# BASH
# Cheat Sheet

**A handy cheat sheet for essential Bash commands**
**https://github.com/0bl1o/bash-cheat-sheet**

## Basic commands

```
Command                       Description
---------------------------------------------------------------------------------
pwd                           Print working directory
ls                            List directory contents
cd <directory>                Change directory to <directory>
touch <file>                  Create an empty file
mkdir <dir>                   Create a new directory
rm <file>                     Remove a file
rmdir <dir>                   Remove an empty directory
rm -r <dir>                   Remove a directory and its contents
cp <source> <dest>            Copy files or directories
mv <source> <dest>            Move or rename files or directories
```

## File permissions

```
Command                       Description
---------------------------------------------------------------------------------
chmod <permissions> <file>    Change file permissions (e.g. chmod 755 file)
chown <user>:<group> <file>   Change file ownership
ls -l                         List files with detailed information
chmod -R <permissions> <dir>  Change permissions recursively for a directory
chown -R <user>:<group> <dir> Change ownership recursively for a directory
```

## File viewing & editing

```
Command                       Description
---------------------------------------------------------------------------------
cat <file>                    Display the contents of a file
less <file>                   View a file page by page
head <file>                   View the first 10 lines of a file
tail <file>                   View the last 10 lines of a file
vim <file>                    Open a file in the Vim editor
vim +<line> <file>            Open a file and jump to a specific line number
```

## Searching & finding files

```
Command                       Description
---------------------------------------------------------------------------------
grep <pattern> <file>         Search for a pattern in a file
find <path> -name <file>      Find a file by name
locate <file>                 Locate a file by its name
updatedb                      Update the database for locate
which <command>               Find the location of a command in the system path
whereis <command>             Find binary, source, and manual pages of a command
```

## Process management

```
Command                       Description
----------------------------------------------------------------------------------------
ps                            List processes running on the system
top                           Display a real-time list of running processes
kill <pid>                    Kill a process by its PID
killall <process>             Kill all instances of a process
bg                            Move a process to the background
fg                            Bring a background process to the foreground
nice <command>                Start a command with a modified priority
renice <priority> <pid>       Change the priority of a running process
nohup <command> &             Run a command in the background and ignore hangups
pstree                        Display processes in a tree-like format
```

## Networking

```
Command                       Description
----------------------------------------------------------------------------------------
ping <host>                   Ping a host to check connectivity
curl <url>                    Transfer data from or to a server
wget <url>                    Download files from the web
ifconfig                      Display or configure network interfaces
ip a                          Display network interfaces (more modern than ifconfig)
ss                            Utility to investigate sockets (faster and better than netstat)
traceroute <host>             Trace the path packets take to a destination
nslookup <domain>             Query DNS to find domain information
dig <domain>                  Perform DNS queries and display the results
hostname                      Show or set the system's hostname
telnet <host> <port>          Test connectivity to a specific port on a remote host
scp <file> <user>@<host>:<path>  Copy files securely between hosts via SSH
rsync <source> <destination>  Synchronize files between local and remote systems
```

## Disk usage

```
Command                       Description
----------------------------------------------------------------------------------------
df                            Show disk space usage
du                            Show disk usage of files and directories
du -sh <dir>                  Show the total disk usage of a directory in human-readable format
mount                         Mount a filesystem
umount <device>               Unmount a filesystem
lsblk                         List information about block devices
fdisk -l                      List all partitions and their details
parted -l                     List partitions in a human-readable format
fsck <device>                 Check and repair a filesystem
tune2fs -l <device>           View information about an ext2/ext3/ext4 filesystem
```

## System information

```
Command                       Description
----------------------------------------------------------------------------------------
uname -a                      Display system information (kernel, OS, etc.)
hostnamectl                   Get or set the system hostname
uptime                        Show system uptime and load averages
who                           Show who is logged in
w                             Display who is logged in and their activity
last                          Show the last logins
free                          Display memory usage
vmstat                        Report virtual memory statistics
lscpu                         Display CPU architecture information
lsusb                         List USB devices
lspci                         List PCI devices
dmesg                         Print the kernel ring buffer
lshw                          Display detailed hardware configuration
top                           Monitor system resources in real-time
```

## Environment variables

```
Command                      Description
-----------------------------------------------------------------------------------
echo $<variable>             Print the value of an environment variable
export <variable=value>      Set an environment variable
unset <variable>             Remove an environment variable
env                          Display all environment variables
printenv                     Print all environment variables
```

## File redirection & pipes

```
Command                      Description
-----------------------------------------------------------------------------------
command > <file>             Redirect output to a file
command >> <file>            Append output to a file
command < <file>             Use a file as input to a command
command | <command>          Pipe output from one command to another
command 2> <file>            Redirect error output to a file
command &> <file>            Redirect both stdout and stderr to a file
```

## Special characters

```
Character                    Description
-----------------------------------------------------------------------------------
*                            Wildcard, matches zero or more characters
?                            Matches any single character
[]                           Matches any one character within the brackets
&                            Run a command in the background
|                            Pipe the output of one command to another
;                            Separate multiple commands on the same line
&&                           Execute the second command only if the first succeeds
||                           Execute the second command only if the first fails
```

## Useful variables

```
Variable                     Description
-----------------------------------------------------------------------------------
$HOME                        Home directory
$USER                        Current user
$PATH                        List of directories to search for executables
$PWD                         Current working directory
$SHELL                       The path to the current shell
```

## Other useful commands

```
Command                      Description
-----------------------------------------------------------------------------------
alias <name>='<command>'     Create an alias for a command
unalias <name>               Remove an alias
man <command>                Show the manual page for a command
info <command>               Show detailed documentation for a command
crontab -l                   List scheduled cron jobs
systemctl <command>          Control systemd services (start, stop, restart)
service <service> <action>   Manage services (start, stop, restart)
journalctl                   View logs from the systemd journal
```