Getting started

sqlite3

Recap of L02

A database consists of tables. Tables have rows. Each row has columns with name and type. Data is inserted into a table row by row.

To retrieve data from a table we use SELECT. The basic form is:

```
SELECT <column>[,<column>]* FROM <table> [WHERE <condition>];
```

For instance:

```
SELECT author, title FROM books WHERE title = 'Cars';
```

The condition can be complex, e.g. `title='Cars' AND publisher='Bonnier';`

Install sqlite3

Ubuntu:

```
sudo apt-get install sqlite3
```

Cygwin:
Use the cygwin installer and select the sqlite3 package sqlite3-3.9.2-1 or later.

MacOS:
Follow the instructions here:
http://www.tutorialspoint.com/sqlite/sqlite_installation.htm

Create a database for your user

You can start the sqlite3 shell by typing:

```
sqlite3 my_books
```

This will create the database my_books. You will run sqlite3 as your UNIX user, so there is no need to create any users inside the database.

Note that this will create the database as a file named my_books in the current directory (the directory where you ran the command line).

Note: If you use a more complex dbms such as PostgreSQL or MySQL, it’s a little more complicated to set up users and rights.

Your user may now create a new database table

```
sqlite> create table books(author TEXT, title TEXT,
                           isbn TEXT PRIMARY KEY,
                           publisher TEXT);
```

OK, I’m set up. Whachamadowithit?

Now, after creating a database, you can either connect to it (while inside the sqlite3 interactive shell):

```
sqlite> .open my_books
```

...Or you can use computer shell to connect to your database:

```
rikard@ggslaptop:~$ sqlite3 my_books
SQLite version 3.8.2 2013-12-06 14:53:30
Enter ".help" for instructions
Enter SQL statements terminated with a ";"
sqlite>
```

Accessing the database from the command line

It is very convenient to be able to connect to a database directly from the command line.

Now we can actually script SQL commands (as the user) and get results directly! E.g.:

```
$ echo "SELECT author, title FROM books WHERE publisher='Bonnier';" | sqlite3 my_books
John Smith|Life
James Woody|Love
Joan Carmen|Guns
Johnanna Boyd|Code
```

(the command is issued on one single line)

Investigating a table

```
sqlite> .schema books
CREATE TABLE books(author TEXT, title TEXT,
                   isbn TEXT PRIMARY KEY, publisher TEXT);
sqlite>
```

Listing tables in database

```
sqlite> .tables
books

sqlite>
```

Provided you have either opened the database using

```
sqlite3 my_books
```

or opened the database from within sqlite3

```
.open my_books
```

What's up next?

Review the SELECT (retrieving data) lecture and practise SELECT statements on the my_books database (provided by the teacher).

The next lecture on SQL will focus on UPDATE (changing data in a table)

The my_books database

Create a textfile called my_books.sql with the following content:

```
PRAGMA foreign_keys=OFF;
BEGIN TRANSACTION;
CREATE TABLE IF NOT EXISTS books(author TEXT, title TEXT, isbn TEXT PRIMARY
KEY, publisher TEXT);
INSERT INTO "books" VALUES('John Smith','Life','0-0-0-0-0-1','Bonnier');
INSERT INTO "books" VALUES('James Woody','Love','0-0-0-0-0-2','Bonnier');
INSERT INTO "books" VALUES('Joan Carmen','Guns','0-0-0-0-0-3','Bonnier');
INSERT INTO "books" VALUES('Johnanna Boyd','Code','0-0-0-0-0-4','Bonnier');
INSERT INTO "books" VALUES('Eva Peron','Cars','0-0-0-0-0-5','Books R us');
COMMIT;
```

Load the my_books.sql into SQLite3

In the same directory as the my_books.sql file do the following:

```
sqlite3 my_books < my_books.sql
```

It means: create a new database called `my_books` using the SQL statements in the file called `my_books.sql`

Login to the database using:

```
sqlite3 my_books
```

Read

https://www.sqlite.org/cli.html

http://zetcode.com/db/sqlite/introduction/

http://zetcode.com/db/sqlite/tool/