03. [20p] Quality-of-life improvements

Click GIF to maximize.

[10p] Task A - Color man pages

On Linux, you will consult the **man** pages a lot. Normally, these are displayed in a bland monochrome manner, which makes them hard to parse. If you need to convince yourselves, check the manual page for the manual itself:

```
$ man man
```

Let's try to spice things up a little! Your terminal is able to display quite a few colors.

```
$ sudo apt install colortest
$ colortest-16b
```

In olden days, terminals were implemented by a driver that represented each cell by two bytes in a matrix. One byte held the ASCII value of the displayed character. The other was used to specify character / background display color and other features such as blinking (if you're looking at that terminal cursor, you're spot on). In order for users (i.e.: not the driver) to specify what color to set, ANSI escape codes [https://en.wikipedia.org/wiki/ANSI_escape_code] were invented. These consisted of sequences of a `0x1b` byte (or `033` in octal representation), followed by `[`, then `;` separated numerical values representing the codes, and terminated by the `m` character. Let's try to print a fancy "hello world" to the terminal (`33` is yellow, `1` is bold, `0` is reset):

```
$ echo "\033[1;33m Hello World! \033[0m"
```

We can use this… Add this at the end of your *.zshrc* file, source it, and open the same man page again:

```
# color schemes for man pages
man() {
    LESS_TERMCAP_mb=$'\e[1;34m'   \
    LESS_TERMCAP_md=$'\e[1;32m'   \
    LESS_TERMCAP_so=$'\e[1;33m'   \
    LESS_TERMCAP_us=$'\e[1;4;31m' \
    LESS_TERMCAP_me=$'\e[0m'      \
    LESS_TERMCAP_se=$'\e[0m'      \
    LESS_TERMCAP_ue=$'\e[0m'      \
    command man "$@"
}
```

What's happening here:

- `man()`: we're basically replacing the **man** command with a *bash function*.
- `LESS_TERMCAP_*`: these are variables used (indirectly) by **man** to format its output. The authors of these pages decide how and when to use them. We decide what they are. By defining these variables before running a bash command, we set them only in the environment of the started process and will disappear when said process terminates.
- `command man "$@"`: here, **command** tells **bash** / **zsh** to use the *original* man command, not the function we just defined. If you're wandering why this is necessary, think back to the whole `tmux` and `zsh` fiasco described earlier. The `"$@"` here is substituted with all the arguments that the ***man*** *bash function* received and passes them on to the ***man*** *command*.

[10p] Task B - Color iproute2 output

If you scroll back to the first *gif* in this lab, you might notice the execution of the `ip addr show` command, to list the network interfaces on my system, and their IP addresses. This is similar to the **ipconfig** command in Windows **cmd**. In fact, prior to **ip**, Linux had an even more similar command, called **ifconfig** (yeah…) But **ifconfig** is now deprecated and is not even installed by default in most modern distributions. People still (incorrectly) use it because they don't like the monochrome output of **ip** and it's output is more nicely formatted. But **ip** can use ANSI escape codes if you feed it the `-c` flag. To this end, let's specify an alias [https://tldp.org/LDP/abs/html/aliases.html] (basically a shortcut) in *.zshrc*.

```
# alias for iproute2 color output
alias ip='ip -c'
```

Source *.zshrc* and try `ip addr show` again. Now, every time you run `ip`, it automatically expands to `ip -c`.