LPIC-1 101-400 – Lesson 2

103.2 Process text streams using filters

Concatenate files with `cat`

- **$ cat /etc/fstab** # show the contents of the **fstab** file

- **$ cat /etc/fstab /etc/mtab** # concatenate the output of **fstab** and **mtab** to stdout.

- **$ cat /etc/fstab /etc/mtab > /tmp/fsmtab** # concatenate **fstab** and **mtab** to one file (**fsmtab**)

Options:

- **-n** # number output lines

Number lines from a file with `nl`

- **$ nl /etc/bash.bashrc** # number all non empty lines in **bash.bashrc**

Options:

- **-b a** # number empty lines as well

- **-b n** # no numbering

Show/Concatenate files in reverse with `tac`

- **$ tac /etc/fstab** # show the content of **fstab** starting from the last line to the first

Remove section from lines with `cut`

- **$ cut -b10 /etc/fstab** # show the 10th byte from each line in **fstab**

- **$ cut -c10 /etc/fstab** # show the 10th character from each line in **fstab**

- **$ cut -d: -f1 /etc/passwd** # use ":" as a delimiter instead of the default **Tab** and show the first field

Convert Tabs to Spaces with `expand`

- **$ expand tabs.txt > spaces.txt** # convert tabs in file to 8 spaces

Options:

- **-t4** # convert tabs to 4 spaces
- **-i** # convert only the first tab in each line

Note: You can use the `view` command to compare the files. You can exit `view` with ':q'

Convert Spaces to Tabs with `unexpand`

- **$ unexpand spaces2.txt > tabs2.txt** # convert initial spaces in each line, to tabs

Options:

- **-a** # convert spaces anywhere in each line, to tabs

- **-t4** # set 4 spaces to be replaced by tab instead of the default 8

Format text with `fmt`

- **$ fmt unformatted.txt >** **formatted.txt**

Options:

- **-u** # use 1 space between words and 2 spaces between sentences

- **-w 50** # set line legth to 50 instead of the default 75

Show the beginning of a file with `head`

- **$ head /etc/passwd** # show the 10 first lines of the **passwd** file

Options:

- **-c 50** # show the first 50 characters
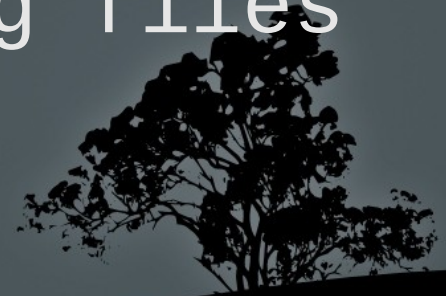
- **-n 20** # show the first 20 lines

Show the end of a file with `tail`

- **$ tail /var/log/syslog** # show the last 10 lines of **syslog**

Options:

- **-c 50** # show the last 50 characters

- **-n 20** # show the last 20 lines

- **-f** # monitor a file as it grows. Useful for watching log files

Join lines of two files with `join`

- **$ join colors.txt animals.txt** # the lines of the two files are joined, provided that the first column is the same in both files

Options:

- **-j 2** # use the second column as the common reference

Join two files with `paste`

- **$ paste colors.txt animals.txt** # the lines in the two files are joined with **'Tab'** as the delimeter.

Options:

- **-d**@ # use '@' as the delimiter

- **-s** # place the contents of each file on a different line

Show files in octal with `od`

- **$ od colors.txt** # show the **colors.txt** file in octal format of 2 bytes

Options:

- **-x** # show output in hexadecimal

- **-d** # show output in decimal

- **-a** # show characters

- **-c** # show characters and special characters

Prepare files for printing with `pr`

- **$ pr colors.txt | less** # Add header. Page numbers, margin and empty lines, ready for printing

Manipulate text with `sed`

- **$ sed -e "s/Red/Green/" rainbow.txt** # replace the first occurrence of "Red" with "Green", in a line, and display to stdout

- **$ sed -i -e "s/Red/Green/" rainbow.txt** # replace the first occurrence of "Red" with "Green" and write back to rainbow.txt

- **$ sed -e "s/Red/Green/g" rainbow.txt** # replace all occurrences of "Red" with "Green", in a line, and display to stdout

- **$ sed -e "s/Red//" rainbow.txt** # remove

Sort command output with `sort`

- **$ sort unsorted.txt** # alphabetic sorting of **unsorted.txt**

<u>Options:</u>

- **-f** # ignore upper or lower case

- **-n** # numeric sorting

- **-r** # reverse sorting

- **-t:** # use ":" as delimiter

- **-k6** # use the 6th column for sorting

- **-u** # suppress duplicate values

Split files with `split`

- **$ split -5 unsorted.txt** # split **unsorted.txt** in smaller files of 5 lines (instead of the default 1000)

Translate characters with `tr`

- **$ cat animals | tr a-z A-Z** # convert upper case to lower case

Special Characters:

- \\ → \ (backslash)

- \a → bell

- \b → backspace

- \f → form feed

- \n → newline

- \r → carriage return

- \t → horizontal tab

Translate characters with `tr`

- **$ tr '1-3' 'a-c' < colors.txt** # translate occurrences of 1,2,3 to a,b,c respectively

- **$ tr -d '1-3' < colors.txt** # delete occurrences of 1,2,3

Suppress duplicate records with `uniq`

- **$ sort multiples.txt | uniq** # sort names first, then delete double entries

Options:

- **-d** # display only repeated entries

- **-u** # display only unique entries
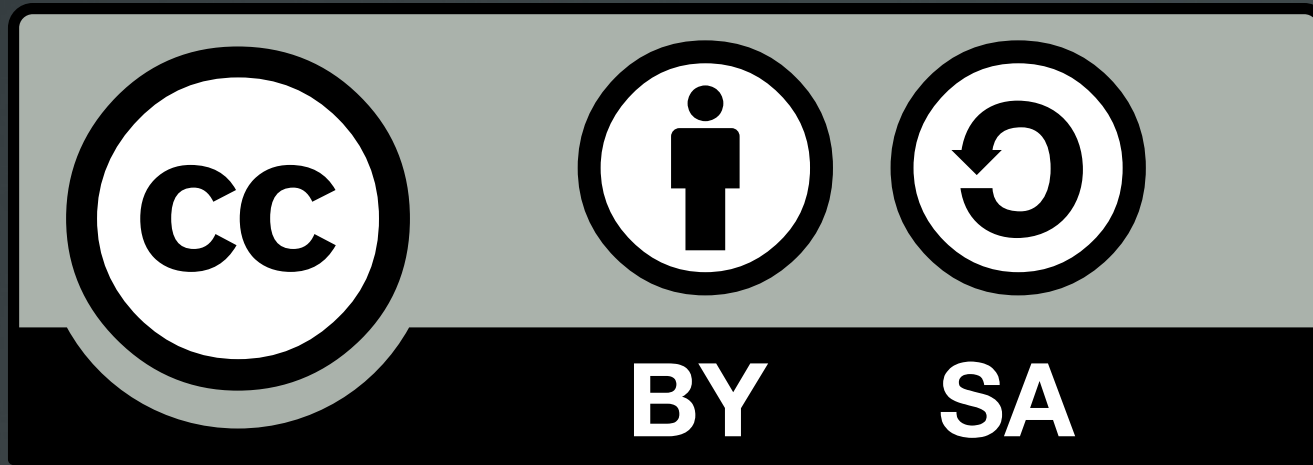
- **-c** # count each occurrence

Print newline, word, and byte counts with `wc`

- **$ wc unformatted.txt unsorted.txt** # show the count of characters, words and lines for each file and their sum total

Options:

- **-c** # display character count only

- **-w** # display word count only

- **-l** # display line count only

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