Practice: Your first "literate" C program! (30 min)

(You can find a PDF of this exercise on GitHub.)

Let's set Emacs up, write and run a first "literate" c program! it is very important that you enter everything **exactly as shown**. if you get something wrong just go back one step. Contact me if you need me after checking with your neighbour if he or she can help. This will take ca. 30 minutes.

1. Open the command line terminal with `cmd` in the search field
2. At the prompt, type `gcc --version`
3. Open https://github.com/birkenkrahe/org/ in a browser
4. Navigate to the repository `emacs` in GitHub
5. Click on the file name `.emacs` to open it
6. Open the `Raw` version of this file (there's a button)
7. Right click to `Save as` and save file as `emacs.txt` in `/Downloads`
8. Open a terminal by entering `CMD` in the Windows search bar
9. Pin the terminal to your taskbar to open it quickly next time!
10. At the prompt, enter `DIR emacs.txt` - you should see the file
11. At the prompt, enter `emacs --version`
12. Enter `emacs -nw -l emacs.txt`
13. Inside Emacs, enter `CTRL + x CTRL + f` to enter a new file.
14. At the prompt at the bottom of the screen, enter `first.org`
15. Enter the following text (replace `yourname` with your own name):

```
 #+TITLE: First C Program
#+AUTHOR: [yourname] (pledged)

* My first C Program

This C program runs inside an Emacs Org-mode code block.

#+begin_src C :results output :tangle first.c

  #include <stdio.h>
  int main() {
      printf("Hello, world!\n");
      return 0;
  }
```

16. 'Run' the program by putting the cursor anywhere on the code block and typing `CTRL-c CTRL-c`. You should see the result on the screen.
17. Save the file with `CTRL + x CTRL + s`

18. 'Tangle' the code with `CTRL + c CTRL + v t` (or `M-x org-babel-tangle`): Emacs reports `"Tangled 1 code block from first.org"`.
19. Open a shell inside Emacs by entering `ALT-x eshell`
20. At the `$` prompt, enter `ls -l first*` - you should see `first.c` listed
21. Display `first.c` by entering `cat first.c`
22. Enter `gcc first.c -o hello` to compile the C program into an executable
23. Enter `hello` to run the executable. You should see the output.
24. Exit and close Emacs with `CTRL-x CTRL-c`
25. Exit and close the shell by entering `exit` after the prompt
26. Save your file to a directory on your GDrive (you can do this with File Explorer, or directly in Emacs with the following commands (you don't have to worry about spaces etc. because you can auto-complete using the <TAB> key):

```
C-x C-w                    ;; write file
w:/My Drive/               ;; target directory
C-x d w:/My Drive/         ;; open target directory
s                          ;; sort to see recent files at top
```

    You can also do it in the Emacs eshell that you used earlier to compile and run the file on the shell (auto-complete with <TAB>):

```
cp first.org w:/My\ Drive/      # copy file to target directory
cat w:/My\ Drive/first.org      # view copy of file at target location
```

27. Upload `first.org` as your first in-class assignment:
    1. Open a browser to GDrive and upload the file
    2. Open the assignment in Canvas at lyon.instructure.com
    3. Upload the file from GDrive (click on "`More`")
    4. When you see it attached, click on `Submit Assignment`.

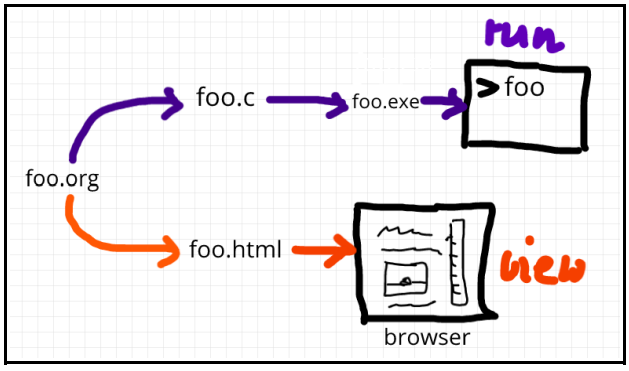

Figure: the foo.org file is tangled into a C source code file for execution, or into a document.