INF1343, Winter 2012, Week 6 Exercises

Part 1. Simple Normalization

Determine whether each of the following two tables is in 1NF, 2NF or 3NF. For tables that do not reach 3NF provide an alternative relational design that satisfies 3NF.

a) A table that a dentist users to keep track of her work on her patients teeth:

> (first_name, last_name, insurance_company_name, patient_insurance_number, insurance_company_phone_number, visit_date, which_tooth, symptoms, diagnosis, treatment_notes, material_used, fee, amount_billed, amount_currently_owed)

b) A table containing information about people who registered for events at a community center:

> (title, first_name, last_name, email, home_telephone, work_telephone, event_name, event_date, event_price, spouse_name, child_name_1, child_name_2, child_name_3)

Identify primary and foreign keys in your alternative design.

Part 2. Normalization in the Wild

Go to the Millenium Development Goals dataset in the World Bank Data Catalog website:

> http://data.worldbank.org/data-catalog/millennium-development-indicators

Download the Excel version of the datafile:

> http://databank.worldbank.org/databank/download/MDG_Excel.zip

The files contain 5 sheets, not counting the "Description" sheet.

a) For each of the five tables, determine whether the table satisfies the requirements for 1NF, 2NF and 3NF.

b) Show how the same data can be represented as a set of tables that satisfy 3NF.