

Special Characters	
&	Background job
#	Comment
~	Home Directory
!	Logical NOT
'	Quote (Strong)
"	Quote (Weak)
<	Redirect input
>	Redirect output
>>	Redirect output + append to file
 	Redirect (pipe) output to next command
/	Separator for pathname directories
;	Separator for shell commands
[]	Start and end a character-set wildcard
{ }	Start and end a command block
()	Start and end a subshell
(())	Perform arithmetic
*	Wildcard
?	Wildcard – single character
\$	Variable expression
\	Escape a special character
n>&m	Descriptor n is a copy of output file descriptor m
n<&m	Descriptor n is a copy of input file descriptor m

String Operators	
\${varname:-word}	Returns word
\${varname:=word}	Sets and returns word
\${varname:?message}	Prints message and exits
\${varname:offset:length}	Returns substring
\${varname:+word}	If varname is defined, return word

Pattern-matching operators	
\${varname#pattern}	Match first from the start
\${varname##pattern}	Match last from the start
\${varname%pattern}	Match first from the end
\${varname/pattern/replace}	Match longest and replace
\${varname//pattern/replace}	Match all and replace

Variables	
\$0, \$1, \$2,	Positional parameters
\$@	"\$1" "\$2" "\$3" ...
\$*	A string of positional params > 0
\$#	Number of positional params
\$?	Exit status of last command run

Functions	
define	function myfunction { ... } or myfunction () { ... }
call	myfunction arg1 arg2 ...
keywords	local – limit var scope

If / else conditions	
x && y	If x runs, then run y
x y	If x fails, then run y
x -a y	x AND y
x -o y	x OR y
-lt, -le, -eq, -gt, -ge, -ne	Integer comparisons
=, !=, <, >	String comparisons
-n str1	str1 has length > 0 (nonzero)
-z str1	str1 has length 0 (zero)
-d file	File exists and is a directory
-e file	File exists
-f file	File exists and is a regular file
-r file	User has read permission on file
-s file	File exists and is non empty
-w file	User has write permission on file
-x file	User has execute permission on file, or search if directory
-N file	File was modified since it was last read
-O file	User owns file
-G file	File's group ID matches the user's group ID
file1 -nt file2	file1 has newer modification time than file2

Flow control sentences	
if	if condition; then

	commands; fi
or	for ((init; condition; increment)); do commands; done
for	for var in array; do commands; done
case	case expression in pattern1) commands ;; pattern2) commands ;; *) commands ;; esac
while	while condition; do commands; done
until	until condition; do commands; done

Useful Commands	
type <cmd>	Determine type of command: -a ; displays all the locations
builtin <cmd>	Run builtin commands explicitly
which <cmd>	Locate the executable of a command: -a ; show all locations
clear	Clear the terminal screen
echo "str1"	Print message to terminal screen: -e ; uses escape sequences like (\n = newline, \t = tab) -n ; suppresses automatic newline after print
printf <format> <variables>	Print messages to terminal screen. Formatting be like: %s – String %-Xs – String wide X chars, left aligned %Xs – String wide X chars, right aligned %d – Integer (%-Xd, %Xd) %f – Float %Xf – Round to X decimal spaces
date <options> <+format>	Will display date and time. Formats (" +%Y-%m-%d"): %Y – Year, %m – month, %d – day, %H – hours, %M – minutes, %S – seconds, (%A uppercase for full name) %a – DayOfTheWeek, (%B) %b – Month Options (-d "yesterday"): "yesterday", "next Monday",
read <options> <variable>	Read input from user or file and store into variable (read var1). Options: -p "Text" : print before input -a : store the input in array
history <options>	Display the command history for that session. Options: -c : clear the history -X : print the last X commands -a : appends history to bash history file -d X : deletes the command with index X from history
sleep <num_time>	Delay the execution of a script. Num_time: Xs : delay for X second(s) (default) Xm : delay for X minute(s) Xh : delay for X hour(s)
man <command>	Opens the manual pages for the <command>.
ls <options> <path>	List the files and directories in the current working directory or given path. Options: -l : list detailed view for files -a : show all files, even hidden -alp : ???
pwd	Display the current working directory.
cd <directory>	Change the current working directory. <directory>: /path' : changes directory to path

	'..' : changes to parent directory of the current one "~username" : changes to home directory for username '-' : changes to previous working directory used
mkdir <directory>	Creates new directory. <directory> can be: 'd1' : creates new directory called d1 'd1' 'd2' 'd3' : creates more directories in the current one -p 'd1/d2' : creates d1 and another directory d2 as d1's child
rmdir <directory>	Works the same as mkdir, but it deletes the directory if it is empty.
cat <file>	Display the contents of the file on the terminal. <file>: 'file.txt' : displays file.txt 'f1.txt' 'f2.txt' : displays files consecutively -n 'file.txt' : displays file.txt with numbered lines
more, less, od, hexdump	More and less are both text viewers, od gives octal output and hexdump hexadecimal.
cp <source> <destination>	Copy files or directories from source to destination. cp file /path : copy file to path cp -r directory /path : copy directory with all its contents to path
mv <source> <destination>	Moves files or directories from source to destination. mv file /path : move file to path mv directory /path : move directory to path mv file.txt newfile.txt : renames file.txt to newfile.txt
uniq <options> <file>	Removes all consecutive lines. Options: -c : also counts the amount of duplicates -i : ignores the case -d : outputs only duplicates -u : outputs only the unique
rev <file>	Reverse the characters in each line of the input stream or file
tr <options> <set1> <set2> <file>	Translate or delete characters. Set1 is translated to Set2. -d : removes the characters -c : complement the Set1
wc <options> <file>	Counts the number of lines, words, bytes. Options: -l : only counts the lines -w : only counts the words -c : only counts the bytes
grep <options> <pattern> <file>	Search for specific pattern or regular expression. Options: -i : ignore case -v : invert the match (print only the lines not matching the pattern) -w : match only whole words -n : print the line numbers for each match -r : search recursively through directories
shift <X>	Shift the positional parameters to the left. X is number of positions to shift.
jobs <options>	Display a list of jobs that are currently running in the background or are suspended. -l : also displays PID of a job -p : displays only the PIDs -r : displays the running jobs -s : displays the stopped jobs
fg <JID>	Bring a job that is running in the background to the foreground.
bg <JID>	Start a suspended job in the background.
disown %<JID>	Remove jobs from shell's job control. (disown %2 : removes job with JID 2)
ulimit <options>	Display the resource limits of the current shell and its children. -a : displays all current limits

