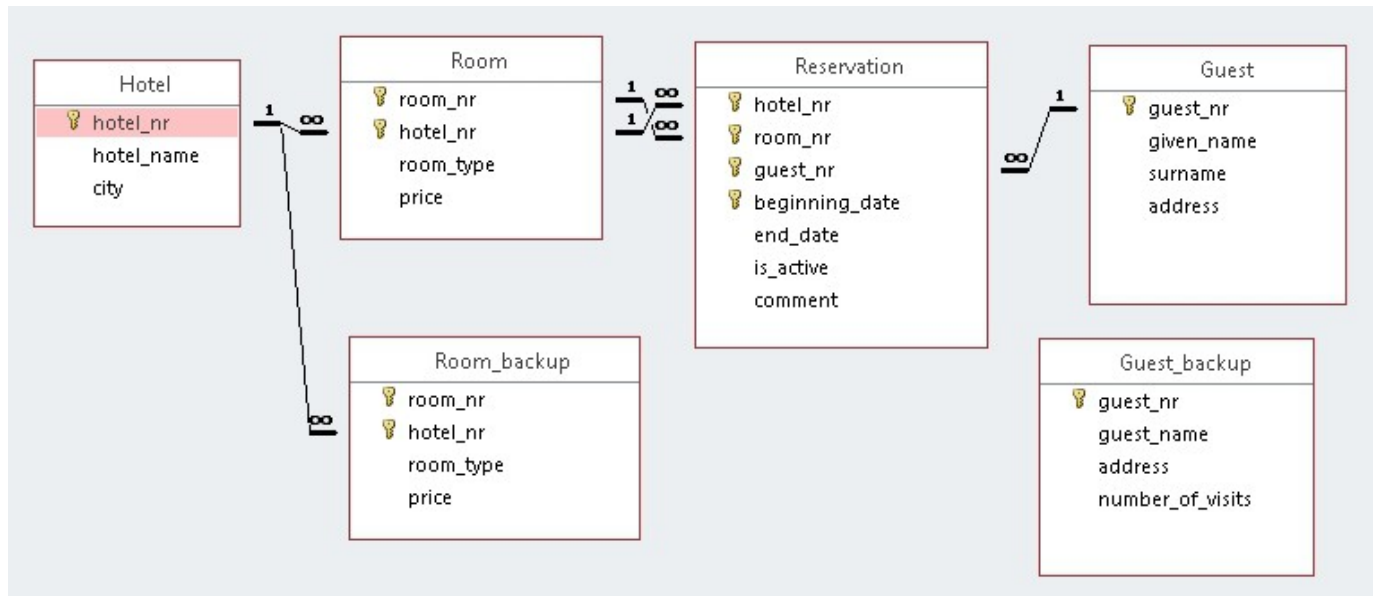


SQL Exercise 1

Database that is created by using MS Access: *Hotel* (**Hotel.mdb**). The structure of the base tables (tables in short) is the following.



All the presented tasks must be solved by using SQL statements. One can use multiple statements for solving a task if not stated otherwise. Save the statements in the MS Access database – for each statement you have to create a separate query object. Use the naming like *Task00*, *Task01*, *Task02*, etc. If the solution involves more than one SQL statement, then use the names like *Task01_1*, *Task01_2*, etc.

0. Calculate the value of the following expressions:

- ⤴ 231+4568,
- ⤴ 987/54,
- ⤴ (987/54) – round the result so that there are only two numbers after comma,
- ⤴ (332-25)*456,
- ⤴ 2^3. (^ - ALT+94)
- ⤴ In addition output the string "Hello world" in a separate column.

1. Find all the data from the table *Hotel*.
2. Find the numbers and names of all the hotels. Sort the result based on the names in the alphabetical order.
3. Find the numbers of all the hotels that are located in Tartu.
4. Find reservations that ended in 2011 or the end date is not registered at all or there is a comment about the reservation that contains the phrase "Wishes peace". In case

of all of these conditions the additional condition is that the reservation must be active.

5. Find the numbers and names of all the hotels that are not located in Tallinn. In the result the names must be in uppercase and the name of the column must be *hotel*.
6. Find average price of rooms, minimal price of rooms, maximal price of rooms, the sum of room prices, the number of rooms, the price of which is registered, and the difference between the maximal and the minimal price. In the resulting table the corresponding columns must have names *avg_price*, *minimal_price*, *maximal_price*, *sum_of_prices*, *number_of_rooms_with_price*, and *range_of_prices*.
7. Find the number of hotels in Tallinn. The resulting table must contain exactly one column (with the name *cnt*) and one row.
8. Find the numbers of hotels that have had at least one reservation. Duplicate rows must be removed from the result.
9. Find rooms that cost more than 300 euros for a night. Find data from all the columns of the table *Room*. In case of each found room, present also the name of the hotel where the room is situated.

Additional material

In MS Access you can use visual query designer. You can also use this during the SQL test. The query designer is actually an implementation of Query by Example visual database language (https://en.wikipedia.org/wiki/Query_by_Example). The DBMS is able to translate SELECT, INSERT, UPDATE, DELETE, and SELECT ...INTO statements in QBE to SQL and vice versa.

You can use similar functionality in many different programs and in case of different DBMSs (it is not specific to MS Access). You can watch this video to learn how to use the Query Designer in MS Access (based on 15 examples):

<https://www.youtube.com/watch?v=fVn04-TH6NU&list=PLrRPvpgDmw0kbIJuNnApcYG3pQI3sG8j4&index=48>

This video is a part of a playlist that contains other videos about MS Access as well.

Just one comment. In the video they use in case of LIKE predicates:

- * to depict zero or more characters,
- ? to depict exactly one character.

The MS Access databases that we use support newer SQL syntax. Thus, you must use:

- % to depict zero or more characters,
- _ to depict exactly one character.