Final Exam Study Assignment

Question 1

awk is a scripting language use for processing and displaying text. Awk can work with a text file or from standard output **Usage** awk + options + {awk command} + file + file to save (optional) **Examples** Print first and last field of /etc/passwd file awk -F: '{print $1," = ",$NF}' /etc/passwd Print the first and 3 field with line numbers awk -F: '{print NR,$1,$3}' /etc/passwd Convert the first field to upper/lower case awk -F: 'print toupper($1)}' /etc/passwd

cat is used for displaying the content of a file. **Usage** cat + option + files(s) to display **Examples** Display content of a file using absolute path cat ~/Documents/todo.lst Display content of a file with line numbers cat -n ~/Documents/todo.lst Display content of a file with line numbers excluding empty lines cat -b ~/Documents/todo.lst

cp is a command that copies directories from a source to a destination. **Usage** cp + files to copy + destination **Examples** To copy a file cp Downloads/wallpapers.zip Picture/ 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 is used to extract a specific section of each line of a file and display it to the screen. **Usage** cut + option + file(s) **Examples** Display a list of all the users in the system with their login shell cut -d ':' -f1,7 /etc/passwd Cut a file excluding a given field cut -d ',' --complement -s -sf3 users.txt Display a list of all the users in your system cut -d ':' -f1 /etc/passwd

grep is used to search text in a given file. Grep works on a line by line basis. **Usage** grep + option + search criteria + file(s) **Example** Search any line that contains the word 'dracula' regardless of the case in the given file: grep -i 'dracula' ~/Documents/dracula.txt Search for all the lines that do not contain the word 'war' grep -v 'war' ~/Documents/Books/war-and-peace.txt Search for all the lines that ends with the string "nologin"

head is used to display the top N number of lines of a given file. By default, it prints the first 10 lines. **Usage** head + option + file(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 20 lines of a file head -20 ~/Documents/Book/dracula.txt

ls is used for displaying all the files inside a given directory. **Usage** ls + option + directory to list List all the files in a given directory by file size ls -S ~/Documents List all the files in a given directory by extension ls -X ~/Documents List all the files in a given directory in reverse order ls -r ~/Documents

man are documentation files that describe Linux shell commands, executable programs, system calls, special files, and so forth. **Usage** man + option **Examples** View the entire manual man ls Open the man page of the passwd command man passwd Show all the available pages of a command man -a passwd

mkdir is used for creating a single directory or multiple directories **Usage** mkdir + the name of the directory **Examples** Create a directory using absolute path mkdir ~/wallpapers/forest Create multiple directories mkdir wallpapers/cars wallpapers/cities wallpapers/forest Create a directory with a parent directory at the same time mkdir -p wallpapers_others/movies

mv moves and renames directories **Usage** mv + source + destination **Examples** move a file from a directory using relative path mv Downloads/homework.pdf Documents/ move a file using absolute path mv ~/Downloads/theme /usr/share/themes move multiple directories mv games/ wallpapers/ rockmusic/ /media/student/flashdrive/

tac is used for displaying the content of a file in reverse order. **usage** tac + option + file(s) to display **Examples** Display the content of a file using absolute path tac ~/Documents/todo.md Display the content of a file located in pwd tac todo.md

tail is used to display the last N number of lines of a given file. By default it prints the last 10 lines. **Usage** tail + option + file **Examples** Display te 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

touch is used for creating files **Usage** touch + destination + file name **Examples** To create multiple files in pwd touch list.txt script.py names.csv To create a file using absolute path touch ~/Downloads/games.txt To create a file with a space in its name touch "list of foods.txt"

tr is used for translating or deleting characters from standard output **Usage** standard output | tr + option + set + set **Examples** translate one character to another like a period to a comma cat file.txt | tr '.' ',' translate white space into tabs cat program.py | tr "[:space:] '\t' translate tabs into space cat file.py | tr -s "[:space:]" ' '

tree lists the files in the cwd showing a diagram **Usage** tree + location **Examples** Show a tree of your class directory tree ~/Documents/CIS106 Show a tree of your home directory tree ~/ Show a tree of the games folder tree ~/Downloads/Games

vim is a line text edior is included all POSIX compliant operating systems **Usage** vim

Question 2

How do you work with multiple terminals open? right click inside the terminal and click on new window

How to work with manual pages? type man in the terminal and a specific command like man pwd to quit the manual press q

How to parse (search) for specific words in the manual page? man ls | grep 'group' while open the manual for the ls command and search for lines with the word group

How to redirect output (> and |)? The > command allows you to direct the output of a command to a file and the |(pipe) allows you to redirect the standard output of a command to the standard input of another.

How to append the output of a command to a file? **Examples** Save the output of a command to a file. ls -lA ~ > all-files-inhome.txt Save the error generated by a command to a file ls -lA downloads/ 2> error-of-ls Save the error and success to the same file ls -lA downloads/ Pictures &> alloutput.txt

How to use wildcards? **Wildcards**

1. (*) The star matches anything and nothing and matches any number of characters. Example: mv *.py ~/Documents/Pythonfiles
2. (?) The question mark matches precisely one character Example ls f??e.*
3. ([]) the brackets wildcard match a single character in range Example ls f[aeiou]*

How to use brace expansion? Brace expansion {} is not a vildcard but another feature of bash that allows you to generate arbitrary strings to use with commands **Examples** To create a whole directory structure in a single command mkdir -p music/{jazz,rock}/{mp3files,videos,oggfiles}/new{1,2,3}