

# Question 1

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## Awk

- Description: scripting language used for processing and displaying text.
- Formula/Syntax: awk + options + {awk command} + file + file to save (optional)
- 3 Examples:
  - awk '{print \$1}' ~/Documents/Csv/cars.csv
  - awk '{print \$1," = ". \$NF}' /etc/passwd
  - awk 'NR > 3 { print }' /etc/passwd

## Cat

- Description: used for seeing the content of a file. Also used for concatenating.
- Formula/Syntax: cat + option + file(s) to display.
- 3 Examples:
  - cat ~/Documents/todo.lst
  - cat -n ~/Documents/todo.md
  - cat -s ~/Documents/todo.md

## Cp

- Description: copy files and directories (use -r to copy directories)
- Formula/Syntax: cp + files to copy + destination
- 3 Examples:
  - cp Downloads/wallpapers.zip Pictures/
  - cp -r ~/Downloads/wallpapers ~/Pictures/
  - sudo cp -r script.sh program.py home.html assets/ /var/www/html/

## Cut

- Description: used to extract a specific section of each line of a file and display it to the screen.
- Formula/Syntax: cut + option + file(s)
- 3 Examples:
  - cut -d ':' -f1 /etc/passwd
  - cut -d ':' -f1,6 /etc/passwd
  - cut -d ':' -f1,7 /etc/passwd

## Grep

- Description: used to search text in a given file. Works on a line by line basis.
- Formula/Syntax: grep + option + search criteria + file(s)
- 3 Examples:
  - grep -v 'war' ~/Documents/Books/war-and-peach.txt
  - grep -o 'pride' ~/Documents/Books/war-and-peace.txt
  - grep -n '^[A-Z]' ~/Documents/Books/war-and-peace.txt

## Head

- Description: displays the top N number of lines of a given file.
- Formula/Syntax: head + option + file(s)
- 3 Examples:
  - head ~/Documents/Book/dracula.txt
  - head -5 ~/Documents/Book/dracula.txt
  - head -1 ~/Documents/Book/dracula.txt

## Ls

- Description: used for displaying all the files inside a given directory.
- Formula/Syntax: ls + option + directory to list
- 3 Examples:
  - ls -t ~/Documents
  - ls -lR ~/Pictures
  - ls -x ~/Documents

## Man

- Description: an interface to the system reference manuals.
- Formula/Syntax: man + command
- 3 Examples:
  - man + head
  - man + ls
  - man + rm

## Mkdir

- Description: used for creating a single directory or multiple directories.
- Formula/Syntax: mkdir + the name of the directory.
- 3 Examples:
  - mkdir wallpapers/'cities usa'
  - mkdir wallpapers/cars wallpapers/cities wallpapers/forest
  - mkdir -p wallpapers\_others/movies

## Mv

- Description: moves and renames directories.
- Formula/Syntax: mv + source + destination or mv + file/directory to rename + new name
- 3 Examples:
  - mv Downloads/homework.pdf Documents/
  - mv Downloads/english\_homework.docx /media/student/flashdrive/
  - mv games/ wallpapers/ rockmusic/ /media/student/flashdrive/

## Tac

- Description: concatenate and print files in reverse.
- Formula/Syntax: tac + option + file

- 3 Examples:
  - tac todo.md
  - tac ~/Documents/todo.md
  - tac ~/Downloads/shopping.md

## Tail

- Description: displays the last N number of lines of a given file.
- Formula/Syntax: tail + option + file
- 3 Examples:
  - tail ~/Documents/Book/dracula.txt
  - tail -5 ~/Documents/Book/dracula.txt
  - tail -1 ~/Documents/Book/dracula.txt

## Touch

- Description: used to create files or update files.
- Formula/Syntax: touch + name of file
- 3 Examples:
  - touch ~/Downloads/games.txt
  - touch list\_of\_cars.txt script.py names.csv
  - touch "list of foods.txt"

## Tr

- Description: used for translating or deleting characters from standard output.
- Formula/Syntax: Standard output | tr + option + set + set
- 3 Examples:
  - cat file.txt | tr '!' ''
  - cat program.py | tr "[space]" "\t"
  - cat file.py | tr -s "[space]" ''

## Tree

- Description: list contents of directories in a tree-like format
- Formula/Syntax: tree + option + name of directory
- 3 Examples:
  - tree ~/Downloads/
  - tree -p ~/Downloads/
  - tree -s ~/Downloads/

## Question 2

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### How to work with multiple terminals open?

- Using the command, screen: which is installed using 'sudo apt install screen'
  - Split vertically: ctrl + a then |
  - Split horizontally: ctrl + a then 'uppercase 'S'

- Switch between terminals: ctrl + a then tab

## How to work manual pages?

- man + command to see the man page you want to see. You can then navigate using the up and down key. Press Q to exit the man page.
  - Can use grep to look for certain keywords.

## How to parse (search) for specific words in the manual page?

- After accessing the man page; you can use / followed by the word you are looking for.

## How to redirect output (> and |)

- command output + > + file
  - Examples:
  - Save the output of a command to a 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.txt
  - Save the error and success to the same file.
    - ls -lA downloads/ Pictures &> alloutput.txt
- command\_1 | command\_2 | command\_3 | .... | command\_N
  - Examples:
    - man ls | grep "human-readable"
    - head -2 file.lst | tail -1

## How to append the output of a command to a file

- Used to overwrite any data inside the file.
  - ls -la > allmyfiles.lst
- TO keep the old data inside the file use >>.
  - ls -la >> allmyfiles.lst

## How to use wildcards

- For copying and moving multiple files at the same time.
  - mv \*.txt ~/Downloads/

## How to use brace expansion

- For creating entire directory structures in a single command
  - mkdir -p music/{jazz,rock}/{mp3files,videos,oggfiles}/new{1..3}