Question 1

awk

- Description
    - Awk is scripting language used for processing and displaying text. AWK can work with a text file or from standard output.
- Formula:
    - awk + option {awk command} + file
    - Command output | awk + options +{awk command}
    - Examples:
        - How to print the first field of a file:
            - awk -F':' '{print$1}' /etc/passwd
        - How to start printing from a different line
            - awk 'NR > 3 {print}' /etc/passwd
        - How to change a field to upper case:
            - awk -F '{print toupper($1)}'

cat

- Description:
    - Used for seeing the content of a file. Also used for concatenating files.
- Formula/Syntax:
    - cat + option + file or files to view/concatenate
- Examples
    - How to see the content of a file:
        - cat /etc/passwd
    - How to see the content of a file with line numbers:
        - cat -n /etc/passwd
    - How to see the content of a file with ending line character
        - cat -E /etc/passwd
        - Command Output:

cp

- Description:
    - Copies files/directories from a source to a destination
- Formula/Syntax:
    - cp + files to copy + destination
    - cp -r +directory to copy + destination
- Examples:
    - To copy a file
        - cp Downloads/wallpapers.zip Pictures/
    - To copy a directory with absolute path
        - cp -r ~/Downloads/wallpapers ~/Pictures/
    - To copy multiple files in a single command

        - 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 + Files(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
    - Cut a file excluding a given field
        - cut -d ',' --complement -s -f3 users.txt

grep

- Description:
    - Used to search text in given file. Works line by line
- Formula/Syntax:
    - grep + option + search criteria + files(s)
- Examples
    - Search any line that contains the word "dracula" in a given file:
        - grep 'dracula' ~/Document/dracula.txt
    - Search any line that contains the work "dracula" regardless of case and with number line
        - grep -in 'dracula' ~/Documents/Books/dracula.txt
    - Search and match only the work
        - grep -o 'dracula' ~/Documents/Books/dracula.txt

head

- Description:
    - Displays the top N number of lines of a given file. By default it's 10 lines.
- Formula/Syntax:
    - head + option + files(s)
- Examples:
    - Display the first 10 lines of a file:
        - head ~/Documents/Book/dracula.txt
    - Display the first 5 lines of a file
        - head -5 ~/Documents/Book/dracula.txt
    - Display the first 30 lines of a file
        - head -30 ~/Documents/Book/dracula.txt

ls

- Description:
    - Used for listing the content of a given directory or the file/directory itself

- Formula/Syntax:
  - ls + option directory to lis
- Examples:
  - List the content of the present working directory
    - ls
  - List all the flies inside a given directory
    - ls -a ~/Pictures
  - long list all the files inside a given directory recursively
    - ls -lR ~/Pictures

Man

- Description:
  - Pages of documentation files that describe Linux shell commands, executable programs, system calls, special files, and so forth.
- Formula/Syntax:
  - man + command
- Examples:
  - Show all the available pages of a command
    - man -a passwd
  - open the man page of the passwd command
    - man passwd
  - Show the man page section of the passwd command
    - man -f passwd

mkdir

- Description:
  - used for creating a single directory or multiple directories
- Formula/Syntax:
  - mkdir + name of directory
- Examples:
  - Create a directory in the present working directory:
    - mkdir wallpapers
  - create multiple directories:
    - mkdir wallpapers/cars wallpapers/cites wallpapers/forest
  - create a directory with a parent directory at the same time
    - mkdir -p wallpapers_others/movies

mv

- Description:
  - moves and renames directories
- Formula/Syntax:
  - mv + source + destination
- Examples:
  - To move a file from a directory to another using relative path:
    - mv Downloads/homework.pd Document/

  - To move multiple directories/files to a different directory
    - mv games/ wallpapers/ rockmusic/ media/student/flashdrive/
  - To rename a file
    - mv homework.docx cis106homework.docx

tac

- Description:
  - Used for displaying the content of a file in reverse order
- Formula/Syntax:
  - tac + option + files(s) to display
- Examples:
  - Display the content of a file located in the pwd
    - tac todo.md
  - Display the content of a file using absolute path
    - tac ~/Documents/todo.md
  - Display the content a file in reverse order
    - tac /etc/passwd

tail

- Description:
  - Displays the last N number of lines of a given file. By default it's 10.
- Formula/Syntax:
  - tail + option + file
- Examples:
  - Display the last 10 lines of a file
    - tail ~/Documents/Books/dracula.txt
  - Display the last 5 lines of a file
    - tail -5 ~/Documents/Books/dracula.txt
  - Display the last 20 lines of a file
    - tail -20 ~/Documents/Books/dracula.txt

touch

- Description:
  - Used for creating files
- Formula/Syntax:
  - touch + file name
- ExamplesL
  - Create a file named list:
    - touch list
  - Create a file using absolute path:
    - touch ~/Downloads/games.txt
  - Create serval files
    - touch list_of_cars.txt script.py names.csv

tr

- Description:
  - Used for translating or deleing characters from standard output.
- Formula/Syntax:
  - standard output | tr + option + set + set
- Examples:
  - Translate white space into tabs
    - cat program.py | tr "[:space:]" '\t'
  - Translate one character to another (period to comma)
    - cat file.txt | tr '.' ','
  - Translate tabs into space
    - cat file.py | tr -s "[:space:]" ' '

tree

- Description:
  - a recursive directory listing program that produces a depth-indented listing of files
- Formula/Syntax:
  - tree + directory
- Examples:
  - Tree list current directory
    - tree
  - Tree list a directory
    - tree Downloads/
  - Tree list using absolute path
    - tree ~/Documents/

vim/nano

- Description: e
  - a text editor
- Formula/Syntax:
  - nano + filename
  - vim + filename
- Examples
  - Enter nano
    - nano
  - Enter vim
    - vim

Question 2

- How to work with multiple terminals open
  - Right click anywhere in the terminal(blank area) click new window
- how to work is manual pages
  - use the man command followed by the command you want to use
- how to parse(search) for specific words in the manual page
  - use the grep command to filter specific words.
- How to redirect output (> and |)

    - The > command saves the output to a file name while the | applies the output to the next command.
- How to append the output of a command to a file
    - use the > command with a file name
- How to use wildcards
    - Wildcards use letters and characters to specify a file name for searches.
    - ls -A *.txt *.py
- How to use brace expansion
    - mkdir -r /challenge-Lab6/{audio/docs/images}