



We want to use Meson so that we can easily build, test and distribute bigger projects.

This means our project should have a clear folder structure. We create for example as a foundation

- in a newly created empty project directory
  - a text file called `README` which is meant to contain basic explanations what the software does, how to install it and what its license is,
  - a file `AUTHORS` which is meant to contain the names of all developers later on,
  - a `NEWS` file which is meant to briefly list changes between software versions that are important to users,
  - a file called `COPYING` or `LICENSE` containing the software license (software under multiple licenses stores them in one file each in a `LICENSES` directory instead, cf. <https://reuse.software>),
  - a currently still empty text file called `meson.build`,
  - a subdirectory called `src` or `mycopyshop` or similar
    - \* with a file `main.c` inside which will later contain the `main()` function
    - \* as well as another `meson.build` file.

Text files written in *Markdown* may additionally use the `.md` file extension. The `src` directory will contain all the program's C source files later on.

This should be added to the main project folder's `meson.build` file:

```
project('mycopyshop', 'c')
gtkdep = dependency('gtk+-3.0', version : '>=3.22')
subdir('src')
```

In real projects `project()` should also state the program's license and version, see <http://mesonbuild.com>. The GTK+ version needed has been specified as 3.22 in this example.

`src/meson.build` should contain the following:

```
executable('copyshop', 'main.c',
  dependencies : gtkdep,
  install : true,
  gui_app : true)
```

Done! We now want to store our progress in a Git repository to make sure we won't lose it. To do so we open a terminal in the main project directory and run these commands:

```
$ git init
$ git add README AUTHORS NEWS COPYING meson.build
  src/main.c src/meson.build
```

Using `git` we can easily manage which files are part of the project. All foreign files can be quickly removed using `git clean -df`. `git status` shows the status of the files in the project directory. Most people use Git for saving and managing changes to the project in one version ("commit") each. This way – among other advantages – multiple developers can cooperate efficiently.

Now that changes are no longer easily lost, we build and install the project for a single user:

```
$ mkdir builddir
$ cd builddir
$ meson .. --prefix=$HOME/.local
$ ninja install
```

Administrators can install the project for all users as well:

```
$ mkdir builddir
$ cd builddir
$ meson ..
$ ninja
$ sudo ninja install
```

If the project requires Glade files or similar to be loaded, we need to either include them as a resource within the program or supply their file path to the C code in a configuration file. For the latter we need a `config.h` file; for an example on how to create one, see the next handout or the example [here](https://pelzflorian.de/git/gui-prog-gtk/tree/bin/copyshop/meson.build):

<https://pelzflorian.de/git/gui-prog-gtk/tree/bin/copyshop/meson.build>