Notes 7

cat

- Used for reading, concating, and writing file contents. It often employed to display a file's content, combine multiple files, or create new files.

Usage/Formula

- cat [option][file...]
    - Options:
    - -n: numbers each output line
    - -E: displays $ at the end of each line
    - > : redirects output to a new file

Examples

- Displays a file's content
    - cat file.txt
- Concatenate multiple files
    - cat file1.txt file2.txt > combined.txt
- Create a new file and input text
    - cat > newfile.txt Hello, World! Ctrl+D

tac

- The reverse of the cat command. It displays the content of a file in a reverse order, meaning the last line appears first.

Usage/Formula

- tac [option][file...]
    - Options:
    - -s: uses a specified separator instead of newline
    - -r: treats the separator as a regular expression

Example:

- Reverse the contents of a file
    - tac file.txt
- Reverse multiple files
    - tac file1.txt file2.txt > reversed.txt
- Revese using a custom separator
    - tac -s "." file.txt

head

- Display the first lines of a file. By default, it shoes the first 10 lines, but this can be adjusted using options.

Usage/Formula

- head [option][file...] * Options:
    - -n[number]: specifies the number of lines to disply
    - -c[number]: shows the first specified number of bytes instead of lines
    - -q: hides headers when working with multiple files

    #### Examples:

    - Displays the first 10 lines of a file
        - head file.txt
    - Show the first 5 lines of a file
        - head -n 5 file.txt
    - Displays the first 100 bytes of a file
        - head -c 100 file.txt

tail

- Display the last few lines of a file. By default, it shows the last 10 lines, but this can be adjusted using options.

Usage/Formula

- tail [option][file]
    - Options:
    - -n [number]: specifies the number of lines to display.
    - -c[number]: shows the last specified number of bytes instead of lines.
    - -f: continuously dosplays new lines added to a file

Example:

- Displays the last 10 lines of a file
    - tail file.txt
- show the last 5 lines of a file
    - tail -n 5 file.txt
- Continuously monitor a log file
    - tail -f /var/log/syslog

cut

- Used to extract specific sections of a file, typically by selecting portions of each line based on delimiters or character positions.

Usage/Formula

- cut [options][file...]

    - Options:
    - -c [range]: selects specific character positions
    - -d[delimiter]: defines a delimiter for sepearating fields
    - -f[fields]: chooses specific fields from a file using the specified delimiter

Examples:

- Extract the first 5 characters from each line
    - cut -c 1-5 file.txt
- Extract the second column from a CSV file
    - cut -d "," -f 2 data.csv
- Extract multiple fields
    - cut -d ":" -f 1.3 /etc/passwd

sort

- used to arrange lines in a file alphabetically or numerically. It can also sort by specific fields and reverse the order.

Usafe/Formula

- sort [options][file]
    - Options:
    - -r: revereses the sorting order
    - -n: sorts numerically instead of alphabetically
    - -k: sorts by a specific field in each line

Example

- Sort a file alphabetically
    - sort file.txt
- Sort numbers in acending order
    - sort -n numbers.txt
- Sort a CSV file by the second column
    - sort -t "," -k 2 data.csv

wc

- Used to count the number of lines, words, and characters in a file. It's a useful tool for quickly analyzing file contents

Usage/Formula

- wc [options][file]
    - Options:
    - -l: counts only the number of lines
    - -w: counts only the number of words
    - -c: counts only the number of bytes/characters

Examples:

- Count lines, words, and characters in a file
    - wc file.txt
- Count only words in a file
    - wc -w file.txt
- Count lines in multiple files
    - wc -l file1.txt file2.txt

tr

- Translating or deleting characters from input text. It's commonly used to convers case, remove unwanted characters, and replace specific characteres.

Usage/Formulas

- tr [options][set1][set2]
    - Options:
    - -d: deletes specified characters
    - -s: replaces consecutive occurances of a character with a single instance
    - -c: complements the specified set of characters

Examples

- Converts lowercase to uppercase
    - echo "hello world" | tr 'a-z' 'A-Z'
- Remove digits from a string
    - echo "data123info456" | tr -d '0-9'
- Replace multiple spaces with a single space
    - echo "This is a test" | tr -s ' '

diff

- Used to compare the contents of two files line by line. It helps identify differences and is often used for version control or file updates

Usage/Formula

- diff [options] file1 file2
    - Options:
    - -u: displays differences in a unified format, useful for patches
    - -c: Shows differneces in a context format, displayinig surrounding lines
    - -i: ignores case differences
    - -w: ignores differences in spaces and tabs

Examples

- Compare two text files
    - diff file1.txt file2.txt

- View differences in a unified format
    - diff -u old_version.txt new_version.txt
- ignore spaces while comparing files
    - diff -w config1.txt congif2.txt

grep

- Used to search for specific patterns in a file or stream of text. It filters lines based on matching kwywords or regular expressions.

usage/Formula

- grep [options] "pattern" [file]
    - Options:
    - -i: ignores case sensitivity
    - -v: shows lines that do not match the pattern
    - -n: displays line numbers with matching results
    - -E: enablesextended regular expressions

Examples

- Search for a word in a file
    - grep "error" logfile.txt
- Case-insensitive search
    - grep -i "hello" file.txt
- Find lines that do NOT match a pattern
    - grep -v "warning" system.log