Congruence Engine - Training and Mutual Learning Working Group

Command Line - Unix Shell

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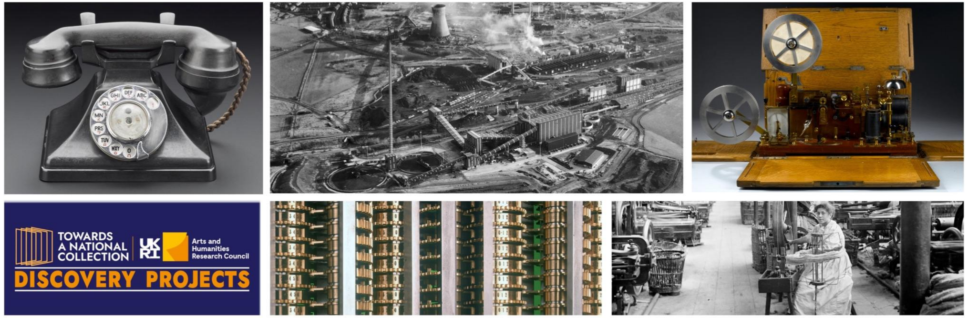
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Why a command-line interface?

a program that allows you

- to interact with your computer by typed text commands and the computer responds by performing a task or generating an output.
- to enter commands using a command-line interface, rather than through a graphical interface
- more detail when running some programs
- to add modifiers to specify exactly how you want your program to run
- to combine existing tools into powerful pipelines and to handle large volumes of data automatically
- automated through scripts, which are essentially recipes of text-based commands
- use basic commands as building blocks upon which more complex commands can be constructed
- The shell is one of the most productive programming environments ever created.

*Understanding the basics of the shell provides a useful foundation for learning to program, since some of the concepts you will learn here—such as loops, values, and variables—will translate to programming.

command line / (unix) shell / terminal / bash

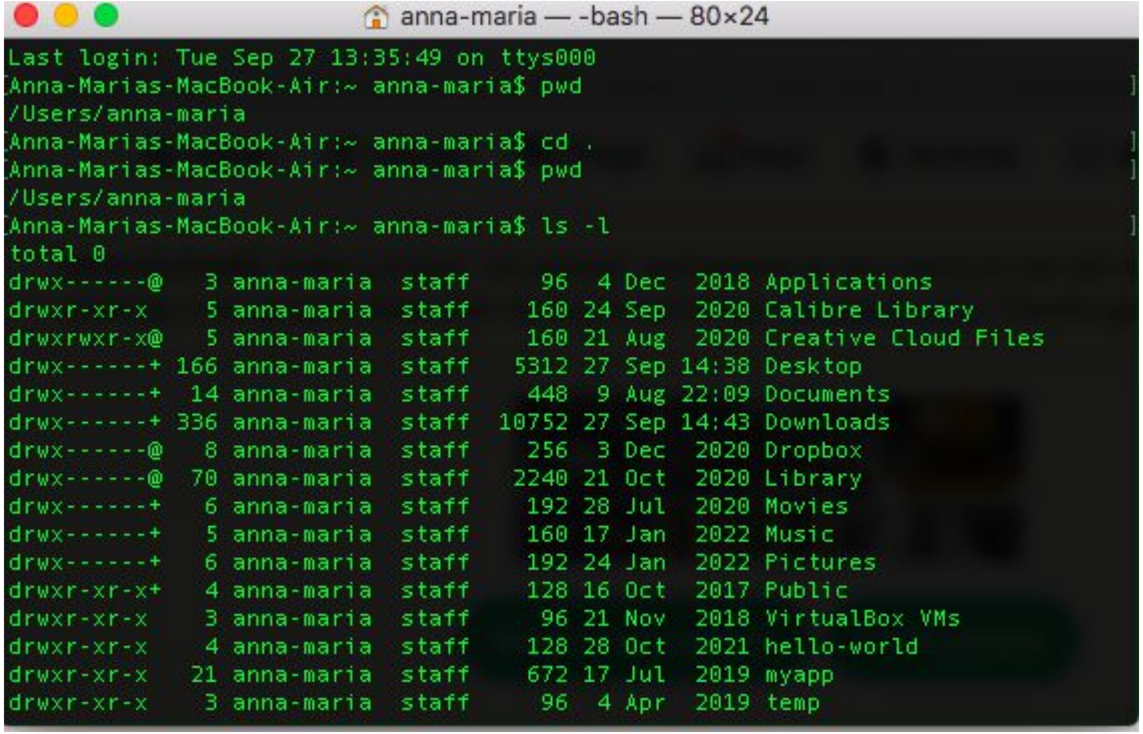
Terminal, shell and command line are often used interchangeably to indicate a text based system for navigating your operating system. There are two main command-line interfaces, or ‘shells’:

1)On OS X or many Linux installations, the shell is known as terminal / **bash**

*In the linux world they can all look the same from the point of view of the user at the keyboard. The differences are in how they interact with each other.

2)On Windows, **Command Line** or PowerShell are normally available as the default shell environments (`MS-DOS-based)` . These use a syntax and set of applications unique to Windows systems and are incompatible with the more widely used UNIX utilities. Windows users will need to install Cygwin or Git Bash to provide a UNIX-like environment.

There are different flavors you can use in a shell including bash. Bash is both a shell and language you can use to interact with the operating system and I'd say it's the most common one on *nix systems and macos



```
Last login: Tue Sep 27 13:35:49 on ttys000
Anna-Marias-MacBook-Air:~ anna-maria$ pwd
/Users/anna-maria
Anna-Marias-MacBook-Air:~ anna-maria$ cd .
Anna-Marias-MacBook-Air:~ anna-maria$ pwd
/Users/anna-maria
Anna-Marias-MacBook-Air:~ anna-maria$ ls -l
total 0
drwx------@   3 anna-maria  staff     96  4 Dec  2018 Applications
drwxr-xr-x    5 anna-maria  staff    160 24 Sep  2020 Calibre Library
drwxrwxr-x@   5 anna-maria  staff    160 21 Aug  2020 Creative Cloud Files
drwx------+ 166 anna-maria  staff   5312 27 Sep 14:38 Desktop
drwx------+  14 anna-maria  staff    448  9 Aug 22:09 Documents
drwx------+ 336 anna-maria  staff  10752 27 Sep 14:43 Downloads
drwx------@   8 anna-maria  staff    256  3 Dec  2020 Dropbox
drwx------@  70 anna-maria  staff   2240 21 Oct  2020 Library
drwx------+   6 anna-maria  staff    192 28 Jul  2020 Movies
drwx------+   5 anna-maria  staff    160 17 Jan  2022 Music
drwx------+   6 anna-maria  staff    192 24 Jan  2022 Pictures
drwxr-xr-x+   4 anna-maria  staff    128 16 Oct  2017 Public
drwxr-xr-x    3 anna-maria  staff     96 21 Nov  2018 VirtualBox VMs
drwxr-xr-x    4 anna-maria  staff    128 28 Oct  2021 hello-world
drwxr-xr-x   21 anna-maria  staff    672 17 Jul  2019 myapp
drwxr-xr-x    3 anna-maria  staff     96  4 Apr  2019 temp
```

What we will learn

Library Carpentry: The UNIX Shell

- Locating the shell
- Navigating the shell
- Working with files and directories (copy, move, and delete, read , print and view files, move/rename, copy, combine multiple files, and delete)
- Automating the tedious with loops
- Counting, sorting, mining and searching with the shell
- Shell tools to clean and transform free text

* Working mainly with tabulated (meta)data & free text

`Pwd` Prints the ‘present working directory,’ letting you know where you are.

`Ls` Lists the files in the current directory

`man *` Lists the manual for the command, substituted for the `*`

`cd *` Changes the current directory to `*`

`mkdir *` Makes a directory named `*`

`open` or `explorer` On OS X, `open` followed by a file opens it; in Windows, the command `explorer`followed by a file name does the same thing.

`cat *` is a versatile command. It will read a file to you if you substitute a file for `*`, but can also be used to combine files.

`head *` Displays the first ten lines of `*`

`tail *`Displays the last ten lines of `*`

`mv`Moves a file

`Cp` Copies a file

`Rm` Deletes a file

`Vim` Opens up the `vim` document editor.

If you find it interesting …

Stay tuned and join the module!

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