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Week Report 7

cat command

Description:

- The cat command is used for displaying the content of a file.

Formula:

- cat + option + file(s) to display

Examples:

- Display the content of a file located in the pwd
  - `cat todo.lst`
- Display the content of a file located in the pwd
  - `cat ~/Documents/todo.lst`

tac command

Description:

- The command is used for displaying the content of a file in reverse order.

Formula:

- tac + option + file(s) to display

Examples:

- Display the content of a file located in the pwd
  - `tac todo.md`
- Display the content of file using absolute path
  - `tac ~/Documents/todo.md`

head command

Description:

- The head command is used to show the top N number of lines of a given file. By default, it prints the first ten lines. If more than one file name is provided then data from each file is preceded by its file name.

Formula:

- head + option + file(s)

Examples:

- Display the first 10 lines of a file
  - `head ~/Documents/Books/dracula.txt`
- Display the first 5 lines of a file
  - `head -5 ~/Documents/Books/dracula.txt`

tail command

Description:

- The tail command displays the last N number of lines of a given file. By default, it prints the last 10 lines. If more than one file name is provided then data from each file is preceded by its file name.

Formula:

- tail + option + file

Examples:

- Display the last 10 lines of a file
  - `tail ~/Documents/Book/dracula.txt`
- Display the last 5 lines of a file
  - `tail -5 ~/Documents/Book/dracula.txt`

cut command

Description:

- The cut command is used to extract a specific section of each line of a file and display it to the screen.

Formula:

- cut + option + file(s)

Examples:

- Display a list of all the users in your system
  - `cut -d ':' -f1 /etc/passwd`
- Display a list of all the users in your system with their login shell
  - `cut -d ':' -f1,7 /etc/passwd`

paste command

Description:

- The paste command is used for joining files horizontally in columns.

Formula:

- paste + option + files

Examples:

- Merge two files
  - `paste users.lst ip_address.lst`
- Merge two files using a different delimiter
  - `paste -d ":" users1.lst ip_addresses.lst`

sort command

Description:

- The sort command is used for sorting files. The sort command supports sorting: alphabetically, in reverse order, by number, and by month.

Formula:`

Examples:

- Sort a file
  - `sort users.lst`
- Sort a file and save the output to a new file
  - `sort -o sorted.lst users.lst`

wc command

Description:

- The wc command is used for printing the number of lines, characters and bytes in a file.

Formula:

- wc + option + file(s)

Examples:

- Display the number of characters in a file
  - `wc -m users.txt`
- Display the number of lines in a file
  - `wc -l users.txt`

tr command

Description:

- The tr command is used for translating or deleting characters from standard output.

Formula:

- standard output | tr + option + set + set

Examples:

- Translate one character to another (For example a period with a comma).

    - `cat file.txt | tr '.' ','`
- Translate white space into tabs.
    - `cat program.py | tr "[:space:]" '/t'`

diff command

Description:

- The diff command compares files and displays the differences between them.

Formula:

- diff + option + file1 + file2

Examples:

- Display the difference between two files
    - `diff cars.csv cars-backup.csv`
- Display the difference between two files in a column format :
    - `diff -y cars.csv cars-backup.csv`

grep command

Description:

- Grep is used to search text in given file. Grep works line by line basis (it matches the search criteria in a line by line basis).

Formula:

- grep + option + search criteria + file(s)

Examples:

- Search any line that contains the word "dracula" in the given file:
    - `grep 'dracula' ~/Documents/dracula.txt`
- Search any line that contains the word 'dracula' regardless of the case
    - `grep -i 'dracula' ~/Documents/Books/dracula.txt`

awk command

Description:

- Awk is a scripting language used for processing and displaying text. Awk can work with a text file or from standard output. Awk performs operations line by line.

Formula:

- awk + options + {awk command} + file + file to save (optional)

Examples:

- Print the first column of every line of a file

    - `awk '{print $1}' ~/Documents/Csv/cars.cvs`
- Print the first field of /etc/passwd file
    - `awk -F: '{print $1}' /etc/passwd`
- Print the last field of the /etc/passwd file
    - `awk -F: '{print $NF}' /etc/passwd`
- Print the first and last field of the /etc/passwd file
    - `awk -F: '{print $1," = ",$NF}' /etc/passwd`
- Print the first and 4th field with a different field separator
    - `awk -F: '{OFS="="}{print $1,$4}' /etc/passwd`

sed command

Description:

- SED is a stream editor that performs operations on files and standard output. For instance it can search, find and replace, insert, and deletion.

Formula:

- sed options + sed script + file

Examples:

- Replacing the number of occurrences of a pattern in a file
    - `sed 's/pizza/rice/4' shopping-list.lst`
- Replacing all the occurrence of the pattern in a file
    - `sed 's/pizza/rice/g' shopping-list.lst`
- Replacing from the given number occurrence to the rest occurrences in a file. Start at the second time the word appears and continue to till the end of the file.
    - `sed 's/pizza/rice/3g' shopping-list.lst`
- Replacing string on a specific line number
    - `sed '3 s/pizza/rice/' shopping-list.lst`
- Replacing string on a range of lines
    - `sed '1,3 s/pizza/rice/' shopping-list.lst`

Standard file descriptors

Description:

- File descriptors are positive integers used for identifying open files in a given session. Each process is allowed 9 file descriptors at a time. Bash reserves the first 3 file descriptors (0-2).

Formula:

- Command output + > + file

Examples:

- Save the output of a command to file
    - `ls -lA ~ > all-files-in-home.txt`
- Save the error generated by a command to a file

    - `ls -lA downloads/ 2> error-of-ls`

pipe

Description:

- The pipe allows you to redirect the standard output of a command to the standard input of another.
  Formula:
- command_1 | command_2 | command_3 | .... | command_N

Examples:

- Use grep to look for a string in a particular man page
    - `man ls | grep "human-readable"`
- Display only the 2nd line in a file
    - `head -2 file.lst | tail -1`

alias command

Description:

- An alias is a shorthand for a more complicated command. Alias do not persist unless you save them in your .bashrc or .bash_aliases file

Formula:

- alias name_of_alias="command here"

Examples:

- An alias to upgrade a linux (debian system):
    - `alias update="sudo apt update; sudo apt upgrade -y; sudo apt full-upgrade -y"`
- An alias to clean your system from unneeded packages
    - `alias clean="sudo apt autoremove -y; sudo apt autoclean; sudo apt purge;"`