Introduction to C and Unix

From a Teaching Assistant's Perspective

by

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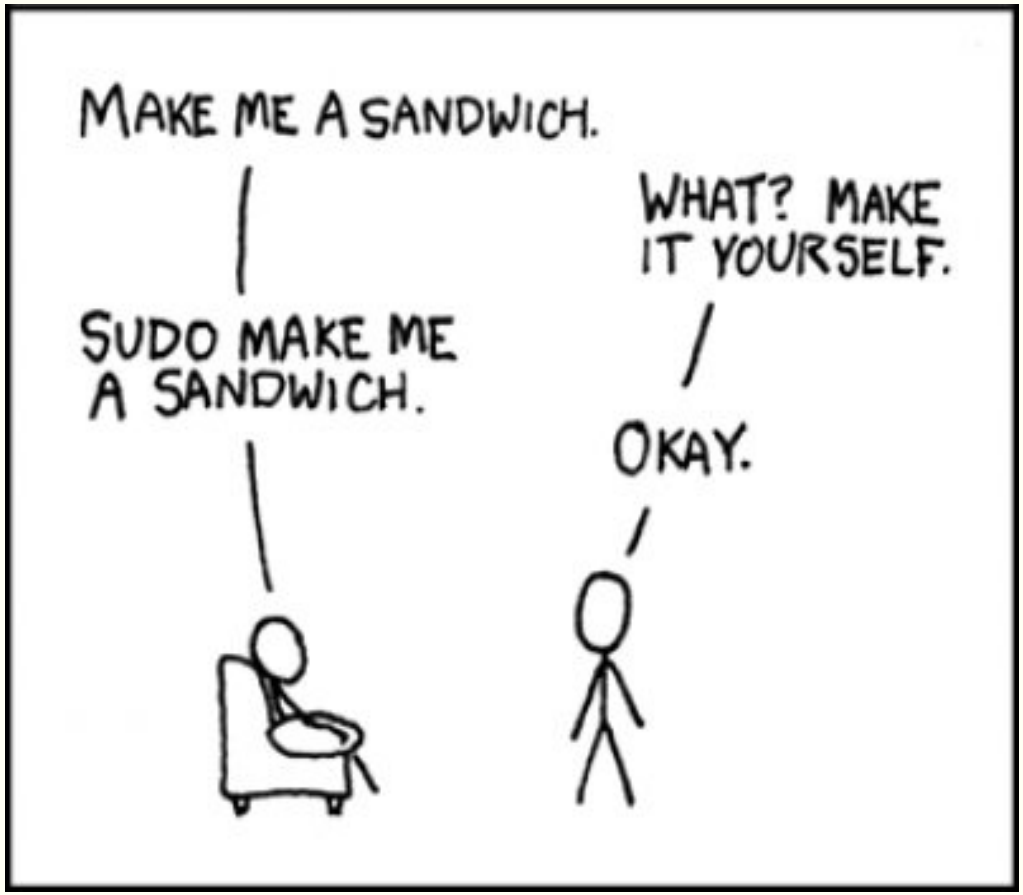
Contents

Get your weapon: shell

1. Linux: Ctrl-Alt-T
2. Mac OS: Cmd-Space, search "terminal"
3. Windows: Go to 1 or 2

Shell: a servant

You write command, shell runs it for you.



A philosophical shell

Who am I ...

```
$ whoami
chengsu

$ date
Sat Sep  3 20:57:13 CDT 2016

$ pwd
/home/chengsu
```

SSH

Login to a remote computer.

```
$ ssh remote_username@remote_host
$ run-any-command-on-remote-computer
$ exit
```

- Options: -X, etc.
- No hassle of password?
  - ssh keys
  - sshpass

GCC

GNU Compiler Collection.

1. ***preprocessing*** (C code)
2. compilation (assembly code)
3. assembly (binary code)
4. linking (executable binary code)

Make

Recipe to cook (build) programs.

```
target: prerequisite1 prerequisite2 ...
    command1
    command2
    ...
```

- Efficiency (compare timestamps of *target* and *prereqs*)
  - make ; make
- Other usage (not serious)
  - workflow control:

    `http://widgetsandshit.com/teddziuba/2011/02/stupid-unix-tricks-workflow-control-with-gnu-make.html`

Vi: text editor

- Basic usage
  - write code: i (insert mode)
  - write command: <Esc> (command mode)
  - go to a line: :12 (go to 12th line)
  - copy a line: yy
  - paste a line: p
  - search a word: /dog (search word: dog)
  - undo: u
- How to learn Vi/Vim
  - vimtutor
  - `http://www.openvim.com`
  - even a game to play: `http://vim-adventures.com`
- Configure Vi
  - dotfile: .vimrc (set indentation to 2 space)

Suggested Readings