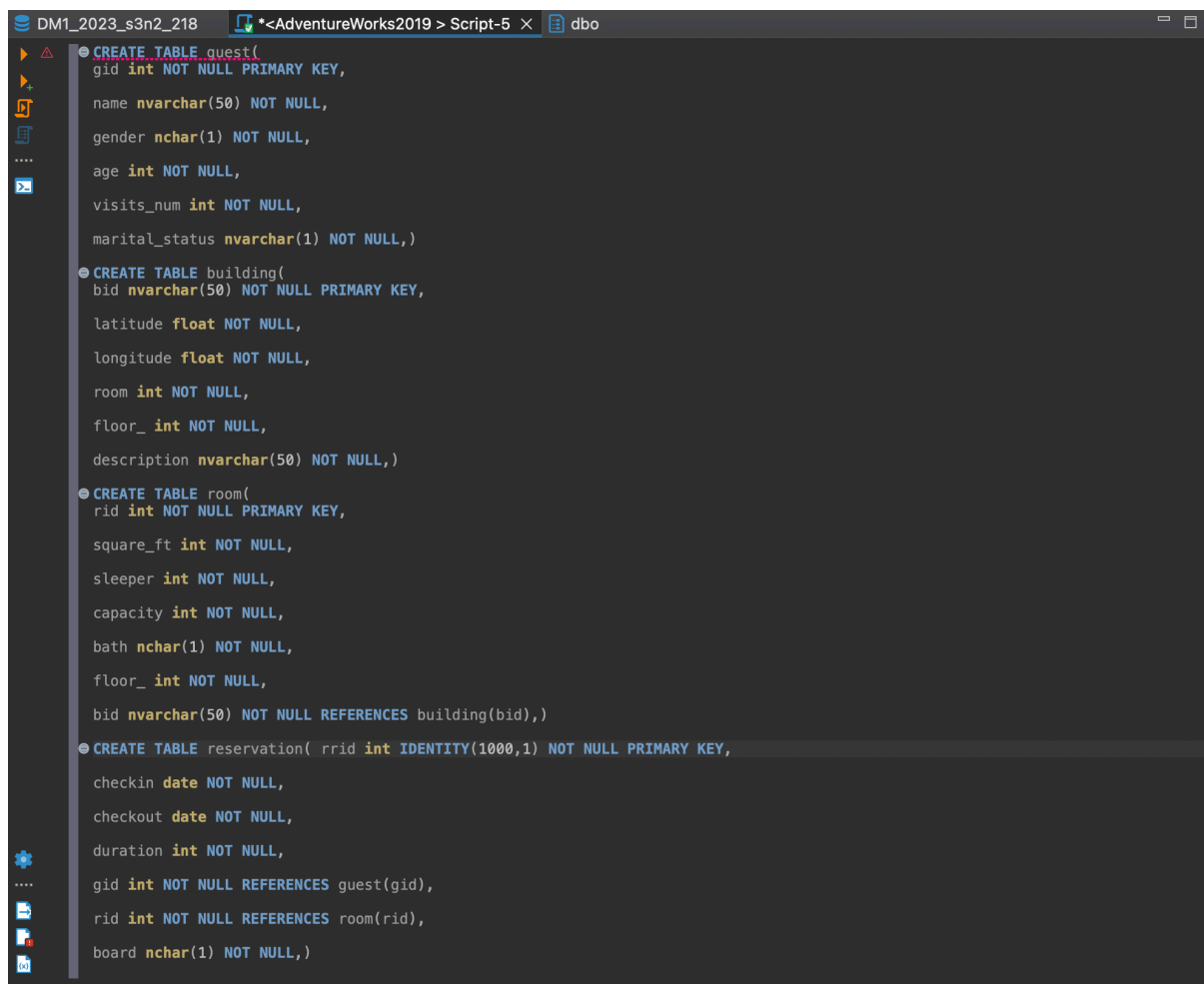
Correct code for each of the 4 tables. Tables are present in the database (4 points)

The code to create foreign keys is completely written (2 if yes, 1 if not all is done)

Constraints creation code is written, and the constraints themselves are in the database (2 points)

Table contents meet the conditions (2 points)

## 1. Code to create tables & Code for creating foreign keys



```

CREATE TABLE guest(
gid int NOT NULL PRIMARY KEY,
name nvarchar(50) NOT NULL,
gender nchar(1) NOT NULL,
....
age int NOT NULL,
visits_num int NOT NULL,
marital_status nvarchar(1) NOT NULL,)

CREATE TABLE building(
bid nvarchar(50) NOT NULL PRIMARY KEY,
latitude float NOT NULL,
longitude float NOT NULL,
room int NOT NULL,
floor_ int NOT NULL,
description nvarchar(50) NOT NULL,)

CREATE TABLE room(
rid int NOT NULL PRIMARY KEY,
square_ft int NOT NULL,
sleeper int NOT NULL,
capacity int NOT NULL,
bath nchar(1) NOT NULL,
floor_ int NOT NULL,
bid nvarchar(50) NOT NULL REFERENCES building(bid),)

CREATE TABLE reservation( rrid int IDENTITY(1000,1) NOT NULL PRIMARY KEY,
checkin date NOT NULL,
checkout date NOT NULL,
duration int NOT NULL,
gid int NOT NULL REFERENCES guest(gid),
rid int NOT NULL REFERENCES room(rid),
board nchar(1) NOT NULL,)
  
```

## 2. Code for creating constraints

```

ALTER TABLE room
ADD CONSTRAINT num_pos
CHECK(square_ft > 0 and sleeper > 0 and capacity > 0)

ALTER TABLE reservation
ADD CONSTRAINT date_date
CHECK(duration > 0 and checkin < checkout and checkin > '2023-01-01' and checkout > '2023-01-01')

ALTER TABLE guest
ADD CONSTRAINT age_age
CHECK(age > 0)

```

### 3. Screenshot of the data from the "booking" table

	rrid	checkin	checkout	duration	gid	rid	board
1	1,001	2023-01-03	2023-01-29	26	1	111	HB
2	1,002	2023-01-03	2023-01-15	12	4	111	HB
3	1,003	2023-01-15	2023-01-26	15	5	111	HB
4	1,004	2023-01-26	2023-01-29	3	3	11	BB

### \*4. ER Diagram

