T-202-GAG1: Exercise 09

Readings

Ramakrishnan & Gehrke: Chapter 19 (excl. 19.9).

Preparation

None, aside from reading and attending/watching lectures.

The Assignment

Solve exercise 19.7 from R & G:

Exercise 19.7 *Suppose you are given a relation R with four attributes ABCD. For each of the following sets of FDs, assuming those are the only dependencies that hold for R, do the following: (a) Identify the candidate key(s) for R. (b) Identify the best normal form that R satisfies (1NF, 2NF, 3NF, BCNF). (c) If R is not in BCNF, decompose it into a set of BCNF relations that preserve the dependencies.*

1. $C \rightarrow D, C \rightarrow A, B \rightarrow C$
2. $B \rightarrow C, D \rightarrow A$
3. $ABC \rightarrow D, D \rightarrow A$
4. $A \rightarrow B, BC \rightarrow D, A \rightarrow C$
5. $AB \rightarrow C, AB \rightarrow D, C \rightarrow A, D \rightarrow B$

Deliverables

Submit a PDF file containing a (hand-written or type-set) solution to the exercise.

Note that in this assignment, all students should submit their own solution.

Additional Exercises

Exercises: 19.1, 19.5, 19.13.