1.26 Overview Exercises

What should I focus on?

At the end of this practical session, as a minimum, you should be able to:

- within a `man` page, be able to:
  - go to the beginning of the `man` page with one keystroke
  - similarly, go to the end of the `man` page
  - search for a word within the `man` page
  - search again for the same word using one keystroke.
- Find the `man` page that you need:
  - quickly find a man page with a description that matches a keyword
  - exhaustively search all man pages to find all that contain a keyword.
- You should know how to use the `df` command to tell how much space is left in your root (`/`) partition
- Have a basic understanding of what a pipe (`|`) is useful for.
- You should know how to use the `wc` command, and clearly understand that it has nothing much to do with the wash room.

The exercises

1. *Changing password*

(a) Set yourself a new password using the `passwd` command. Run the command by typing `passwd`, followed by a `<RETURN>` .

2. *Navigating Man Pages*

(a) Type `man man` to open the man page which details how to use the `man` command

(b) Press the `h` (help) key, which opens a "Summary of Less Commands", including all the keystrokes you need to navigate a man page

(c) Make sure you can quit this page (by typing `q`) and quit the man page (by typing `q` again). When you get back to the shell prompt, repeat the first 2 steps to open the "Summary of Less Commands" from the `man` man page.

(d) Use the "Summary of Less Commands" to make sure you know how to do the following bits of navigation inside a man page:

i. Move to the top and bottom of the man page
ii. Move up and down one screen of text
iii. Move up and down one line of text
iv. Search forward for a *pattern* (e.g. a word)
v. Search backwards for a *pattern*

   vi. Repeat a forward *pattern* search using one key
   vii. Repeat a backward *pattern* search using one key
   viii. Move to a specific line number

  (e) With a partner, test each other on how well you can navigate the `man` man page, e.g. set each other target locations or words to go to.

3. *Invoking the Right Man Pages*

  (a) Using the `man` man page, find the command string you need to use to get the following:
   i. A list of man pages whose description lines contain details about the 'whatis' database
   ii. A list of man pages containing the string 'cdrom' *
   iii. A list of man pages from a specific section (e.g. 1) of the manual, whose description lines contain 'print'

  (b) Practice using these flags to find and view man pages which deal with computer keywords your partner sets for you (and vice versa), e.g.
   i. bitmap formats like jpg, gif, xpm, bmp
   ii. communications concepts like modem, serial, telnet, pcmcia, ppp
   iii. filesystems like NFS, ext3, ext2, FAT, vfat, msdos, samba

4. *Finding Out About Your System and Users*

  (a) Type the following commands. Identify what each of them tells you about your system.
   i. `$ whoami`
   ii. `$ who am i`
   iii. `$ users`
   iv. `$ who`
   v. `$ w`
   vi. `$ date`
   vii. `$ cal 10 2003`
   viii. `$ cal 9 1752` †
   ix. `$ df`
   x. `$ which man`
   xi. `$ type man`
   xii. `$ whereis less`
   xiii. `$ help cd`
   xiv. `$ time sleep 2`

  (b) Use the appropriate man page, to check that you have interpreted the screen output correctly

5. *Creating New Files*

  (a) Try creating a new *empty* file in your home directory using the `touch` command, e.g.
  `$ touch` *filename*

  (b) Get the file details on *filename* using this command:
  `$ ls -l` *filename*

*Actually running this sort of search can take a long time, given that many systems contain over 10,000 man pages, some of which are very long.

†You should notice something very strange about the output from this string. The `cal` utility is perfectly functional, so what's wrong?

(c) Wait 1 minute, then repeat the previous two steps, i.e.

$ **touch** *filename*

$ **ls -l** *filename*

  i. Which of the file details have changed?

  ii. What does this tell you about the purpose of `touch`? Check the man page if you are unsure.

(d) Creating new files using re-direction

  i. Create a new file containing the output from the `df` command, using re-direction, e.g.
  $ **df > diskspace.txt**

  ii. Ask a partner to create new files, with appropriate filenames, containing output from the commands used in the questions on “Finding Out About Your System and Users”.

6. *Appending information to files*

(a) With a partner, choose several of the system information commands whose outputs may have changed since you completed the previous question. Practice appending the updated information to the file which contains the earlier output.

(b) Create a file containing output from `w`, then append the output from `date` to it, i.e. time-stamp the output data.

7. *Using Simple Pipes*

(a) Pipe the output from `who` through the `sort` command to reverse its order.

(b) Sort your `/etc/passwd` file alphabetically and send the output to a new file (`passwd.sorted`).

(c) Find out what `wc` does from its man page, then use it at the end of a pipe to analyse the output from other utlities.

(d) Repeat the last step, limiting `wc` to counting words only

