# Database exercises (DDL + DML)

These exercises are not mandatory, but good at training your database skills ☺

**Exercise 1**

Make a model of the library as specified by the file ”library-system.pdf”

The model must be drawn in MySQL workbench and hereafter created as a database.

**Exercise 2**

1. Insert basis data

Insert a few borrowers, books, copies and authors.

If you have a separate location table you should also insert some locations. If you don’t have a location table, then consider what benefits such a table can give you. That might you create one ☺

1. Check your constraints

Make sure that you cannot create a copy of a non-existing book, or put a non-existing author on a book. Do this by trying to insert non-existing book id into the copy table or a non-existing author id in the table where you register the authors of a book (you do that in a special mapping table, right!).

1. Change data

Change the phone number of one of the borrowers.

Change the location of all copies in remote stock (pick a new location yourself).

Delete a copy of one of the books

Try to delete an author that is registered on one of the books – shouldn’t be possible!

Delete and author that is not registered on one of the books.

Insert a reservation for a book.

**Exercises 3 Red students**

It is possible to set privileges for database tables to prevent insert, update, or delete statements to be used by unauthorized database users.

For the library system we have two types of users:

* The librarian who can create borrowers, books, locations etc.
* The borrowers who can make reservations and loans

Set up a privilege system for the tables and test it in a small app where you login in as either database user type. Borrowers should not be able to insert, update and delete any data but into the reservation and loan tables.

The SQL command is called “GRANT privilege …”

You can set up privileges (grants) through SQL Workbench. Right-click table 🡪 Table inspector 🡪 Grants

You can also consider an administrator user who is the only one that has access to creation and modification of the tables.

It would be cool if you could demo your solution for the class tomorrow ☺