

# Content

1. Bash Basics

2. Command-Line Editing.

3. Customizing Your Environment.

4. Basic Shell Programming.

5. Flow Control.

6. Command-Line Operators & Typed Variables

7. Input/Output Command-Line Processing.

8. Process Handling.

9. Debugging Shell Programs

10. Bash Administration.

11. Shell Scripting

12. Bash for Your System.

# Chapter 1: Bash Basics

## Shell

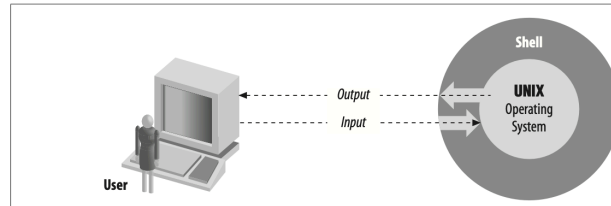


Figure 1-1. The shell is a layer around the UNIX operating system

- Shell is any user interface to the UNIX OS. It translates user language to OS language when there's input, and vice versa for output.

- Many types of UI. Bash belongs to character-based UI, the most common one.

↓  
textual command input  
usually text based output.

\* GUI is graphical interface.  
It's mouse, touch-screen, ...

- What is a Shell?

• Shell's job is to translate user command like into OS instructions.

```
sort -n phonelist > phonelist.sorted
```

This means, "Sort lines in the file *phonelist* in numerical order, and put the result in the file *phonelist.sorted*." Here's what the shell does with this command:

1. Breaks up the line into the pieces *sort*, *-n*, *phonelist*, *>*, and *phonelist.sorted*. These pieces are called words.
2. Determines the purpose of the words: *sort* is a command, *-n* and *phonelist* are arguments, and *>* and *phonelist.sorted*, taken together, are I/O instructions.
3. Sets up the I/O according to *> phonelist.sorted* (output to the file *phonelist.sorted*) and some standard, implicit instructions.
4. Finds the command *sort* in a file and runs it with the option *-n* (numerical order) and the argument *phonelist* (input filename).

## - Feature of bash.

- command-line editing → easy go back and fix mistakes or modify command.
- job control → ability to stop, start, pause

## - Getting bash

`echo $SHELL` → 显示当前正在使用的 shell.

`bash` → 启动并运行 bash.

⋮

## - Interactive Shell Use

- Command Arguments Options.

command line 由这3个组成. 后两个 optional.

- Files

- Regular File

= text file → readable char

- Executable File

= program → invoke as command.

some can't be read by human.

- Directory

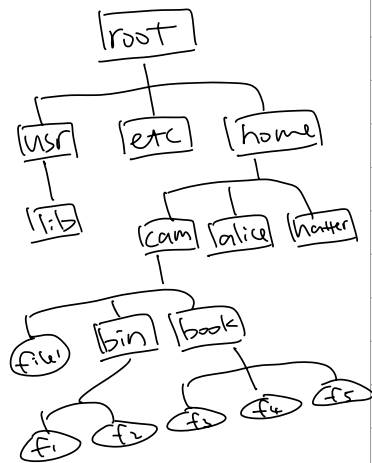
like a folder contains other files

- Directory

/ full/absolute pathname. 从 root 开始. 全部.  
relative pathname. 不用写全部.

在 `lp` command: `lp file-name`

Zachary Wardley. 



□ - directory  
 ○ - file

- Tilda notation

(~) ~ file is directory.

- Changing working directory

cd

+ '..' two dot → parent of this dir

eg. cd..

/home

cd .. f4

/home/cam/book

+ '-' → back to whatever dir prev was

• Filenames, Wildcards, and Pathname Expansion.

实操 bash.

vim → create file

vim my-file.txt

按 i 进入 insert-mode.