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#### BASH Notes

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##Environmental platform (user can run computing) = Operating system + Processor

Environment Variable: ENV\_VAR="variable value"

An environment variable is a variable that can affect the way running processes will behave.

They are part of the environment in which a process runs.

##Environment variables: dynamic values; exist in every operating system; can be created, edited, saved and deleted; give information about the system behavior; change the way software/programs behave

# $LANG (language), path, user (username), home (default path), editor, uid, term, shell, env,

# echo (display value of a variable)& variable ( case sensitive)

# env: Displays all environment variables

#Basic directory structure: /(contains all files and folders); Root; Bin Sbin (executable programs are stored in Bin and Sbin); ETC (contains account, password info); Home; Lib (common lib); MNT; PROC; TMP (temporary data); USER; VAR

#$(you login as a normal user); #(you login as a owner user)

#passwd (change to a new password for the root account)

#File system: cd(change directory, will move to the directory) pwd (current directory); locate filename( search for a specific file); ls (list all files and folders): -l(list all permissions associated with each file by home), -a(show hidden files); mount cdrom end eject

#File system: getdit (edit); cat (show the content); less (when the file is large and cannot fit the screen);

#Running a program: ./program; ps aux; CTRL-C(terminate the program); bg (running in the background); fg job number(bring background to the front)

PATH Environment Variable

PATH is an environment variable on Unix-like operating systems, DOS, OS/2,

and Microsoft Windows, specifying a set of directories where executable programs are located.

Bash

Bash is a shell and is the command line interpreter for many Linux derived operating systems.

bg

Used for controlling the foreground/background running of processes.

cat

Used for printing and concatenating file streams.

Example: cat /etc/hosts

cd

A shell built-in program used for changing the working directory.

Example: cd ../../home/ubuntu

chmod

Used for changing the file modes (permissions) on files.

Example: chmod 0600 authorized\_keys

curl

Used for transferring (uploaded, download) data to or from a server.

Example:

echo

Used for print output to the standard out (stdout) file stream.

Example: echo "Hello! World!"

env

Used for printing and controlling the environment in which a program runs.

exit

A shell built-in program used for exiting the current shell.

find

A tool for searching for files/folders based on a filter condition.

git

A distributed version control system program.

grep

Used for pattern matching and searching of files.

Example: grep "search phrase" massive\_text\_file.txt

history

A shell built-in program used for viewing the history of executed commands.

kill

Used for stopping or terminating current processes.

Example: kill 1932

less

Used for viewing the contents of a file.

Example: less massive\_text\_file.txt

ls

Used for listing the contents of a directory.

Example: ls -lah .

Example: ls massive\_text\_file.txt

man

A program for viewing the documentation for a given command.

Example: man grep

mkdir

Used for creating directories in a file system.

Example: mkdir /home/pl2648/smooth-jazz

nano, vim

Both are command line based text editors.

pip

Used for installing packages into the activated Python environment.

Example: pip install catzzz

ps

Used for monitoring the status of running processes.

psql

Used for opening a Postgresql client terminal for communication with a Postgres server.

Example: psql -U pl264 -h localhost -d imdb

pwd

Used for determining the current working directory.

rm

Used for removing files and directories.

Example: rm -r logs/

sleep

Used to suspend execution of a running process.

Example: sleep 10

ssh-keygen

Used for creating public/private key pairs.

Example: ssh-keygen -t rsa -b 4096 -C "Key for VM"

sudo

Used for executing a command as the superuser or another user.

Example: sudo chmod +x myprogam.sh

touch

Used for creating files and modifying their access/modification times.

Example: touch myfile.txt

wget

Used for downloading data over the network.

Example: wget https://media.giphy.com/media/HfJdu4HABDU3e/giphy.gif

which

Used for locating a file or executable in the user's PATH.

Example: which python

##

ls –lah(list all human language)

drwxr-xr-x:three groups(3-3-3), first group(read write execute-rwx), second(group r-x),third(whole world r-x)

cd(change directory): cd test1/(path)—go down one by one

cd ..(back to the last step)—go up one by one

mkdir(make a directory-folder) test1

rmdir test1

echo(print, remember in vim): always print words, 1.cannot recognize’’, 2.instead recognize “”

vim (file type,think as a text editor-like a word)

under vim (i:insert)

under vim (:wq(write & quit)-save)

under vim (:q!-force quit)

under vim: make a function

bash text1(run function)-u`nder the folder you created

under vim(use $ as a user input, instead of a constant)

under vim $(($1+$2)) = 3+4=7

under vim $1 $2 $3

under vim $@(take as many variable as possible)

$ chmod 0644(0 or 1 means file or folder, read:4, write:2, execute: 1,-:0): give authorization to owner, group and the whole world

Nano