

David Scroggins
CSC 453 – Database Technologies
Final Project Description

My project was a database to manage a small K through 12 tutoring center. The center has four major components of operations: Lead Tutors, Tutors, Students and Parents. Lead Tutors are generally experienced Tutors whose primary function is now administrative. Tutors are the individuals who actually tutor the students. They are assigned to as many tutoring session as they are able to work and as match up with their subject specialization(s). Parents are the main contact point for Students. They are responsible for paying the bill(s) generated by the tutoring sessions. Students are assigned to sessions based on their availability as well as subject need. They are able to take different sessions with different Tutors so long as the times of the sessions do not conflict and a Tutor is available with a subject specialization that matches their subject need.

The database is composed of 11 tables: employee, assigned_tutors, unassigned_tutors, client, subject, subject_spec, subject_need, tut_session, pay_method, bill and line_item

The employee table is composed of 14 fields with employee_id serving as the primary key. This is the main table for managing lead tutors and tutors, both current and former. Particularly important are the tutor_flag, lead_flag and assigned_flag, which indicate, using Boolean 'y'/'n' flags, whether an employee is a tutor, a lead tutor and/or currently assigned to a tutoring session.

The assigned_tutors and unassigned tutors track tutors who are presently assigned or unassigned to tutoring session. They contain only the employee_id of the relevant tutor. These tables can be refreshed using the transaction found in 04_scroggins_Transaction_tutoringagency.sql.

The client table is composed of 11 fields with client_id serving as the primary key. This is the main table to manage students and their parents. Particularly important is the parent_id field, which connects individual students to their parents as well as the parent_flag and student_flag which indicate, using Boolean 'y'/'n' flags, whether an employee is a parent or a student.

The subject table holds the data to describe the subjects offered by the tutoring agency. Its primary key is a unique subject_id field, and contains three other fields:

subject_name, description and subject_rate, which should be self-explanatory.

Subject_spec references the subject table via the foreign key subject_id and contains the unique spec_id for tutors' subject specialization. Subject_need also references the subject table via the foreign key subject_id and contains the unique need_id for students' subject needs.

Tut_session is the third major table and contains all of the data relating to individual tutoring sessions with the primary key session_id. The table contains all relevant information for each tutoring session including date, start time, end time, subject as well as a field for note entry by the assigned tutor.

The pay_method table holds the data to describe available methods for payment for individual session. This table is referenced by the pay_id field in the table bill, which contains the master information for bills. The line_item table contains the individual items that make up the bills. A unique line item (primary key line_id) is generated for each tutoring session and linked to the master bill via the foreign key bill_id. Each bill is composed of line items generated on the same day. So, for instance, if a parent has two children who take two lessons on December 1, 2016, one bill containing two line items will be generated.