LAB 1

In this Lab you will implement the Library Management System (LMS) available on Canvas. Make sure to read that document first.
You will progressively implement features until you have a complete LMS, so the labs are accumulative! Make sure to backup all your files.

Presentation

For the lab presentation, make sure you have the following ready to be shown to the TA:

- The previously detailed queries ready to be executed.
- Queries for creation of the database.
- All the relations in the database schema.
- Describe your database design thoroughly using course related terminology during the lab presentation.

Project Background

KTH Biblioteket has asked you to create their new management system: the Library Management System (from now on, LMS). They have provided you with a document where all the features and requirements for the software are stated, so you know what it should do in each case.

For this lab, you will have to create a series of SQL queries that will retrieve information from the database. The queries only need to be executed in PostgreSQL, so there is no need to create a User Interface yet.

Setting up the database

1. To setup your lab environment, please read the Database access guide available in Canvas.
2. Let's get started with this library management system. First of all we will have to create the tables that are to be the core of our database. In homework one you already defined your relations and wrote create table statements for them.
3. We can't work with a completely empty database, so after you've created your relations it's time to insert some values. Insert the tuples found in the requirements to the different tables of your database. You can be as creative as you like as long as you fulfill the below requirements.
4. Please use the provided data sample sheets specified in the LMS case study document for your books and users.

LAB 1

Required features

You are required to do the following tasks in order to pass this Lab:

- Create the LMS database containing the following:
    1. All the relations you deem necessary described in the provided document.
    2. All the books provided in the document.
        - 2.1. At least 5 of which have 2 or more copies.
        - 2.2. At least 3 of which are currently borrowed
        - 2.3. At least 3 of which are not currently borrowed.
        - 2.4. At least 5 of which have been borrowed at a previous point.
            - 2.4.1. At least 3 of which were returned late.
    3. All the students provided in the document.
        - 3.1. At least 2 of which are currently borrowing a book.
        - 3.2. At least 2 of which were late returning a book.
    4. All the administrators provided in the document.

- Create queries that retrieve the following data:
    1. Create a new book
    2. Delete a book.
    3. Present a table that shows all the books of one genre.
    4. Present a table that shows the name and phone number of two administrators.
    5. Present a table that shows all students who are currently borrowing a book.
    6. Present a table that shows all books currently available for borrowing.
    7. Present a table that shows all students and staff that were born between the year 1980 and 1990.
    8. Present a table that shows how many books each author has written.
    9. Present the percentage of students who are currently late returning a book.

Make sure that tables with books or people are presented in alphabetical order (A-Z) and that no duplicates are present.

That's it! You have now set up a simple database and created some queries for basic functionality. In the next lab we will continue making this system more complex with some more complex queries.