50 Most Popular Linux and Terminal Commands

Command	Explanation
whoami	Get the active username
man	Access manual pages for all Linux commands
Clear (Shortcut - ctrl L)	Clear the terminal display
Clear - X	Clear the terminal display, with option to scroll back to your history
Pwd	Print working directory command in Linux (Tells you the current location)
ls	used to list directories
cd	Linux command to navigate through directories
mkdir	Command used to create directories in Linux
touch	Create blank/empty files
rmdir	Deletes empty files and directories
rm	Delete files or directories
open	Lets you open a file
mv	Move or rename files in Linux
cp	Similar usage as mv but for copying files in Linux
head	Return the specified number of lines from the top
tail	Return the specified number of lines from the bottom
date	Displays current date and time on the terminal
>	redirecting standard output
cat	Display file contents on the terminal
less	Linux command to display paged outputs in the terminal
echo	Print any text that follows the command
wc	Used to find out number of lines, word count, byte and characters count in the files specified in the file arguments.
piping	a form of redirection that is used to send the output of one command/program/process to another command/program/process for further processing.
sort	used to sort a file, arranging the records in a particular order
uniq	Sorts lines of text, can count and print the number of repeated lines. (or omit repeated lines)
expansions	uses some notations to write a short command that will be expanded into something complex before being executed. E.g. Pathname Expansion(`ls [[:upper:]]*`), Arithmetic Expansion(`$((expression))`), Brace

	Expansion(`{start..end}`), Parameter Expansion(`echo $SHELL`), echo expansiom (`echo ${!S*}`) Tilde Expansion (cd ~)
diff	Find the difference between two files
find	Finds folders matching a particular search pattern. It searches recursively.
grep	Search for a string within an output
du	Disk usage, finds the sizes of files and directories in our machines
df	Display disk filesystem information
history	used to view the previously executed commands.
ps	Display active processes
top	View active processes live with their system usage
kill	Kill active processes by process ID or name
killall	Kill active processes by process ID or name
jobs, bg, and fg	Lists the jobs running in the background, giving the job number. The fg command switches a job running in the background into the foreground. The bg command restarts a suspended job, and runs it in the background. If no job number is specified, then the fg or bg command acts upon the currently running job.
gzip	Zip files in Linux
gunzip	Unzip files in Linux
tar	Command to extract and compress files in Linux
nano	line text editor on the terminal
# Defines notes when in nano mode	
alias	Create custom shortcuts for your regularly used commands
xargs	Converts input from standard iput into arguments to a command (the output of a command is used as the input of another command)
ln	Create symbolic links (shortcuts) to other files
who	displays a list of users who are currently logged into the computer
su	Allows you to switch users
sudo	Command to escalate privileges in Linux
passwd	Create or update passwords for existing users
chown	Command for granting ownership of files or folders
chmod	Command to change file permissions

Examples:

whoami

```
tlhokomelo@DESKTOP-PI2VM19: ~
tlhokomelo@DESKTOP-PI2VM19:~$ whoami
tlhokomelo
tlhokomelo@DESKTOP-PI2VM19:~$
```

man (type q to exit)

```
tlhokomelo@DESKTOP-PI2VM19:~$ man whoami
tlhokomelo@DESKTOP-PI2VM19:~$
```

```
tlhokomelo@DESKTOP-PI2VM19: ~
WHOAMI(1)                                        User Commands                                        WHOAMI(1)

NAME
       whoami - print effective userid

SYNOPSIS
       whoami [OPTION]...

DESCRIPTION
       Print the user name associated with the current effective user ID.  Same as id -un.

       --help display this help and exit

       --version
              output version information and exit

AUTHOR
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REPORTING BUGS
       GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
       Report any translation bugs to <https://translationproject.org/team/>

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SEE ALSO
       Full documentation <https://www.gnu.org/software/coreutils/whoami>
       or available locally via: info '(coreutils) whoami invocation'

GNU coreutils 8.32                               February 2022                                        WHOAMI(1)
~
~
~
~
~
~
~
~
~
~
```

pwd

```
tlhokomelo@DESKTOP-PI2VM19: ~
tlhokomelo@DESKTOP-PI2VM19:~$ pwd
/home/tlhokomelo
```

Ls

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Documents$ winhome
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ ls
'3D Objects'          IntelGraphicsProfiles            'New Folder'       Templates                edb_psqlodbc.exe-20221012160326
AppData              'Into to Pro'                     OneDrive           Videos                   getting-started
AppMods              Links                             Pictures           _netrc                   github
'Application Data'   'Local Settings'                  Postman            discoclient.properties   ntuser.dat.LOG1
Contacts             Music                             PrintHood          edb_languagepack.exe     ntuser.dat.LOG2
Cookies              'My Documents'                    Recent             edb_languagepack_2.exe   ntuser.ini
Desktop              NTUSER.DAT                        'Recorded Calls'   edb_npgsql.exe           package-lock.json
Documents            NTUSER.DAT{3f800726-fd3d-11eb-b864-6018954b349b}.TM.blf       'Saved Games'   edb_pgagent_pg14.exe     postgis_3_2_pg14.exe
Downloads            NTUSER.DAT{3f800726-fd3d-11eb-b864-6018954b349b}.TMContainer00000000000000000001.regtrans-ms   Searches   edb_pgbouncer.exe   postgresql_14.exe
Favorites            NTUSER.DAT{3f800726-fd3d-11eb-b864-6018954b349b}.TMContainer00000000000000000002.regtrans-ms   SendTo     edb_pgjdbc.exe      source
Git-Practice         NetHood                           'Start Menu'       edb_psqlodbc.exe
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$
```

Cd

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ cd Desktop
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ ls
Doc2.docx              'Docker Desktop.lnk'   Friday            'GitHub Desktop.lnk'  'Microsoft Edge.lnk'   NEO       Postman.lnk        'Visual Studio Code.lnk'  'new 1.txt'
'Docker Desktop.docx'  'Docker Desktop.pdf'   'Git Practice 2'  Hello                 MongoDBCompass.lnk    'Part 2'  SceneBuilder.lnk   desktop.ini               test.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ cd Friday
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Friday$ ls
learning_forking
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Friday$
```

Backing out (cd ..   takes you one folder back)

Or cd ../../.. (takes you back multiple folders back

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Friday$ cd ..
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$
```
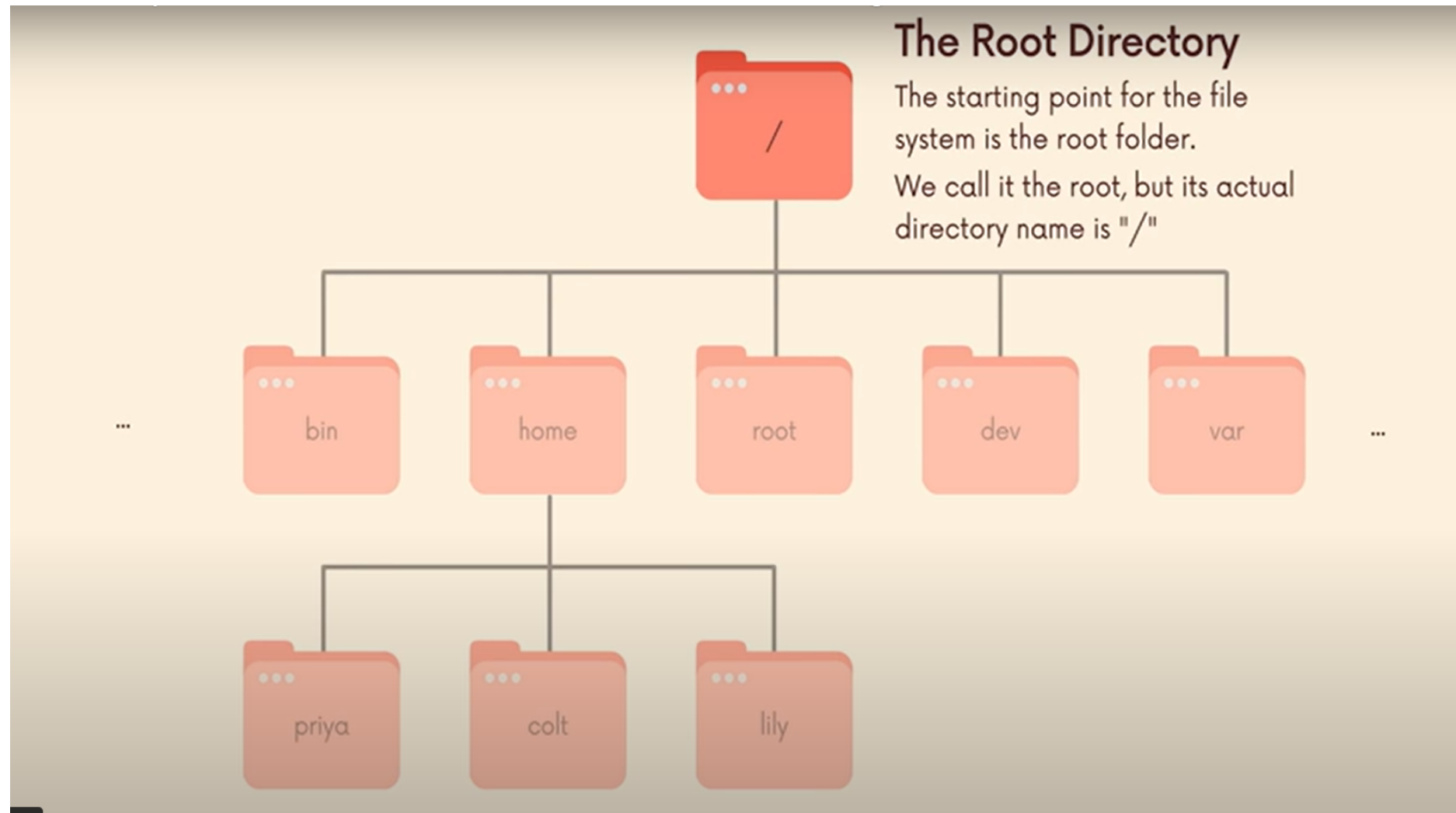
Cd to a folder outside of your current folder using a path

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ cd /mnt/c/users/thlok/Documents/
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/users/thlok/Documents$
```

Cd ~ (Takes you to your home directory – your usernames directory)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/users/thlok/Documents$ cd ~
tlhokomelo@DESKTOP-PI2VM19:~$ ls
tlhokomelo@DESKTOP-PI2VM19:~$ ls -la
total 8
drwxr-x--- 1 tlhokomelo tlhokomelo  512 Nov  5 20:25 .
drwxr-xr-x 1 root       root        512 Nov  2 12:55 ..
-rw------- 1 tlhokomelo tlhokomelo  356 Nov  5 20:47 .bash_history
-rw-r--r-- 1 tlhokomelo tlhokomelo  220 Nov  2 12:55 .bash_logout
-rw-r--r-- 1 tlhokomelo tlhokomelo 3811 Nov  2 23:41 .bashrc
-rw------- 1 tlhokomelo tlhokomelo   20 Nov  5 20:25 .lesshst
drwxr-xr-x 1 tlhokomelo tlhokomelo  512 Nov  2 23:06 .local
-rw-r--r-- 1 tlhokomelo tlhokomelo    0 Nov  5 19:15 .motd_shown
-rw-r--r-- 1 tlhokomelo tlhokomelo  807 Nov  2 12:55 .profile
-rw-r--r-- 1 tlhokomelo tlhokomelo    0 Nov  2 23:16 .sudo_as_admin_successful
tlhokomelo@DESKTOP-PI2VM19:~$
```

Root Directory Path:

cd / (takes you to the root folder)

```
tlhokomelo@DESKTOP-PI2VM19:~$ cd /
tlhokomelo@DESKTOP-PI2VM19:/$ ls
bin  boot  dev  etc  home  init  lib  lib32  lib64  libx32  media  mnt  opt  proc  root  run  sbin  snap  srv  sys  tmp  usr  var
tlhokomelo@DESKTOP-PI2VM19:/$ cd home
tlhokomelo@DESKTOP-PI2VM19:/home$ ls
tlhokomelo
tlhokomelo@DESKTOP-PI2VM19:/home$
```

mkdir

mkdir -p (creates more than 3 folder levels)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ mkdir Greenhouse
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ ls
 Doc2.docx            'Docker Desktop.lnk'   Friday        'GitHub Desktop.lnk'   Hello          MongoDBCompass.lnk   'Part 2'         SceneBuilder.lnk        desktop.ini   test.txt
'Docker Desktop.docx' 'Docker Desktop.pdf'  'Git Practice 2'  Greenhouse        'Microsoft Edge.lnk'   NEO            Postman.lnk   'Visual Studio Code.lnk' 'new 1.txt'
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ cd Greenhouse
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$ mkdir winter summer
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$ ls
summer  winter
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$ mkdir summer/seeds
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$ ls
summer  winter
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$ ls summer
seeds
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$ mkdir -p winter/seeds/lettuce
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$ ls winter
seeds
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$ ls winter/seeds
lettuce
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$
```

mkdir (outside of the current directory e.g. home/username directory)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$ mkdir ~/blablabla
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$ cd ~
tlhokomelo@DESKTOP-PI2VM19:~$ ls
blablabla
tlhokomelo@DESKTOP-PI2VM19:~$ ls -la
total 8
drwxr-x--- 1 tlhokomelo tlhokomelo  512 Nov  5 21:44 .
drwxr-xr-x 1 root       root        512 Nov  2 12:55 ..
-rw------- 1 tlhokomelo tlhokomelo  356 Nov  5 20:47 .bash_history
-rw-r--r-- 1 tlhokomelo tlhokomelo  220 Nov  2 12:55 .bash_logout
-rw-r--r-- 1 tlhokomelo tlhokomelo 3811 Nov  2 23:41 .bashrc
-rw------- 1 tlhokomelo tlhokomelo   20 Nov  5 20:25 .lesshst
drwxr-xr-x 1 tlhokomelo tlhokomelo  512 Nov  2 23:06 .local
-rw-r--r-- 1 tlhokomelo tlhokomelo    0 Nov  5 19:15 .motd_shown
-rw-r--r-- 1 tlhokomelo tlhokomelo  807 Nov  2 12:55 .profile
-rw-r--r-- 1 tlhokomelo tlhokomelo    0 Nov  2 23:16 .sudo_as_admin_successful
drwxr-xr-x 1 tlhokomelo tlhokomelo  512 Nov  5 21:44 blablabla
tlhokomelo@DESKTOP-PI2VM19:~$
```

touch

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ touch melon.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ touch apple.pdf
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ touch red.pdf orange.png yellow.xls
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ ls
apple.pdf  melon.txt  orange.png  red.pdf  seeds  yellow.xls
```

Touch <file name> (updates the timestamp of the modification time of the file)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/seeds$ touch red.pdf
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/seeds$ ls -l
total 0
-rwxrwxrwx 1 tlhokomelo tlhokomelo 0 Nov  6 07:50 red
-rwxrwxrwx 1 tlhokomelo tlhokomelo 0 Nov  6 07:51 red.pdf
-rwxrwxrwx 1 tlhokomelo tlhokomelo 0 Nov  6 07:39 squash
-rwxrwxrwx 1 tlhokomelo tlhokomelo 0 Nov  6 07:43 yellow.xls
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/seeds$
```

rmdir (removes empty directory)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/seeds$ mkdir DELETEME
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/seeds$ ls
DELETEME  red  red.pdf  squash  yellow.xls
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/seeds$ rmdir DELETEME/
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/seeds$ ls
red  red.pdf  squash  yellow.xls
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/seeds$
```

Rm (removes files with or without content)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$ cd summer
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ ls
red  seeds
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ rm red
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ ls
seeds
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$
```

Rm -v (removes files and also tells you what has been removed afterwards)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ touch cat dog mouse lion
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ ls
cat  dog  lion  mouse  seeds
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ rm -v cat dog mouse lion
removed 'cat'
removed 'dog'
removed 'mouse'
removed 'lion'
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$
```

Rm -r (removes directory with files) (-v for feedback on what was removed)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/seeds$ ls
red  red.pdf  squash  yellow.xls
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/seeds$ cd ..
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ rm -r -v seeds
removed 'seeds/red'
removed 'seeds/red.pdf'
removed 'seeds/squash'
removed 'seeds/yellow.xls'
removed directory 'seeds'
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$
```
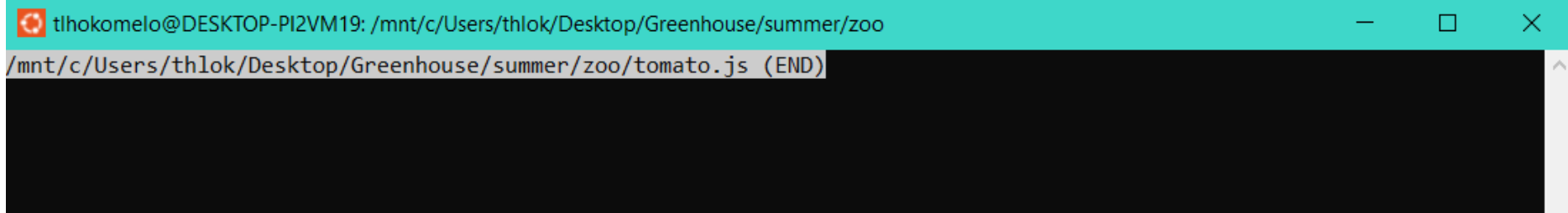
Rm -ri (confirms if you want to remove directory contents before removal)

tlhokomelo@DESKTOP-PI2VM19: /mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
cat  dog  fish  lion
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cd ..
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ ls
zoo
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ rm -ri -v zoo
rm: descend into directory 'zoo'? y
rm: remove regular empty file 'zoo/cat'? y
removed 'zoo/cat'
rm: remove regular empty file 'zoo/dog'? y
removed 'zoo/dog'
rm: remove regular empty file 'zoo/fish'? n
rm: remove regular empty file 'zoo/lion'? y
removed 'zoo/lion'
rm: remove directory 'zoo'? n
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ cd zoo
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
fish
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Open <filename> for Mac

Xdg-open <filename> for windows

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
0.docx  cat.png  dog.txt  fish  tomato.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ xdg-open tomato.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

tlhokomelo@DESKTOP-PI2VM19: /mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo   —   □   X

```
/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo/tomato.js (END)
```

Mv <filename> <new filename> (renames)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ cd zoo
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
0.docx  cat.png  dog.txt  fish  tomato.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ mv tomato.js banana.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
0.docx  banana.js  cat.png  dog.txt  fish
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Mv -v (displays what has been renamed)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
0.docx  banana.js  cat.png  dog.txt  fish
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ mv -v banana.js apple.js
renamed 'banana.js' -> 'apple.js'
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
0.docx  apple.js  cat.png  dog.txt  fish
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Mv <filename> <directory name> (moves files/directories)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ mkdir stuff
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
0.docx  apple.js  cat.png  dog.txt  fish  stuff
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ mv dog.txt stuff
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
0.docx  apple.js  cat.png  fish  stuff
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Cp

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
0.docx  apple.js  cat.png  fish  stuff
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cp apple.js today_apple.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
0.docx  apple.js  cat.png  fish  stuff  today_apple.js
```

Cp -r (copies directory with its contents)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cd ..
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ cp -r zoo zoo_copy
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ ls
zoo    zoo_copy
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$
```

Head <filename> (prints first ten lines of a file)

Head <filename> -n 100 (prints specified lines in a file)

```
            output += "4";
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx    apple.js    cat.png    fish   'new 1.txt'    stuff    today_apple.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ head 'new 1.txt'
var input = "javascript is awesome";
undefined
var output = "";
undefined
for (var i = 0; i < input.length; i++) {
        if (input[i] === "e") {
                output += "3";
        }
        else if (input[i] === "a") {
                output += "4";
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

tail <filename> (prints last ten lines of a file)

tail <filename> -n 100 (prints specified lines in a file)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx    apple.js    cat.png    fish   'new 1.txt'   'new 2.txt'   stuff    today_apple.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ tail 'new 2.txt'
        }
        else {
                output += input[i].toUpperCase()
        }
}

tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Date

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ date
Sun Nov  6 10:52:00 SAST 2022
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Redirecting stardard output using > sign and other commands

e.g. redirects date to a file

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ touch today.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 0.docx    apple.js    cat.png    fish  'new 1.txt'  'new 2.txt'    stuff    today.txt    today_apple.js    touch
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ date > today.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ head today.txt
Sun Nov  6 10:57:02 SAST 2022
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

>> (appends while redirecting, instead of replacing)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ pwd >> today.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ head today.txt
Sun Nov  6 10:57:02 SAST 2022
/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Cat (prints all contents in a file)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx    apple.js    cat.png    fish   'new 1.txt'  'new 2.txt'   pwd    stuff   today.txt   today_apple.js   touch
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cat 'new 2.txt'
var input = "javascript is awesome";
undefined
var output = "";
undefined
for (var i = 0; i < input.length; i++) {
        if (input[i] === "e") {
                output += "3";
        }
        else if (input[i] === "a") {
                output += "4";
        }
        else if (input[i] === "i") {
                output += "1";
        }
        else if (input[i] === "o") {
                output += "0"
        }
        else {
                output += input[i].toUpperCase()
        }
}

var input = "javascript is awesome";
undefined
var output = "";
undefined
for (var i = 0; i < input.length; i++) {
        if (input[i] === "e") {
                output += "3";
        }
        else if (input[i] === "a") {
                output += "4";
        }
        else if (input[i] === "i") {
                output += "1";
        }
        else if (input[i] === "o") {
                output += "0"
        }
        else {
                output += input[i].toUpperCase()
        }
}
```

Cat <filename1> <filename2> (concatinates file contents on display)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx    apple.js    cat.png    fish   'new 1.txt'  'new 2.txt'    pwd    stuff    today.txt    today_apple.js    touch
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cat today.txt 'new 1.txt'
Sun Nov  6 10:57:02 SAST 2022
/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo
var input = "javascript is awesome";
undefined
var output = "";
undefined
for (var i = 0; i < input.length; i++) {
        if (input[i] === "e") {
                output += "3";
        }
        else if (input[i] === "a") {
                output += "4";
        }
        else if (input[i] === "i") {
                output += "1";
        }
        else if (input[i] === "o") {
                output += "0"
        }
        else {
                output += input[i].toUpperCase()
        }
}

tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

(Redirecting concatenated files to another file)

Cat filename1 filename2 > filename3

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cat today.txt 'new 1.txt' > twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx    apple.js   cat.png   fish  'new 1.txt'  'new 2.txt'   pwd   stuff    today.txt   today_apple.js   touch   twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ head twofiles.txt
Sun Nov  6 10:57:02 SAST 2022
/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo
var input = "javascript is awesome";
undefined
var output = "";
undefined
for (var i = 0; i < input.length; i++) {
        if (input[i] === "e") {
                output += "3";
        }
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Less <filename> (displays file contents in paged format in terminal)

The page can be searched as well

Press q to exit

```
Linux and terminal commands_Notes.docx" may be a binary file.  See it anyway?
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx    apple.js   cat.png   fish  'new 1.txt'  'new 2.txt'   pwd   stuff    today.txt   today_apple.js   touch   twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ less twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

```
Sun Nov  6 10:57:02 SAST 2022
/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo
var input = "javascript is awesome";
undefined
var output = "";
undefined
for (var i = 0; i < input.length; i++) {
        if (input[i] === "e") {
                output += "3";
        }
        else if (input[i] === "a") {
                output += "4";
        }
        else if (input[i] === "i") {
                output += "1";
        }
        else if (input[i] === "o") {
                output += "0"
        }
        else {
                output += input[i].toUpperCase()
        }
}
twofiles.txt (END)
```

Echo

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ echo 'hello'
hello
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Redirecting with echo

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ cd zoo
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx      cat.png    'new 1.txt'   pwd         today.txt        touch
 apple.js    fish       'new 2.txt'   stuff       today_apple.js   twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ echo 'password is incorrect' > config.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx       cat.png        fish          'new 2.txt'    stuff        today_apple.js    twofiles.txt
 apple.js     config.txt    'new 1.txt'    pwd            today.txt    touch
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ head config.txt
password is incorrect
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Wc

- **The order of display:**
- **Number of Lines**
- **Number of Words**
- **Number of Bytes**
- **Name of file**

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx        cat.png        fish          'new 2.txt'    stuff        today_apple.js    twofiles.txt
 apple.js      config.txt    'new 1.txt'    pwd            today.txt    touch
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ wc twofiles.txt
 26  75 463 twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

To get specific output e.g wc -w <filename> (gets number of words)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ wc -w twofiles.txt
75 twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Other wc options

```
-c, --bytes
        print the byte counts

-m, --chars
        print the character counts

-l, --lines
        print the newline counts

--files0-from=F
        read  input  from the files specified by NUL-terminated names in file F; If F is - then read names from
        standard input

-L, --max-line-length
        print the maximum display width

-w, --words
        print the word counts

--help display this help and exit

--version
        output version information and exit
```

Piping

(redirects to one command to another)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx   apple.js   cat.png   config.txt   fish   'new 1.txt'  'new 2.txt'   pwd   stuff   today.txt   today_apple.js   touch   twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls -l | wc
     14    121    825
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Redicting to another file with piping

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls -l | wc > piping.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cat piping.txt
     15    130    890
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Sort (sorts the output, not the file)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 0.docx    apple.js    cat.png    config.txt    fish   'new 1.txt'   'new 2.txt'    piping.txt    pwd    sort.txt    stuff    today.txt    today_apple.js    touch    twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cat sort.txt
1
3
2
5
4
7
6
9
8
0tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ sort sort.txt
0
1
2
3
4
5
6
7
8
9
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Other sort options

```
-b, --ignore-leading-blanks
        ignore leading blanks

-d, --dictionary-order
        consider only blanks and alphanumeric characters

-f, --ignore-case
        fold lower case to upper case characters

-g, --general-numeric-sort
        compare according to general numerical value

-i, --ignore-nonprinting
        consider only printable characters

-M, --month-sort
        compare (unknown) < 'JAN' < ... < 'DEC'

-h, --human-numeric-sort
        compare human readable numbers (e.g., 2K 1G)

-n, --numeric-sort
        compare according to string numerical value

-R, --random-sort
        shuffle, but group identical keys.  See shuf(1)

--random-source=FILE
        get random bytes from FILE

-r, --reverse
        reverse the result of comparisons
```

Uniq (in conjuction with piping and sort)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx   apple.js   cat.png   config.txt   fish   fruit.txt   'new 1.txt'   'new 2.txt'   piping.txt   pwd   sort.txt   stuff   today.txt   today_apple.js   touch   twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cat fruit.txt
apple
apple
banana
orange
apple
banana
banana
orange
pineaple
grape
strawberrytlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ sort fruit.txt | uniq
apple
banana
grape
orange
pineaple
strawberry
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Other uniq options

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ sort fruit.txt | uniq -D
apple
apple
apple
banana
banana
banana
orange
orange
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

```
  -c, --count
          prefix lines by the number of occurrences

  -d, --repeated
          only print duplicate lines, one for each group

  -D      print all duplicate lines

  --all-repeated[=METHOD]
          like -D, but allow separating groups with an empty line; METHOD={none(default),prepend,separate}

  -f, --skip-fields=N
          avoid comparing the first N fields

  --group[=METHOD]
          show all items, separating groups with an empty line; METHOD={separate(default),prepend,append,both}

  -i, --ignore-case
          ignore differences in case when comparing

  -s, --skip-chars=N
          avoid comparing the first N characters

  -u, --unique
          only print unique lines

  -z, --zero-terminated
          line delimiter is NUL, not newline

  -w, --check-chars=N
          compare no more than N characters in lines

  --help display this help and exit

  --version
          output version information and exit
```

Expansions

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ echo ~
/home/tlhokomelo
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ echo '~'
~
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/mnt/c/Program Files/WindowsApps/CanonicalGroupLimited.Ubuntu_2204.1.7.0_x64__79rhkp1fndgs
mon Files/Oracle/Java/javapath:/mnt/c/Program Files/Common Files/Oracle/Java/javapath:/mnt/c/Python310/Scripts/:/mnt/c/Python310/:/mnt/c/Windows/system32:/mnt/c/Windows:/mnt/c/Wind
/System32/WindowsPowerShell/v1.0/:/mnt/c/Windows/System32/OpenSSH/:/mnt/c/ProgramData/chocolatey/bin:/mnt/c/Program Files/nodejs/:/mnt/c/Program Files/dotnet/:/mnt/c/Program File
cker/Docker/resources/bin:/mnt/c/ProgramData/DockerDesktop/version-bin:/mnt/c/Program Files/MySQL/MySQL Shell 8.0/bin/:/mnt/c/Users/thlok/AppData/Local/Microsoft/WindowsApps:/mnt
grams/Microsoft VS Code/bin:/mnt/c/Users/thlok/AppData/Local/GitHubDesktop/bin:/mnt/c/Users/thlok/AppData/Roaming/npm:/mnt/c/Program Files/heroku/bin:/snap/bin
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ echo $USER
tlhokomelo
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ echo *
0.docx apple.js cat.png config.txt fish fruit.txt new 1.txt new 2.txt piping.txt pwd sort.txt stuff today.txt today_apple.js touch twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ echo *.txt
config.txt fruit.txt new 1.txt new 2.txt piping.txt sort.txt today.txt twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls -l *txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   22 Nov  6 11:28  config.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   88 Nov  6 17:56  fruit.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo  384 Jan 28  2022 'new 1.txt'
-rwxrwxrwx 1 tlhokomelo tlhokomelo 2304 Nov  6 10:47 'new 2.txt'
-rwxrwxrwx 1 tlhokomelo tlhokomelo   24 Nov  6 11:42  piping.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   43 Nov  6 17:52  sort.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   79 Nov  6 11:01  today.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo  463 Nov  6 11:12  twofiles.txt
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ echo *.???
cat.png config.txt fruit.txt new 1.txt new 2.txt piping.txt sort.txt today.txt twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ echo {a,b,c}.txt
a.txt b.txt c.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 0.docx   apple.js   cat.png   config.txt   fish   fruit.txt  'new 1.txt'  'new 2.txt'   piping.txt   pwd   sort.txt   stuff   today.txt   today_apple.js   touch   twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ touch app.{js,html.css,py}
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 0.docx   app.html.css   app.js   app.py   apple.js   cat.png   config.txt   fish   fruit.txt  'new 1.txt'  'new 2.txt'   piping.txt   pwd   sort.txt   stuff   today.txt   today_apple.js   touch   twofiles.txt
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ echo {1..99}
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 7
4 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Diff

```
tlhokomelo@DESKTOP-PI2VM19: /mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx    app.html.css    app.js    app.py    apple.js    cat.png    config.txt    fish    fruit.txt   'new 1.txt'   'new 2.txt'    piping.
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cp fruit.txt fruit2.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ diff fruit.txt fruit2.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ echo 'naatjie' >> fruit2.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ diff fruit.txt fruit2.txt
11c11
< strawberry
\ No newline at end of file
---
> strawberrynaatjie
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cat fruit2.txt
apple
apple
banana
orange
apple
banana
banana
orange
pineaple
grape
strawberrynaatjie
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ diff -y fruit.txt fruit2.txt
apple                                             apple
apple                                             apple
banana                                            banana
orange                                            orange
apple                                             apple
banana                                            banana
banana                                            banana
orange                                            orange
pineaple                                          pineaple
grape                                             grape
strawberry                                      \ strawberrynaatjie
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ diff -u fruit.txt fruit2.txt
--- fruit.txt    2022-11-06 17:56:47.930011100 +0200
+++ fruit2.txt   2022-11-06 19:59:58.843376800 +0200
@@ -8,4 +8,4 @@
 orange
 pineaple
 grape
-strawberry
\ No newline at end of file
+strawberrynaatjie
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Find

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx          app.js      apple.js    config.txt    fruit.txt    'new 1.txt'    piping.txt    sort.txt    today.txt           touch
 app.html.css    app.py      cat.png     fish          fruit2.txt   'new 2.txt'    pwd           stuff       today_apple.js      twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ find .
.
./app.html.css
./app.js
./app.py
./apple.js
./cat.png
./config.txt
./fish
./fruit.txt
./fruit2.txt
./new 1.txt
./new 2.txt
./O.docx
./piping.txt
./pwd
./sort.txt
./stuff
./stuff/dog.txt
./today.txt
./today_apple.js
./touch
./twofiles.txt
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ find . -name '*7*'
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ find . -name '*1*'
./new 1.txt
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ find . -type d -iname '*s*'
./stuff
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ find . -name '*.js'
./app.js
./apple.js
./today_apple.js
```

Grep

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/desktop/greenhouse/summer/zoo$ ls
 O.docx      app.html.css    app.js    app.py    apple.js    cat.png    config.txt    fish    fruit.txt    fruit2.txt    'new 1.txt'
 'new 2.txt'    piping.txt    pwd    sort.txt    stuff    today.txt    today_apple.js    touch    twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/desktop/greenhouse/summer/zoo$ grep banana fruit.txt
banana
banana
banana
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/desktop/greenhouse/summer/zoo$ grep -c test/fruit.txt/banana
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx          app.py       config.txt    fruit2.txt    piping.txt    stuff           touch
 app.html.css    apple.js     fish          'new 1.txt'   pwd           today.txt       twofiles.txt
 app.js          cat.png      fruit.txt     'new 2.txt'   sort.txt      today_apple.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ grep -n banana fruit.txt
3:banana
6:banana
7:banana
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Du

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ du
41      ./Friday/.git/hooks
0       ./Friday/.git/info
0       ./Friday/.git/logs/refs/heads
0       ./Friday/.git/logs/refs
1       ./Friday/.git/logs
0       ./Friday/.git/refs/heads
0       ./Friday/.git/refs
42      ./Friday/.git
41      ./Friday/learning_forking/.git/hooks
0       ./Friday/learning_forking/.git/info
0       ./Friday/learning_forking/.git/logs/refs/heads
0       ./Friday/learning_forking/.git/logs/refs/remotes/origin
0       ./Friday/learning_forking/.git/logs/refs/remotes
0       ./Friday/learning_forking/.git/logs/refs
0       ./Friday/learning_forking/.git/logs
0       ./Friday/learning_forking/.git/objects/99
0       ./Friday/learning_forking/.git/objects/a1
0       ./Friday/learning_forking/.git/objects/ab
0       ./Friday/learning_forking/.git/objects/c3
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ du -h
41K     ./Friday/.git/hooks
0       ./Friday/.git/info
0       ./Friday/.git/logs/refs/heads
0       ./Friday/.git/logs/refs
1.0K    ./Friday/.git/logs
0       ./Friday/.git/refs/heads
0       ./Friday/.git/refs
42K     ./Friday/.git
41K     ./Friday/learning_forking/.git/hooks
0       ./Friday/learning_forking/.git/info
0       ./Friday/learning_forking/.git/logs/refs/heads
0       ./Friday/learning_forking/.git/logs/refs/remotes/origin
0       ./Friday/learning_forking/.git/logs/refs/remotes
0       ./Friday/learning_forking/.git/logs/refs
0       ./Friday/learning_forking/.git/logs
0       ./Friday/learning_forking/.git/objects/99
0       ./Friday/learning_forking/.git/objects/a1
0       ./Friday/learning_forking/.git/objects/ab
0       ./Friday/learning_forking/.git/objects/c3
0       ./Friday/learning_forking/.git/objects/d3
0       ./Friday/learning_forking/.git/objects/e6
0       ./Friday/learning_forking/.git/objects/info
8.0K    ./Friday/learning_forking/.git/objects/pack
8.0K    ./Friday/learning_forking/.git/objects
0       ./Friday/learning_forking/.git/refs/heads
0       ./Friday/learning_forking/.git/refs/remotes/origin
0       ./Friday/learning_forking/.git/refs/remotes
0       ./Friday/learning_forking/.git/refs/tags
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ du -h | sort
0       ./Friday/.git/info
0       ./Friday/.git/logs/refs
0       ./Friday/.git/logs/refs/heads
0       ./Friday/.git/refs
0       ./Friday/.git/refs/heads
```

```
0           ./Part 2/partII/.git/refs/tags
1.0K        ./Friday/.git/logs
1.0K        ./Part 2/partII/.git/logs/refs
1.0K        ./Part 2/partII/.git/logs/refs/heads
100K        ./Git Practice 2/Thlokomelo/NeoTlhoki/.vs
122K        ./NEO/NeoTlhoki/.git
126K        ./NEO
126K        ./NEO/NeoTlhoki
12K         ./Git Practice 2/Thlokomelo/NeoTlhoki/.vs/NeoTlhoki
12K         ./Git Practice 2/Thlokomelo/NeoTlhoki/.vs/NeoTlhoki/v17
12K         ./Git Practice 2/t/.git/objects
12K         ./Git Practice 2/t/.git/objects/pack
12K         ./Greenhouse/summer/zoo_copy
16K         ./Greenhouse/summer/zoo
178K        ./Git Practice 2/Thlokomelo
178K        ./Git Practice 2/Thlokomelo/NeoTlhoki
2.0K        ./Part 2/partII/.git/logs
```

Df

```
tlhokomelo@DESKTOP-PI2VM19: /mnt/c/Users/thlok/Desktop

tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ df
Filesystem      1K-blocks      Used Available Use% Mounted on
rootfs         229725180 209603344  20121836  92% /
none           229725180 209603344  20121836  92% /dev
none           229725180 209603344  20121836  92% /run
none           229725180 209603344  20121836  92% /run/lock
none           229725180 209603344  20121836  92% /run/shm
none           229725180 209603344  20121836  92% /run/user
tmpfs          229725180 209603344  20121836  92% /sys/fs/cgroup
C:\            229725180 209603344  20121836  92% /mnt/c
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ df -h
Filesystem      Size  Used Avail Use% Mounted on
rootfs          220G  200G   20G  92% /
none            220G  200G   20G  92% /dev
none            220G  200G   20G  92% /run
none            220G  200G   20G  92% /run/lock
none            220G  200G   20G  92% /run/shm
none            220G  200G   20G  92% /run/user
tmpfs           220G  200G   20G  92% /sys/fs/cgroup
C:\             220G  200G   20G  92% /mnt/c
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ df -h Greenhouse
Filesystem      Size  Used Avail Use% Mounted on
C:\             220G  200G   20G  92% /mnt/c
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$
```

History

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ history
    1  cd Desktop
    2  ls
    3  Desktop
    4  cd Desktop
    5  cd Desktopls
    6  ls Desktop/test.txt/
    7  ls -la
    8  cd Desktop/
    9  cd Documents/
   10  bash
   11  whoami
   12  man
   13  man whoami
   14  hfdjfhjdshfjdf
   15  hjhcjxjhc
   16  jxjcjxhcjxjcxc
   17  clear
   18  man clear
   19  pwd
   20  cd Documents
   21  pwd
   22  ls
   23  Ls
   24  ls
   25  ls -la
   26  ls -Desktop
   27  ls --help
   28  ls
   29  cd Desktop
   30  cd Documents
   31  cd This PC
   32  bash
   33  ls
```

```
  327  df -h
  328  df -h Desktop
  329  df -h Greenhouse
  330  history
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ !327
df -h
Filesystem        Size  Used Avail Use% Mounted on
rootfs            220G  200G   20G  92% /
none              220G  200G   20G  92% /dev
none              220G  200G   20G  92% /run
none              220G  200G   20G  92% /run/lock
none              220G  200G   20G  92% /run/shm
none              220G  200G   20G  92% /run/user
tmpfs             220G  200G   20G  92% /sys/fs/cgroup
C:\               220G  200G   20G  92% /mnt/c
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ history | grep 'strawberry'
  332  history | grep 'strawberry'
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ !332
history | grep 'strawberry'
  332  history | grep 'strawberry'
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$
```

Ps

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ ps
  PID TTY          TIME CMD
  903 tty1     00:00:00 bash
  983 tty1     00:00:00 ps
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$
```

```
lhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ ps ax
 PID TTY      STAT   TIME COMMAND
   1 ?        Ssl    0:00 /init
 902 tty1     Ss     0:00 /init
 903 tty1     S      0:00 -bash
 984 tty1     R      0:00 ps ax
lhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ ps axww | grep "Visual Studio"
 986 tty1     R      0:00 grep --color=auto Visual Studio
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$
```

Top

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ top
top - 11:41:45 up 5 min,  0 users,  load average: 0.52, 0.58, 0.59
Tasks:   4 total,   1 running,   3 sleeping,   0 stopped,   0 zombie
%Cpu(s):  5.2 us,  6.8 sy,  0.0 ni, 86.7 id,  0.0 wa,  1.3 hi,  0.0 si,  0.0 st
MiB Mem :   7914.8 total,    551.7 free,   7139.1 used,    224.0 buff/cache
MiB Swap:  24576.0 total,  23683.1 free,    892.9 used.    645.1 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
    1 root      20   0    8948    400    328 S   0.0   0.0   0:00.14 init
    8 root      20   0    9300    228    180 S   0.0   0.0   0:00.00 init
    9 tlhokom+  20   0   14120   3808   3708 S   0.0   0.0   0:00.11 bash
   42 tlhokom+  20   0   15836   2244   1580 R   0.0   0.0   0:00.01 top
```

Kill

e.g. lists different signals we can send (doesn't kill any programs)

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$ kill -l
 1) SIGHUP        2) SIGINT        3) SIGQUIT       4) SIGILL        5) SIGTRAP
 6) SIGABRT       7) SIGBUS        8) SIGFPE        9) SIGKILL      10) SIGUSR1
11) SIGSEGV      12) SIGUSR2      13) SIGPIPE      14) SIGALRM      15) SIGTERM
16) SIGSTKFLT    17) SIGCHLD      18) SIGCONT      19) SIGSTOP      20) SIGTSTP
21) SIGTTIN      22) SIGTTOU      23) SIGURG       24) SIGXCPU      25) SIGXFSZ
26) SIGVTALRM    27) SIGPROF      28) SIGWINCH     29) SIGIO        30) SIGPWR
31) SIGSYS       34) SIGRTMIN     35) SIGRTMIN+1   36) SIGRTMIN+2   37) SIGRTMIN+3
38) SIGRTMIN+4   39) SIGRTMIN+5   40) SIGRTMIN+6   41) SIGRTMIN+7   42) SIGRTMIN+8
43) SIGRTMIN+9   44) SIGRTMIN+10  45) SIGRTMIN+11  46) SIGRTMIN+12  47) SIGRTMIN+13
48) SIGRTMIN+14  49) SIGRTMIN+15  50) SIGRTMAX-14  51) SIGRTMAX-13  52) SIGRTMAX-12
53) SIGRTMAX-11  54) SIGRTMAX-10  55) SIGRTMAX-9   56) SIGRTMAX-8   57) SIGRTMAX-7
58) SIGRTMAX-6   59) SIGRTMAX-5   60) SIGRTMAX-4   61) SIGRTMAX-3   62) SIGRTMAX-2
63) SIGRTMAX-1   64) SIGRTMAX
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop$
```

Other kill options:

```
OPTIONS
       <pid> [...]
              Send signal to every <pid> listed.

       -<signal>
       -s <signal>
       --signal <signal>
              Specify the signal to be sent.  The signal can be specified by using name or number.   The   behavior   of
              signals is explained in signal(7) manual page.

       -q, --queue value
              Use  sigqueue(3)  rather  than  kill(2) and the value argument is used to specify an integer to be sent
              with the signal. If the receiving process has installed a handler for this signal using the  SA_SIGINFO
              flag to sigaction(2) , then it can obtain this data via the si_value field of the siginfo_t structure.
```

We use it in this way:

```
kill <PID>
```

By default, this sends the `TERM` signal to the process id specified.

We can use flags to send other signals, including:

```
kill -HUP  <PID>
kill -INT  <PID>
kill -KILL <PID>
kill -TERM <PID>
kill -CONT <PID>
kill -STOP <PID>
```



```
tlhokomelo@DESKTOP-PI2VM19: ~
tlhokomelo@DESKTOP-PI2VM19:~$ kill -l
 1) SIGHUP        2) SIGINT       3) SIGQUIT      4) SIGILL       5) SIGTRAP
 6) SIGABRT       7) SIGBUS       8) SIGFPE       9) SIGKILL     10) SIGUSR1
11) SIGSEGV      12) SIGUSR2     13) SIGPIPE     14) SIGALRM     15) SIGTERM
16) SIGSTKFLT    17) SIGCHLD     18) SIGCONT     19) SIGSTOP     20) SIGTSTP
21) SIGTTIN      22) SIGTTOU     23) SIGURG      24) SIGXCPU     25) SIGXFSZ
26) SIGVTALRM    27) SIGPROF     28) SIGWINCH    29) SIGIO       30) SIGPWR
31) SIGSYS       34) SIGRTMIN    35) SIGRTMIN+1  36) SIGRTMIN+2  37) SIGRTMIN+3
38) SIGRTMIN+4   39) SIGRTMIN+5  40) SIGRTMIN+6  41) SIGRTMIN+7  42) SIGRTMIN+8
43) SIGRTMIN+9   44) SIGRTMIN+10 45) SIGRTMIN+11 46) SIGRTMIN+12 47) SIGRTMIN+13
48) SIGRTMIN+14  49) SIGRTMIN+15 50) SIGRTMAX-14 51) SIGRTMAX-13 52) SIGRTMAX-12
53) SIGRTMAX-11  54) SIGRTMAX-10 55) SIGRTMAX-9  56) SIGRTMAX-8  57) SIGRTMAX-7
58) SIGRTMAX-6   59) SIGRTMAX-5  60) SIGRTMAX-4  61) SIGRTMAX-3  62) SIGRTMAX-2
63) SIGRTMAX-1   64) SIGRTMAX
tlhokomelo@DESKTOP-PI2VM19:~$ ps a
 PID TTY      STAT   TIME COMMAND
 185 tty1     Ss     0:00 /init
 186 tty1     S      0:00 -bash
 198 tty1     R      0:00 ps a
tlhokomelo@DESKTOP-PI2VM19:~$ kill -9 186
```

Killall


```
tlhokomelo@DESKTOP-PI2VM19: ~
tlhokomelo@DESKTOP-PI2VM19:~$ kill -l
 1) SIGHUP       2) SIGINT       3) SIGQUIT      4) SIGILL       5) SIGTRAP
 6) SIGABRT      7) SIGBUS       8) SIGFPE       9) SIGKILL     10) SIGUSR1
11) SIGSEGV     12) SIGUSR2     13) SIGPIPE     14) SIGALRM     15) SIGTERM
16) SIGSTKFLT   17) SIGCHLD     18) SIGCONT     19) SIGSTOP     20) SIGTSTP
21) SIGTTIN     22) SIGTTOU     23) SIGURG      24) SIGXCPU     25) SIGXFSZ
26) SIGVTALRM   27) SIGPROF     28) SIGWINCH    29) SIGIO       30) SIGPWR
31) SIGSYS      34) SIGRTMIN    35) SIGRTMIN+1  36) SIGRTMIN+2  37) SIGRTMIN+3
38) SIGRTMIN+4  39) SIGRTMIN+5  40) SIGRTMIN+6  41) SIGRTMIN+7  42) SIGRTMIN+8
43) SIGRTMIN+9  44) SIGRTMIN+10 45) SIGRTMIN+11 46) SIGRTMIN+12 47) SIGRTMIN+13
48) SIGRTMIN+14 49) SIGRTMIN+15 50) SIGRTMAX-14 51) SIGRTMAX-13 52) SIGRTMAX-12
53) SIGRTMAX-11 54) SIGRTMAX-10 55) SIGRTMAX-9  56) SIGRTMAX-8  57) SIGRTMAX-7
58) SIGRTMAX-6  59) SIGRTMAX-5  60) SIGRTMAX-4  61) SIGRTMAX-3  62) SIGRTMAX-2
63) SIGRTMAX-1  64) SIGRTMAX
tlhokomelo@DESKTOP-PI2VM19:~$ ps a
  PID TTY      STAT   TIME COMMAND
  185 tty1     Ss     0:00 /init
  186 tty1     S      0:00 -bash
  198 tty1     R      0:00 ps a
tlhokomelo@DESKTOP-PI2VM19:~$ killall -9 node
```

jobs, bg, and fg

jobs to list running processes

ctrl z to stop process

fg <PID Number> to bring back in to the foreground

bg <PID Number>   to take it back to the background

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ find / -ctime -1 > sort.txt
find: '/etc/polkit-1/localauthority': Permission denied
find: '/etc/ssl/private': Permission denied
find: '/mnt/c/$Recycle.Bin/S-1-5-18': Permission denied
find: '/mnt/c/$Recycle.Bin/S-1-5-21-1775394800-4166400013-789550939-1000': Permission denied
find: '/mnt/c/$Recycle.Bin/S-1-5-21-1775394800-4166400013-789550939-500': Permission denied
find: '/mnt/c/Config.Msi': Permission denied
find: '/mnt/c/DumpStack.log.tmp': Permission denied
find: '/mnt/c/hiberfil.sys': Permission denied
find: '/mnt/c/Intel/IntelOptaneData': Permission denied
find: '/mnt/c/pagefile.sys': Permission denied
^Z
[1]+  Stopped                 find / -ctime -1 > sort.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ jobs
[1]+  Stopped                 find / -ctime -1 > sort.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ top
top - 12:52:07 up  1:16,  0 users,  load average: 0.52, 0.58, 0.59
Tasks:   5 total,   1 running,   3 sleeping,   1 stopped,   0 zombie
%Cpu(s):  4.3 us,  4.3 sy,  0.0 ni, 91.0 id,  0.0 wa,  0.4 hi,  0.0 si,  0.0 st
MiB Mem :   7914.8 total,    616.5 free,   7074.3 used,    224.0 buff/cache
MiB Swap:  24576.0 total,  22713.7 free,   1862.3 used.    709.9 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
    1 root      20   0    8948    376    304 S   0.0   0.0   0:00.14 init
  185 root      20   0    9300    200    152 S   0.0   0.0   0:00.00 init
  186 tlhokom+  20   0   14120   2972   2876 S   0.0   0.0   0:00.20 bash
  205 tlhokom+  20   0   12404   1452   1012 T   0.0   0.0   0:02.16 find
  206 tlhokom+  20   0   15828   2280   1580 R   0.0   0.0   0:00.04 top
```

```
[2]+  Stopped                    top/Users/thlok$ fg 2
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ jobs
[1]-  Stopped                    find / -ctime -1 > sort.txt
[2]+  Stopped                    top
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ fg
top
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ jobs
[1]-  Stopped                    find / -ctime -1 > sort.txt
[2]+  Stopped                    top
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ find / -ctime -1 > sort.txt
find: '/etc/polkit-1/localauthority': Permission denied
find: '/etc/ssl/private': Permission denied
find: '/mnt/c/$Recycle.Bin/S-1-5-18': Permission denied
find: '/mnt/c/$Recycle.Bin/S-1-5-21-1775394800-4166400013-789550939-1000': Permission denied
find: '/mnt/c/$Recycle.Bin/S-1-5-21-1775394800-4166400013-789550939-500': Permission denied
find: '/mnt/c/Config.Msi': Permission denied
find: '/mnt/c/DumpStack.log.tmp': Permission denied
find: '/mnt/c/hiberfil.sys': Permission denied
find: '/mnt/c/Intel/IntelOptaneData': Permission denied
find: '/mnt/c/pagefile.sys': Permission denied
^Z
[3]+  Stopped                    find / -ctime -1 > sort.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ bg 1
[1] find / -ctime -1 > sort.txt &
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ jobs
[1]   Running                    find / -ctime -1 > sort.txt &
[2]-  Stopped                    top
[3]+  Stopped                    find / -ctime -1 > sort.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ jobs
[2]-  Stopped                    top
[3]+  Stopped                    find / -ctime -1 > sort.txt
[4]   Running                    sleep 50 &
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ bg 4
-bash: bg: job 4 already in background
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$ fg 4
sleep 50
^Z
[4]+  Stopped                    sleep 50
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok$
```

Gzip

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx          app.js      apple.js     config.txt    fruit.txt     'new 1.txt'    piping.txt    sort.txt     today.txt                    touch
 app.html.css    app.py      cat.png      fish          fruit2.txt    'new 2.txt'    pwd           stuff        today_apple.js    twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ gzip -k today.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx          app.js      apple.js     config.txt    fruit.txt     'new 1.txt'    piping.txt    sort.txt     today.txt        today_apple.js    twofiles.txt
 app.html.css    app.py      cat.png      fish          fruit2.txt    'new 2.txt'    pwd           stuff        today.txt.gz     touch
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls -lh
total 24K
-rwxrwxrwx 1 tlhokomelo tlhokomelo  12K Sep 15 10:09  O.docx
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 19:49  app.html.css
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 19:49  app.js
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 19:49  app.py
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 10:20  apple.js
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 09:50  cat.png
-rwxrwxrwx 1 tlhokomelo tlhokomelo   22 Nov  6 11:28  config.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 08:58  fish
-rwxrwxrwx 1 tlhokomelo tlhokomelo   88 Nov  6 17:56  fruit.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   96 Nov  6 19:59  fruit2.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo  384 Jan 28  2022 'new 1.txt'
-rwxrwxrwx 1 tlhokomelo tlhokomelo  2.3K Nov  6 10:47 'new 2.txt'
-rwxrwxrwx 1 tlhokomelo tlhokomelo   24 Nov  6 11:42  piping.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 11:00  pwd
-rwxrwxrwx 1 tlhokomelo tlhokomelo  4.1K Nov  7 12:49 sort.txt
drwxrwxrwx 1 tlhokomelo tlhokomelo  512 Nov  6 10:29  stuff
-rwxrwxrwx 1 tlhokomelo tlhokomelo   79 Nov  6 11:01  today.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo  109 Nov  6 11:01  today.txt.gz
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 10:32  today_apple.js
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 10:55  touch
-rwxrwxrwx 1 tlhokomelo tlhokomelo  463 Nov  6 11:12  twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Gunzip

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ gunzip today.txt.gz
gzip: today.txt already exists; do you wish to overwrite (y or n)? y
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx          app.js     apple.js    config.txt    fruit.txt    'new 1.txt'    piping.txt    sort.txt    today.txt          touch
 app.html.css    app.py     cat.png     fish          fruit2.txt   'new 2.txt'    pwd           stuff       today_apple.js     twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Tar

Creating: tar -cf <filename.tar> <file to be added to .tar> <file to be added to .tar> <file to be added to .tar>

Viewing: Tar -tf <filename.tar>

Extracting: Tar -xf <filename.tar>

Moving: mv <filename.tar> <DirectoryName>

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ tar -cf archive.tar app.js apple.js today_apple.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls -lh
total 36K
-rwxrwxrwx 1 tlhokomelo tlhokomelo  12K Sep 15 10:09  O.docx
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 19:49  app.html.css
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 19:49  app.js
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 19:49  app.py
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 10:20  apple.js
-rwxrwxrwx 1 tlhokomelo tlhokomelo  10K Nov  7 13:47  archive.tar
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 09:50  cat.png
-rwxrwxrwx 1 tlhokomelo tlhokomelo   22 Nov  6 11:28  config.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 08:58  fish
-rwxrwxrwx 1 tlhokomelo tlhokomelo   88 Nov  6 17:56  fruit.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   96 Nov  6 19:59  fruit2.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo  384 Jan 28  2022 'new 1.txt'
-rwxrwxrwx 1 tlhokomelo tlhokomelo 2.3K Nov  6 10:47 'new 2.txt'
-rwxrwxrwx 1 tlhokomelo tlhokomelo   24 Nov  6 11:42  piping.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 11:00  pwd
-rwxrwxrwx 1 tlhokomelo tlhokomelo 4.1K Nov  7 12:49  sort.txt
drwxrwxrwx 1 tlhokomelo tlhokomelo  512 Nov  6 10:29  stuff
-rwxrwxrwx 1 tlhokomelo tlhokomelo   79 Nov  6 11:01  today.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 10:32  today_apple.js
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 10:55  touch
-rwxrwxrwx 1 tlhokomelo tlhokomelo  463 Nov  6 11:12  twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ tar -tf archive.tar
app.js
apple.js
today_apple.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ tar -xf archive.tar
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 O.docx         app.js     apple.js      cat.png      fish       fruit2.txt   'new 2.txt'    pwd         stuff      today_apple.js   twofiles.txt
 app.html.css   app.py     archive.tar   config.txt   fruit.txt  'new 1.txt'   piping.txt    sort.txt    today.txt   touch
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ tar -czf bundle.tar sort.txt today.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls -lh
total 40K
-rwxrwxrwx 1 tlhokomelo tlhokomelo  12K Sep 15 10:09  O.docx
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 19:49  app.html.css
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 19:49  app.js
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 19:49  app.py
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 10:20  apple.js
-rwxrwxrwx 1 tlhokomelo tlhokomelo  10K Nov  7 13:47  archive.tar
-rwxrwxrwx 1 tlhokomelo tlhokomelo  174 Nov  7 13:47  archive.tar.gz
-rwxrwxrwx 1 tlhokomelo tlhokomelo 1.1K Nov  7 13:59  bundle.tar
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 09:50  cat.png
-rwxrwxrwx 1 tlhokomelo tlhokomelo   22 Nov  6 11:28  config.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 08:58  fish
-rwxrwxrwx 1 tlhokomelo tlhokomelo   88 Nov  6 17:56  fruit.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   96 Nov  6 19:59  fruit2.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo  384 Jan 28  2022 'new 1.txt'
-rwxrwxrwx 1 tlhokomelo tlhokomelo 2.3K Nov  6 10:47 'new 2.txt'
-rwxrwxrwx 1 tlhokomelo tlhokomelo   24 Nov  6 11:42  piping.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 11:00  pwd
-rwxrwxrwx 1 tlhokomelo tlhokomelo 4.1K Nov  7 12:49  sort.txt
drwxrwxrwx 1 tlhokomelo tlhokomelo  512 Nov  6 10:29  stuff
-rwxrwxrwx 1 tlhokomelo tlhokomelo   79 Nov  6 11:01  today.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 10:32  today_apple.js
-rwxrwxrwx 1 tlhokomelo tlhokomelo    0 Nov  6 10:55  touch
-rwxrwxrwx 1 tlhokomelo tlhokomelo  463 Nov  6 11:12  twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ tar -tf bundle.tar
sort.txt
today.txt
```

nano

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ nano fruit.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cat fruit.txt
1.  apple
2.  apple
3.  banana
4.  orange
5.  apple
6.  banana
7.  banana
8.  orange
9.  pineaple
10.  grape
11.  strawberry
12.  black Berries
13.  kiwi
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ nano fruit.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cat fruit.txt
1.  apple
2.  apple
3.  banana
4.  orange
5.  apple
6.  banana
7.  banana
8.  orange
9.  pineaple
10.  grape
11.  strawberry
12.  black Berries
13.  kiwi
14.  naatjie
15.  coconut
```

Other nano options

```
                                     [ Read 15 lines (Converted from DOS format) ]
^G Help        ^O Write Out   ^W Where Is    ^K Cut        ^T Execute   ^C Location   M-U Undo    M-A Set Mark    M-] To Bracket   M-Q Previous    ^B Back       ^  Prev Word
^X Exit        ^R Read File   ^\ Replace     ^U Paste      ^J Justify   ^/ Go To Line M-E Redo    M-6 Copy        ^Q Where Was     M-W Next        ^F Forward    ^  Next Word
```

```
Save modified buffer?
Y Yes
N No              ^C Cancel
```

Creating new file with content using nano


```
tlhokomelo@DESKTOP-PI2VM19: /mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ nano new.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ cat new.txt
nothing to read

tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$ ls
 0.docx          app.js    apple.js       archive.tar.gz  cat.png     fish         fruit2.txt  'new 2.txt'  piping.txt  sort.txt    today.txt       touch
 app.html.css    app.py    archive.tar    bundle.tar      config.txt  fruit.txt   'new 1.txt'  new.txt      pwd         stuff       today_apple.js  twofiles.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo$
```

Alias


```
tlhokomelo@DESKTOP-PI2VM19: ~
tlhokomelo@DESKTOP-PI2VM19:~$ alias myls='ls -la'
tlhokomelo@DESKTOP-PI2VM19:~$ alias
alias alert='notify-send --urgency=low -i "$([ $? = 0 ] && echo terminal || echo error)" "$(history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/[;&|]\s*alert$//'\'')"'
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias grep='grep --color=auto'
alias l='ls -CF'
alias la='ls -A'
alias ll='ls -alF'
alias ls='ls --color=auto'
alias myls='ls -la'
alias winhome='cd /mnt/c/Users/thlok/'
tlhokomelo@DESKTOP-PI2VM19:~$
```

Xargs

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo_copy$ ls -lh
total 12K
-rwxrwxrwx 1 tlhokomelo tlhokomelo 12K Nov  6 10:34 O.docx
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  6 10:34 apple.js
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  6 10:34 cat.png
-rwxrwxrwx 1 tlhokomelo tlhokomelo  25 Nov  7 22:22 deadPlayers.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  6 10:34 fish
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  7 22:15 player1.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  7 22:15 player2.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  7 22:15 player3.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  7 22:24 player4.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  7 22:24 player5.txt
drwxrwxrwx 1 tlhokomelo tlhokomelo 512 Nov  6 10:34 stuff
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  6 10:34 today_apple.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo_copy$ cat deadPlayers.txt | xargs rm
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo_copy$ ls -lh
total 12K
-rwxrwxrwx 1 tlhokomelo tlhokomelo 12K Nov  6 10:34 O.docx
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  6 10:34 apple.js
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  6 10:34 cat.png
-rwxrwxrwx 1 tlhokomelo tlhokomelo  25 Nov  7 22:22 deadPlayers.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  6 10:34 fish
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  7 22:15 player1.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  7 22:15 player2.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  7 22:15 player3.txt
drwxrwxrwx 1 tlhokomelo tlhokomelo 512 Nov  6 10:34 stuff
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  6 10:34 today_apple.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo_copy$
```

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo_copy$ find . -size +1m | xargs ls -lh
find: invalid -size type `m'
total 12K
-rwxrwxrwx 1 tlhokomelo tlhokomelo 12K Nov  6 10:34 O.docx
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  6 10:34 apple.js
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  6 10:34 cat.png
-rwxrwxrwx 1 tlhokomelo tlhokomelo  25 Nov  7 22:22 deadPlayers.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  6 10:34 fish
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  7 22:15 player1.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  7 22:15 player2.txt
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  7 22:15 player3.txt
drwxrwxrwx 1 tlhokomelo tlhokomelo 512 Nov  6 10:34 stuff
-rwxrwxrwx 1 tlhokomelo tlhokomelo   0 Nov  6 10:34 today_apple.js
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer/zoo_copy$
```

Ln

Hard links


```
tlhokomelo@DESKTOP-PI2VM19: /mnt/c/Users/thlok/Desktop/Greenhouse/Links
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/summer$ cd ..
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse$ cd Links
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ echo "I am original" > original.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ cat original.txt
I am original
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ ls
original.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ ln original.txt hardlink.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ ls
hardlink.txt  original.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ cat hardlink.txt
I am original
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ echo "THIS IS MORE STUFF" >>
-bash: syntax error near unexpected token `newline'
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ echo "THIS IS MORE STUFF" >> original.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ cat original.txt
I am original
THIS IS MORE STUFF
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ cat hardlink.txt
I am original
THIS IS MORE STUFF
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$
```

Soft links

```
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ touch fake.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ nano fake.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ cat fake.txt
I am a fake
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ ls -s fake.txt softlink.txt
ls: cannot access 'softlink.txt': No such file or directory
0 fake.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ ln -s fake.txt softlink.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ ls -lh
total 0
-rwxrwxrwx 1 tlhokomelo tlhokomelo 12 Nov  7 22:37 fake.txt
-rwxrwxrwx 2 tlhokomelo tlhokomelo 33 Nov  7 22:33 hardlink.txt
-rwxrwxrwx 2 tlhokomelo tlhokomelo 33 Nov  7 22:33 original.txt
lrwxrwxrwx 1 tlhokomelo tlhokomelo  8 Nov  7 22:39 softlink.txt -> fake.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ echo "I am original" > fake.txt
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ cat fake.txt
I am original
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$ cat softlink.txt
I am original
tlhokomelo@DESKTOP-PI2VM19:/mnt/c/Users/thlok/Desktop/Greenhouse/Links$
```

 # . A hard link is a file all its own, and the file references or points to the exact spot on a hard drive where the Inode stores the data. A soft link isn't a separate file, it points to the name of the original file, rather than to a spot on the hard drive.

Password

```
colt@myUbuntu:~$ passwd
Changing password for colt.
Current password:
New password:
Retype new password:
passwd: password updated successfully
colt@myUbuntu:~$ passwd
Changing password for colt.
Current password:
passwd: Authentication token manipulation error
passwd: password unchanged
colt@myUbuntu:~$ passwd
Changing password for colt.
Current password:
New password:
Retype new password: █
```

Chown

```
colt@myUbuntu:/home/kitty$ sudo chown colt Music/
[sudo] password for colt:
colt@myUbuntu:/home/kitty$ ls -l
total 36
drwxr-xr-x 2 kitty kitty       4096 Apr 24 17:27 Desktop
drwxr-xr-x 2 kitty kitty       4096 Apr 13  2021 Documents
drwxr-xr-x 2 kitty kitty       4096 Apr 13  2021 Downloads
drwxr-xr-x 2 kitty kitty       4096 Apr 13  2021 fontconfig
-rw-rw-r-- 1 colt  palsforever    0 Apr 24 18:19 FORCOLT.txt
drwxr-xr-x 2 colt  kitty       4096 Apr 13  2021 Music
drwxr-xr-x 2 kitty kitty       4096 Apr 13  2021 Pictures
drwxr-xr-x 2 kitty kitty       4096 Apr 13  2021 Public
drwxr-xr-x 2 kitty kitty       4096 Apr 13  2021 Templates
drwxr-xr-x 2 kitty kitty       4096 Apr 13  2021 Videos
```
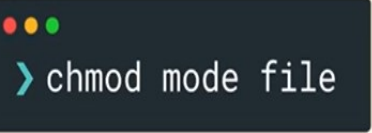
Chmod

chmod

When specifying permissions with chmod, we use a
special syntax to write permission statements.

First, we specify the "who" using the following values:

- **u** - user (the owner of the file)
- **g** - group (members of the group the file belongs to
- **o** - others (the "world"
- **a** - all of the above

```
> chmod mode file
```

chmod

Next, we tell chmod "what" we are doing using the following characters:
- – (minus sign) removes the permission
- + (plus sign) grants the permission
- = (equals sign) set a permission and removes others

Finally, the "which" values are:
- r - the read permission
- w - the write permission
- x - the execute permission

```
> chmod mode file
```

Owner	Group	World
– rw–	r – –	r – –

```
> chmod g+w file.txt
```

Add write permissions to the group

Owner	Group	World
– rw–	rw–	r – –