SQLite Tutorial

We will use SQLite (/ˌɛsˌkjuːˈlaɪt/, /ˈsiːkwəˌlaɪt/ as the DBMS. In contrast to many other database management systems (e.g., Oracle, DB2, and SQL Server), SQLite is not a client–server database engine. Rather, it is embedded into the end program. This unique feature has led it to be adopted by billions of applications.

Install Jupyter Notebook

Jupyter is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations, and narrative text. Please install it using Anaconda for python 3.7.

1. **Install SQLite**

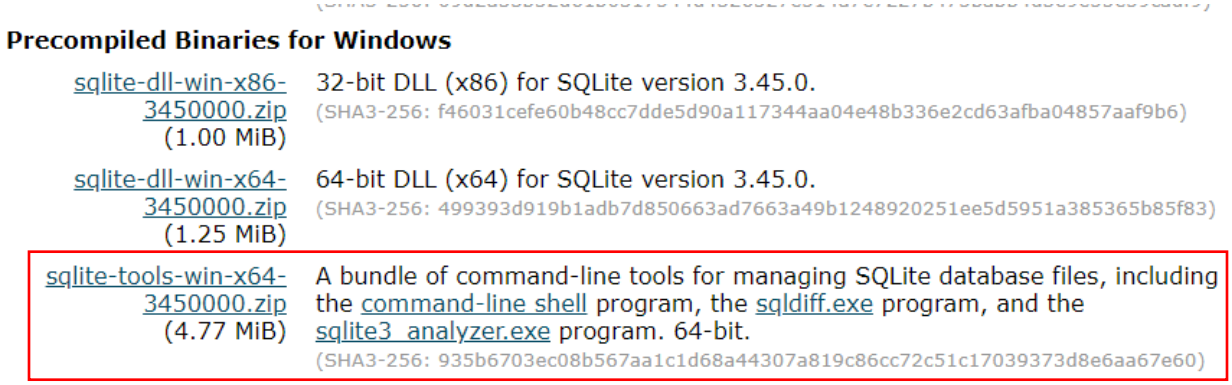
If you are using Mac OS X or Linux, SQLite should be pre-installed. Open a terminal and type sqlite3. To exit, type **".exit"**. If you are using Windows, please follow the instructions here.

Download SQLite tools

To download SQLite, open the download page https://www.sqlite.org/download.html

SQLite provides various tools for working across platforms e.g., Windows, Linux, and Mac. You need to select an appropriate version to download.

For example, to work with SQLite on Windows, you download the command-line shell program as shown in the screenshot below.



Precompiled Binaries for Windows

sqlite-dll-win-x86-3450000.zip (1.00 MiB)	32-bit DLL (x86) for SQLite version 3.45.0. (SHA3-256: f46031cefe60b48cc7dde5d90a117344aa04e48b336e2cd63afba04857aaf9b6)
sqlite-dll-win-x64-3450000.zip (1.25 MiB)	64-bit DLL (x64) for SQLite version 3.45.0. (SHA3-256: 499393d919b1adb7d850663ad7663a49b1248920251ee5d5951a385365b85f83)
sqlite-tools-win-x64-3450000.zip (4.77 MiB)	A bundle of command-line tools for managing SQLite database files, including the command-line shell program, the sqldiff.exe program, and the sqlite3_analyzer.exe program. 64-bit. (SHA3-256: 935b6703ec08b567aa1c1d68a44307a819c86cc72c51c17039373d8e6aa67e60)

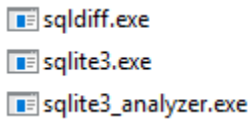
The downloaded file is in the ZIP format and its size is quite small.

2. Run SQLite tools

Installing SQLite is simple and straightforward.

First, create a new folder e.g., C:\sqlite.

Second, extract the content of the file that you downloaded in the previous section to the C:\sqlite folder. You should see three programs in the C:\sqlite folder as shown below:



First, open the command line window:

and navigate to the C:\sqlite folder.

```
C:\cd c:\sqlite
C:\sqlite>
```

Second, type `sqlite3` and press enter, you should see the following output:

```
C:\sqlite>sqlite3
SQLite version 3.29.0 2019-07-10 17:32:03
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite>
```

Third, you can type the .help command from the `sqlite>` prompt to see all available commands in sqlite3.

```
sqlite> .help
.archive ...           Manage SQL archives: ".archive --help" for details
.auth ON|OFF           Show authorizer callbacks
.backup ?DB? FILE      Backup DB (default "main") to FILE
.bail on|off           Stop after hitting an error.  Default OFF
.binary on|off         Turn binary output on or off.  Default OFF
.cd DIRECTORY          Change the working directory to DIRECTORY
...
```

Fourth, to quit the sqlite>, you use `.quit` command as follows:

```
sqlite> .quit

c:\sqlite>
```

3. Install ipython-sql

ipython-sql is a jupyter notebook extension. It allows using SQL queries inside jupyter notebooks.

Please install it using Anaconda.

Open a terminal and type:

conda install -c conda-forge ipython-sql

4. **Initial Test**

Please download and follow the steps on the **test.ipynb.**

Download test.ipynb to test your environment before you start your homework assignment.