

## Chapter 2

1. Chapter synopsis: an introduction to the Bash shell and its features including entering commands without and with options, the information that makes up the command line interface prompt, man pages (and apropos), history, aliases and variables, command line editing, redirection and tab completion. The chapter also introduces interpreters and specifically the Bash interpreter.
2. Chapter outline/topics
  - I. Introduction
  - II. Entering commands
    - A. Without options or parameters
    - B. With options (the ls command)
    - C. With parameters (the ls command)
  - III. Help
    - A. man pages
    - B. apropos
  - IV. Bash features
    - A. history
    - B. variables
      1. assignment
      2. output
      3. environment variables
    - C. aliases
    - D. command line editing
    - E. redirection/piping
    - F. other features: ~, tab completion, \*, { }, exporting variables
    - G. defining variables and aliases in shell files
  - V. Other shells of note
  - VI. Interpreters
    - A. in programming
    - B. the Bash interpreter
  - VII. Chapter review
3. Comments: sections 2.5 and 2.6 are optional although the order that the Bash interpreter performs its tasks at the end of section 2.6.3 should be covered. Assignment statements and output are covered in chapter 7 and may be omitted if you do not plan on having your students create variables until shell scripting. Brace expansion (using { }) is a tricky topic and may be omitted for introductory students.
4. Discussion points: understanding options is a very significant point and a change from how most students will have interacted with the operating system. While the chapter emphasizes ls, you might consider showing them a few other instructions which have a wide range of options. You can do this by showing them several man pages. Students often forget many of the shortcuts available in Bash. Make sure you emphasize how

much easier command line entry is when using ~, tab completion, \* and command line editing.

5. In-class activities: have students use tab completion and command line editing in several examples to get used to these features.
6. Discussion questions
  - a. What feature(s) of Bash will you (the student) use the most? Why?
  - b. What is the best way to remember the various shortcuts (history, tab completion, command line editing?)

## Chapter 3

1. Chapter synopsis: this chapter gives the reader the information necessary to control files through the command line. We specifically cover these commands:  
bzip2/bunzip2, cat, cd, chmod, cmp, comm, cp, diff, find, gzip/gunzip, head, join, less, ln, ls, more, mkdir, mv, paste, pwd, rm, rmdir, sort, tail, wc.  
We also look at the use of wildcards, links, permissions, storage devices, compression techniques and the Linux top-level directory structure.
2. Chapter outline/topics
  - I. Introduction
    - A. Terminology (file system, files, partitions, directories, paths, inode, link)
    - B. Hierarchical structure
  - II. Filename specification
    - A. Absolute and relative paths
    - B. Using paths in commands
    - C. Wildcards and filename expansion
  - III. File commands
    - A. Directory commands (pwd, cd)
    - B. File movement commands (mv, cp)
    - C. Deletion commands (rm)
    - D. Directory commands (mkdir, rmdir)
    - E. Textfile commands (cat, more, less, head, tail)
    - F. File comparison commands (cmp, comm, diff, uniq)
    - G. File manipulation commands (join, split, cut, strings)
    - H. Miscellaneous file commands (wc, touch)
    - I. Hard and symbolic links (ln)
  - IV. Locating Files
    - A. GUI search tool
    - B. find
    - C. Other commands (locate/slocate, updatedb, which, whereis)
  - V. Permissions
    - A. Access control through users, groups, others
    - B. Types of access (read, write, execute)
    - C. The chmod command
    - D. Altering permissions through the GUI
    - E. Advanced permissions (sticky bit)
  - VI. Linux top-level directory structure including a brief look at /dev
  - VII. Secondary storage devices
    - A. Hard disk
    - B. Magnetic tape
    - C. Other
  - VIII. File compression
    - A. Lossy vs lossless
    - B. Lempel-Ziv algorithm