T-202-GAG1: Exercise 10

Note: This is work you will need to do for Project V, so you are getting a free point for doing this within the exercise class.

Readings and Lectures

Lectures: Module 08.
Ramakrishnan & Gehrke: Chapter 19.

Preparation

Download the Description and SQL code for Project 5 from 2014. Create a database called OldP5 and create and fill the relations using the downloaded SQL scripts. You should also look at the solution to the project, which is included as well.

The Assignment

Your goal is to re-create with your own code, the SQL code of the solution (CHECKFD.sql and CHECKMVD.sql). To this end, do the following:

1. Create a program (in a programming language of your choice) to generate your own SQL script, along the lines presented in the Module 08 lecture, to detect functional dependencies in the OldP5 database.
2. Create a program to generate your own SQL script, also along the lines presented in the Module 08 lecture, to detect multi-valued dependencies in the OldP5 database. Note that this can only occur in one of the relations.

You should use a programming language of your own choice. And, of course, you can verify your code and SQL queries using the solution to the project!

Note: Bonus point for implementing this within PostgreSQL using information from the system tables.

Deliverables

For this assignment, you can work in groups of two or three.

Submit one zip file with up to four files. All files should have a descriptive name.

3. Your code to generate SQL queries for functional dependences.
4. The generated SQL queries to detect functional dependences.
5. Your code to generate SQL queries to detect multi-valued dependencies.
6. The generated SQL queries to detect multi-valued dependencies.

Additional Exercises

Exercises: 19.1, 19.5, 19.13, as well as exercises from old exams.

Note: It is very important that you get much practice with normalization, so I encourage you to take the time for these exercises.