

Library Database

In some query assignments we use a (part of a) university library database, with the following tables and attributes:

book : { ISBN, title, publisher, year }
author : { ISBN, initials, name }
copy : { barcode, ISBN, department, copyyear, present }
reserve : { name, date, department, ISBN, canceled }
borrow : { name, barcode, from, until, department }

In dutch (sometimes used in assignments) this would be:

boek : { ISBN, titel, uitgever, jaar }
auteur : { ISBN, voorletters, naam }
exemplaar : { barcode, ISBN, faculteit, exjaar, aanwezig }
reservering : { naam, datum, faculteit, ISBN, geannuleerd }
uitlening : { naam, barcode, van, tot, faculteit }

Short description

Each book has a unique ISBN number. It has a title, publisher, year of publication and a number of authors of which we record the initials (first letters of their given names, together as a string) and their last name. (Different editions of the same book have a different ISBN number and are thus considered as different books in our database.)

The university has one or more copies of each book. Each copy is bought in a certain year (copyyear), has a sticker with a unique barcode and is assigned to a department. (Books can be borrowed by people from other departments.) A copy can be absent (not present) because it has not yet been delivered by the publisher, is being repaired, or is borrowed by someone. People are identified by their (last) name and department. They can reserve a book on a certain date. (The type of “date” is such that dates that are not NULL can be compared with each other, e.g. using $<$ and \leq .) People can cancel a reservation at any time. The date of the reservation is kept in the database. The date on which a reservation is canceled is not stored. People can borrow a book on a certain “from” date. Any reservation they might have for that book is automatically canceled. The “until” date remains NULL until the book is returned. When a book is returned the date is recorded and the borrow-record is kept in the database. The tables “reserve” and “borrow” thus contain historical information of past actions.

The library exists for a long time. As a result you can count on the fact that every department has some (copies of) books, from every department there is someone who has at some time reserved a book and someone who has at some time borrowed a book.

Note: The attributes “name” and “department” are used with different meanings in this database. Make sure that you do not accidentally mix these meanings, e.g. in a join operation. Also note that the words “book” and “copy” refer to very different concepts. In a question we may write that someone “borrows a book” but of course that means that that person “borrows a copy”.