Eggshell

an Operating Systems project

CPS1012

Andre' Jenkins

76999M

Contents

Chapter 1

Structure of the code

The code was structured into different directories, so that they may be organised according to what they are supposed to achieve.

1.1 Main files

The files here are ones which are used in the front layer of the eggshell. Here you may find a main C file that uses the eggshell functions, the main eggshell `.c / .h` files which either call multiple other functions, or are simple enough to be on the front layer, and other files such as the Makefile, any scripts, testfiles, and other miscellaneous files.

main.c — The main `C` file that the executable is retrieved from. Uses libraries such as `eggshell` and `linenoise`.

eggshell.c/h — The `eggshell library` used by the main file in order to start the eggshell and utilise it. Uses multiple libraries that are all found in the `src` directory.

Makefile/Makefile-GCC — The Makefile necessary to generate the executable. The current default Makefile uses the `Clang` compiler, for reasons stated in the `README.md` file. To use the Makefile that utilises the `GCC` compiler instead, either change the name of the `Makefile-GCC` file, or run `switch.sh`

switch.sh — A script that aids in switching compilers for the makefile. This was written for each switching between `Clang` and `GCC`, due to the ease of debugging with `Clang`, and the standard nature of the `GCC` compiler.

README.md — The `README` file holds the instructions to compiling the program, as well as a quick summary of the program and its utilities.

testinput.txt — A file used to test the capabilities of the eggshell. Running `./eggshell test` will immediately launch the eggshell and run this script, to provide a quick testing method.

LICENSE, .gitignore & .yml files — Files that are unimportant to the project itself. These were used for `git` purposes, as the project was also uploaded as a `git` repository.

1.2 Source files

The files found here are the bulk of the code making up the eggshell. In here, every single `eggshell header library` is present, all of them with their own specific and complicated purpose. These were seperated from the main `eggshell` file in order to organise the core of the project from the specific elements making up the project itself.

variables.c/h — Contains all the functions and structs relating to the variables created and stored by the `eggshell` . For example, all the **shell** variables can be found here.

printer.c/h — The main file dealing with the `print` command.

proc_manager.c/h — The file dealing with the execution of external commands.

sig_handler.c/h — Contains the `signal handler` function used in order to suspend and interrupt processes. Also contains an additional function in order to reawaken a suspended process.

redirection.c/h — The main file dealing with `input/output` redirection.

pipe_manager.c/h — Contains functions dealing with the piping system that the `eggshell` offers. Also contains a special execution function, rather than using the one found in `proc_manager.c/h`

1.3 Other files

There are also other directories that contain files that aren't integral to the functionality of the eggshell, but are still related somewhat.

documentation/ — Contains the `.tex` file that generated this report, as well as other items related to it. In order to recompile it, you'd most likely need to install TEXlive first.

ci/ — Unrelated to the main project. The Makefile here is used for Continuous Integration for the `git` repository.

add-on/ — Contains the `linenoise.c/h` library that was used in the main file to simulate a terminal's prompt with input.

.vscode/ — Contains files that helped with debugging/building the project in `Visual Studio Code` .