İstanbul Bilgi University

Department of Computer Engineering

FALL, 2018

Campus: Santral

CMPE351
DATABASE SYSTEMS I

Homework 1: Hotel Database

Make sure that you explain in detail all your steps - thoughts. You may get extra points for an appropriate observation, you may lose some marks due to an obscure solution.

1. {5 + 5 points} What is a Database Management System? Why it is a general purpose system?

2. {10 points} Give a brief and clear definition of 'redundancy'.

3. {80 points} Your task is to design a relational database for a hotel, considering ONLY the following points: the hotel stores info about CUSTOMER (c_id, c_name, c_address(street, ZIP code, city) - {5 points}, {c_tel} - {5 points}), and ROOM (which possible attributes?). A customer makes a RESERVATION to book a room. For every reservation you need to memorize *at least (but not only - {10 points})* its 'deadline', the 'check_in' and 'check_out' times, and its 'state'; possible values - {10 points} for 'state' are {active, confirmed}. Assuming that:

- The same room may be shared by two or more customer, that is not every customer books a room
- A customer can make more than one reservation, and one reservation is made by only one customer
- One reservation can book more than one room, and the same room can be booked by more than one reservation (in different times)
- The same room may have different prices in different reservations - {10 points}
- If the customer confirms the reservation, he changes its 'state' from 'active' to 'confirmed'

Questions:

(a) {5 + 5 points} Give the ER diagram and schema

(b) {5 + 5 points} Which type of relationships do you have? Discuss both the cardinality and the participation constraints

(c) {10 points} Give the corresponding relational schema; and

(d) {10 points} Give a snapshot containing at least 5 entrances (better if mean full).

Note: We will check this homework together during the lectures'hours.
Resource: Chapter1, par.2.1 and chapter3 of the Elmasri & Navathe book.