Notebook Tutorial

DB Practice CSC 330 Spring 2022

README

1. This is an Org-mode notebook to get you started with interactive notebooks for SQLite scripting. This is really easy in Linux, a little more difficult in MacOS, and really rather painful (but still works) in Windows.
2. Simply work through the sections below and follow the instructions **minutely**. Let me know if anything is not working.
3. [ ] Each time you see the `[ ]` symbol after a bullet point or number, you have something to do. When you're done, go with the cursor to the top of this paragraph and check it off with `C-c C-c` (That's two times `CTRL+c`). Do it now if you read and understood this!
4. [ ] How to use the interactive notebook:
   - Run code blocks with `C-c C-c`
   - Add additional code blocks as you please but `#+name:` them
   - `sqlite` in the header of the code block automatically finds `sqlite3` if it is in the `PATH` of your computer
   - Successful execution produces a named `#+Results:` section, which you can delete because it can be recreated
   - Check this task if you got that.
5. [ ]

   Here is a **named code chunk**. The name is 1 like the SQLite string that it contains. Run the code block by putting your cursor anywhere on or in the block and type `C-c C-c`.

   ```
   .echo "hello world"
   ```

6. [ ] The code block's meta data must be identical to the one in 1: same spaces, etc. The arguments `sqlite :db sqlite.db` are crucial - though the name of the database, `sqlite.db` can be any name if you're working with SQLite files - the database only serves to make your results persistent.
7. [ ] Note that not all SQLite managing commands will work in code blocks. I am not really sure why. The `.show` command won't work, alas.
8. [ ]

   If 1 worked, you should see the following output below the code block[1], and then you can check the task off. The code below is not a codeblock, by the way, but only an example (i.e. `C-c C-c` will not have an effect).

   ```
   #+RESULTS: hello world
    : .echo "hello world"
   ```

9. If the code block does not run, any number of things might be the case:
   1. syntax mistake in the code block meta data
   2. syntax mistake in the SQLite statement
   3. SQLite cannot be found
   4. You're not using my `/.emacs` file

10. Troubleshooting for point (4): Put the file `init.el` that you downloaded into the directory ~/ (Emacs' home directory). Restart Emacs.
11. [ ] To create a code block, you can type `<s` followed by the <TAB> key[2]. This will expand and you only have to add `sqlite` after `#+begin_src` (leaving 1 space) to turn it into a mini SQL script.
12. [ ] That's all there is to it! To test your new found powers:
    - create a `sqlite` code block below
    - name the code block `.database`
    - add the statement `.database` inside the block
    - run the block with `C-c C-c`
    - check off this task if successful.
13. [ ] To close, see how documentation and code work together in Emacs. Weave this entire notebook by pressing the key sequence: `C-c C-e h o`. This should open a browser with an HTML version of this file - for a web page or to print out as PDF.
14. [ ]

    Lastly, take a look at the meta data at the top of this file. They occur in every notebook and you should copy them if you created your own. I have copied them here. Let's look at them one by one.

    ```
    #+TITLE:Notebook Tutorial
    #+AUTHOR:Marcus Birkenkrahe
    #+SUBTITLE:DB Practice CSC 330 Spring 2022
    #+STARTUP:overview hideblocks
    #+OPTIONS: toc:nil num:nil ^:nil
    #+PROPERTY: header-args:sqlite :exports both
    #+PROPERTY: header-args:sqlite :results output
    #+PROPERTY: header-args:sqlite :db sqlite.db
    ```

    - The first three lines establish title, author, subtitle
    - The `#+STARTUP:` line folds sections and codeblocks upon entry
    - The `#+OPTIONS:` line suppresses printing a TOC
    - The `#+PROPERTY:` lines set arguments for the codeblocks
15. [ ] This should open the file as an HTML file in a browser. If it worked, check it off, save this file with `C-x C-s` and move on to bigger and better things. Otherwise let me know.

Footnotes:

[1] This does not just look like a link, it is a link. You can click on it with your mouse, or follow the link with `C-c C-o`. If you're reading this footnote, you can also click on the footnote label to get back to the text (or jump with `C-c C-o`).

[2] Provided your `.emacs` file has the right code in it an you're running the right version of GNU Emacs. On the lab 104 computers, this should not be a problem.

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Created: 2022-03-11 Fri 22:33
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