UNIX COMMANDS

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UNIX FILTERS

This handout is a quick reference for useful unix commands. It is not complete nor is it intended to replace manual pages or unix books.

Recomended Reference : Unix in a Nutshell.

FILE COMMANDS

touch   Create a new file.
             Usage: touch <filename>
             Usage:

cp   Copy files.
             Usage: cp [options] <source-filename> <destination-filename>
                         cp [options] <source-filepath > <destination filepath>
             Options: -r   recursively copy directory structures.

mv   Move or Rename files or directories.
             Usage: mv [options] <old-filepath> <new-filepath>
                         mv [options] <old-filename> <new-filename>
             Options: -i   query user for confirmation.

rm   Remove files.
             Usage: rm [options] <filname>
             Options: -r   recursively remove directory structures.
                         -i   query user for confirmation.

cat   View complete file content.
                         cat <filename>

more   View file contents in sections determined by the size of the terminal.
             Usage: more <filename>

less   View file contents in sections determined by the size of the terminal.
             Has more options and search features than more.
             Usage: less [options] <filename>

compress   Reduces the size of the file. and adds the extension .Z
             Usage: compress <filename>.

uncompress /   Restores a compressed file.
zcat   Usage: uncompress <filename>
             Usage: zcat <filename>

DIRECTORY COMMANDS

cd   Change directory.
                 Usage: cd <filename>
                 Eg: cd my-directory
                             cd   go to home directory
                             cd ..   go up one directory

pwd   Print working directory on the terminal.

ls   List the content of a directory.
                 Usage: ls [options] or ls [options] <directory-path>
                 Options: -l   list all files in long format.
                 (permissions, users, filesize,date, and time are displayed).
                             -a   list all files including those beginning with a ".."
                             -F   list files distinguishing
                 directories/ executables* symbolic links@
                             -R recursively list subdirectories encountered.

mkdir   Create a new directory.
                 Usage: mkdir <directory-path>

rmdir   Remove a directory if its empty.
                 Usage: rmdir <directory-path>

SYMBOLIC LINKS

ln   Create symbolic links between files or between directories.
                 Usage: ln [options] <file-to-be-linked> <new-file>
                             ln [options] <directory-to-be-linked> <my-directory>
                 Options: -s allows linking across file systems and allows the dis-
                 play of the link's name upon ls -l.
                 Eg: ln -s course-file myfile
                 Eg: ln -s course-directory myspace

TERMINAL COMMANDS

clear   Clears the terminal.

echo: Write a string to standard output.
                     Usage: echo "string" or
                                 echo 'string'

repeat   Repeats commands.
                     Usage: repeat <number> <command>

HELP COMMANDS

man   Displays the manual page for the selected command.
                     Usage: man <command-name>

help   Opens the default web browser in the andrew unix help web site.
                     http://polaris.andrew.cmu.edu/help/sys=sun4_55/env=gamma/Top-
                     Page

rtfm   Displays the man page and help files ont he terminal.
                     Usage: rtfm <command-name>

INFORMATION COMMANDS

history   Lists the commands typed during the session.
                     Options: -r displays the list in reverse.

hostname   Displays the computer's or server's name on the terminal.

who   Displays who is on the system.

who am i   Displays the invoking user.

wc Counts and displays the number of lines, words and characters of a file.
Usage: wc [options] <filename>
Options: -c count character only.
-l count lines only.
-w count words only.

date Exercise >> to be completed by students.

cal Exercise >> to be completed by students.

whatis Displays the command description.
Usage: whatis <command>

whereis Exercise >> to be completed by students.

which Exercise >> to be completed by students.

apropos Exercise >> to be completed by students.

id Displays the user id and the group id of the invoking user.

tty Displays users terminal name.

USEFUL CSHELL SYMBOLS

| Pipe the output of a command to be processed by another command.
                Usage: command1 |command2
                Eg: ls -l | more
                              more file-name | grep pattern
                              more filename | wc

>   Redirect output........ to file (overwrite).
                Usage: command > filename
                Eg: wc filename > new-file

>>   Append (the result of the command) to the end of the file.
                Usage: command >> file-name
                Eg: pwd >> existing-file

<   Take the input for the command from a file.
                Usage: command1 < filename.

&   Run process in the backgound so that the shell remains active.
                Usage: program-name &
                              program-name filename &

;   Separate commands on the same line.
                Usage: command1 ; command2
                Eg: pwd ; ls

*   Match a string of zero or more characters.
                Eg: cp *   copy all files
                              cd publ*   go to any directory that begins with publ
                              cd *tory   go to any directory which ends with tory
                              cp *.*   copy all files that contain a dot

?   Match a single character.
                Eg: grep d?n filename display all lines that contain
                              dan, don, din, dgn, ect.

[ ]	Match any of the enclosed characters.
	Eg: grep [abc] filename
	grep [a-z] filemane Hyphen is used to specify a range.
$var	Anything thats starts with a $ is a variable.
#	Begin comments (used in the Cshell script files).
~	Home directory symbol.
	Eg: cd ~ go to home directory of the current user.
	cd ~rob go tot home directory of user rob.
$home	Home directory .
!	The history commands.
	!! Redo last command.
	!str Redo the last command that starts with str.
	!23 Redo the 23rd command.
	!-2 Redo the (last command -2)
^	Quick modifier for the last command.
	Usage: ^mistake^correction.
&&	The logical and symbol : execute first command then if successful, the second command.
	Usage: <command1> && <command2>
||	The OR symbol : executes the first command or, if it fails, the second command.
	Usage: <command1> || <command2>
./	Runs a compiled program.
	Usage: ./ program-name

PERMISSIONS AND FILE STORAGE (UNIX)

chmod   Set the permission on a file or a directory.

Usage: chmod [options] \<who\> \<opcode\> \< permission\> \<file-name\>

Options: -R   Recursively updates permisions within a directory structure.

Who: **u**   user
         g   group
         o   other
         a   all

Opcode: **+**   add permission.
            -   remove permission.

Permission:
         r   read
         w   write
         x   execute

Eg: chmod a +rwx public-file
             adds permissions of read write and execute to all.

Eg: chmod go -wx my-file
             removes write and execute to group and others.

passwd   Change the password.

df   Displays the amount of free and used disk space.

du   Displays the amount of disk usage.

quota   Displays the amount of disk space used.

Options: -v   Display user's quota on all file systems.

PERMISSIONS AND FILE STORAGE (ANDREW)

fs quota   Checking your percentage disk usage on your andrew account.

fs lq   Lists the amount and percentatge of disk usage on your andrew account.

fs la   Lists access control lists for directories.
Usage: fs la or fs la <directory-name>

fs sa   Sets access control lists for directories.
Usage: Usage: fs sa <directory> <user> <permission>
Eg: Eg: fs sa <directory-name > system:anyuser rl.

Permissions:
r	read
l	list
i	insert
d	delete
w	modify
a	administrative

PROCESSES

ps   Displays the active processes.
             Includes the process number, process name and process time.
             Options: -a

kill   Terminates a process.
             Usage: kill [options] <process-number>

             Options: -9   absolute kill.

control z Stops a current process.

bg   Restarts process in the baground.

exec   Executes a command in place of the current shell which terminates.
             Usage: exec command-name.

PRINTING

lpr   Sends a job to the printer.
             Usage: lpr- P <printer-name> <file-name>
             Options: -n specifies the number of copies.
             Eg: lpr -P triglyph -3 myfile
                                prints 3 copies of myfile on trilyph

lpq   Displays the printer queue including the job number.
             Usage: lpq -P <printer-name>

lprm   Removes a job from the printer queue.
             Usage: lprm -P <printer-name> <job-number>

print   Sends the job to the printer.
             Usage: print -P <printer-name> <file-name>

ENVIRONMENT

env   Show all the environment variables.
Usage: env
Some Environment variables:
    HOME : home directory
    PATH: search path for commands
    TERM: terminal type
    USER: username
    DISPLAY: the name of the machine to which the display is sent.
    SHELL: the current shell
    PWD: the current directory.
    EDITOR : the default text editor

printenv   Show all or specified environment variable.
Usage: printenv
    printenv <variable-name> will print only this variable

setenv   Sets a particular environment variable.
Usage: setenv <variable-name> <value>
Eg: setenv EDITOR emacs.
    setenv DISPLAY bernini.arc.cmu.edu:0.0

CUSTOMIZING

alias   Creates a shortcut for a command or series of commands.
Usage: alias   displays all specified aliases.
Usage: alias <shortcut> <series of commands>
To include command line arguments in the alias
    \!* for the all command line arguments
    \!^ for the first argument
    \!$ for the last argument

Eg: alias h 'history'
    alias janus 'xhost + ; telnet janus.arc.cmu.edu'
    alias rm 'rm -i'
    alias my-term 'xterm -title \!* -bg ivory -fg black'

unalias	Removes the alias from its bound commands.
	Usage: unalias <shortcut>

set	Sets variables in current shell.
	Usage: set <variable>=<value>
	echo $variable will print out the value of the variable.
	Usage: set: displays all the set variables in the shell.

unset	Removes value form the variable.
	Usage: unset <variable>

stty	Set the option for a terminal.
	Usage: stty erase <desired-key> character erase
	stty kill <desired-key> whole line erase
	stty werase <desired-key> word erase

set filec	If filec is set, any partially typed filename can be expanded to its full name whenever esc key is pressed.
	Usage: set filec

set prompt	Sets the prompt of the terminal.
	Usage: set prompt=<value>.
	Eg: set prompt="[hoda]"
	set prompt="\!%" will show command number
	set prompt="<`pwd`> " will show working directory

chsh	Change Shell.
	Usage: chch <username> <newshell>
	Eg: chsh hoda tcsh.

source	Reads commands from a file. Used to reload an updated .cshrc file into the current working shell.
	Usage: source filename.

NETWORKING

telnet   Connects to a remote computer.
                      Essential telnetting steps:
                                xhost +
                                telnet <remote-hostname>
                                setenv DISPLAY <local-hostname>:**0.0**
                      Eg: telnet janus.arc.cmu.edu

xhost +   Gives permission to all clients to establish remote connections with a
                      server and display its output to its terminal.
                      Usage: xhost +
                                xhost - removes permision from all clients.

**setenv DIS-   Allows the remote host to display its x-applications onto the local
PLAY**   terminal.
                      Usage: setenv DISPLAY <local-hostname or IP address>:**0.0**;
                      Eg: setenv DISPLAY bernini.arc.cmu.edu:0.0
                                setenv DISPLAY 128.2.120.96:0.0

ftp   File transfer program: Allows the get and put of files between com-
                      puter accounts.
                      Usage: **ftp** <remote-hostname>
                      Inside ftp: **put** <local-filename>
                                get <remote-filename>
                                mget <filename>gets multiple files.
                                eg: mget *
                                mput <filename> puts multiple files.
                                eg   mput *
                                lcd   changes the local directory.
                                help   lists all ftp commands.
                                quit or bye exits ftp.

finger   Display information about local or remote users.
                      Usage: finger <user-name>
                                finger <user-id>

talk   Exercise >> to be completed by students.

write   Exercise >> to be completed by students.

X-APPLICATIONS

xterm   Opens a terminal window.
                    Options: -name   gives a name to the terminal.
                                -title   displays a title on the terminal.
                                 -bg   specifies background color.
                                -fg   specifies foreground color.
                                 -e   gives a command to be executed.
                                - g   specifies the geometry in the format .
                    <length> x <width > + <x-coord> + <y-coord of top left point>
                    Eg: xterm -name janus -title janus -bg ivory -fg blue &
                             xterm -e telnet janus.arc.cmu.edu &
                             xterm -g 90x28+640+600 &

xclock   Exercise >> to be completed by students

dclock   Displays a digital clock.
                    Options: -bg - fg - g
                                -date
                    Eg: dclock -date "%d %m %y" &

xemacs   Opens emacs editor.
                    Usage: xemacs &
                              xemacs filename &

UNIX FILTERS

grep   Search a file for a matching pattern or regular expression.
              Usage: grep [options] <regular-expression> <file-name>
              Options: -n print lines and line numbers
                         -v prints all the lines that do not contain the expression.
              Eg: grep [a-z]*.C filename
                         grep *[SITE]* filename

fgrep   A variation of grep that maches a text-string and does-not support
              regular expressions.
              Eg: fgrep <string> <file-name>

spell   Exercise >> to be completed by students

sort   Exercise >> to be completed by students

head   Exercise >> to be completed by students

tail   Exercise >> to be completed by students

find   Search the system for filenames.
              Usage: find <pathname> <condition>
              Eg: find /home/hoda -name seed

split   Splits a file into several files of equal length.
              Usage: split [options] <filename> <outfile>.
              Options: -n   specifies the number of lines per file.
              Another variation of split **is csplit** which splits the file using a speci-
              fied expression as a splitting point.

cmp   Compare 2 files.
              Usage: cmp <file1> <file2>

diff   Reports the lines that differ between 2 files
              Usage: diff <file> <file2>

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join A database operator that joins the common lines of two sorted files.
Usage: join <file1> <file2>