

Linux Commands

- Difficulty Level : [Medium](#)
- Last Updated : 29 May, 2020

Linux is a Unix-Like operating system. All the Linux/Unix commands are run in the terminal provided by the Linux system. This terminal is just like the command prompt of Windows OS. Linux/Unix commands are *case-sensitive*. The terminal can be used to accomplish all Administrative tasks. This includes package installation, file manipulation, and user management. Linux terminal is user-interactive. The terminal outputs the results of commands which are specified by the user itself. Execution of typed command is done only after you press the Enter key.



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Command s	Descriptio n
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<u>access</u>	Used to check whether the calling program has access to a specified file. It can be used to check whether a file exists or not
<u>accton</u>	Used to turn on or turn off the process for accounting or change info process accounting file
<u>aclocal</u>	Used to automatically generate aclocal.m4 files from configure.in file
<u>acpi</u>	Used to display the battery status and other ACPI information

<u>acpi_available</u>	Tests whether ACPI (Advanced Configuration and Power Interface) subsystem is available or not
<u>acpid</u>	It provides intelligent power management on a system and is used to notify the user-space programs about the ACPI events
<u>addr2line</u>	Used to convert addresses into file names and line numbers
<u>agetty</u>	It is a Linux version of getty, which is a Unix program running on a host computer that manages physical or virtual terminals to allow multi-user access
<u>alias</u>	Instructs the shell to replace one string with another string while executing the commands
<u>amixer</u>	It is a command-line mixer for ALSA(Advanced Linux Sound Architecture) sound-card driver

<u>aplay</u>	It is a command-line audio player for ALSA(Advanced Linux Sound Architecture) sound card drivers.
<u>aplaymidi</u>	Used to play standard MIDI(Musical Instrument Digital Interface) files, by sending the content of a MIDI file to an ALSA(Advanced Linux Sound Architecture) MIDI port
<u>apropos</u>	It helps the user when they don't remember the exact command but knows a few keywords related to the command that define its uses or functionality
<u>apt</u>	Provides a high-level CLI (Command Line Interface) for the package management system and is intended as an interface for the end user which enables some options better suited for interactive usage by default compared to more specialized APT tools like apt-cache and apt-get
<u>apt-get</u>	It is a command-line tool which helps in handling packages in Linux

<u>aptitude</u>	Opens up a highly built-in interface to interact with the package manager of the machine
<u>ar</u>	Used to create, modify and extract the files from the archives
<u>arch</u>	Used to print the computer architecture
<u>arp</u>	It manipulates the System's ARP cache. It also allows a complete dump of the ARP cache
<u>aspell</u>	Used as a spell checker in Linux
<u>atd</u>	It is a job scheduler daemon that runs jobs scheduled for later execution

<u>atrm</u>	Used to remove the specified jobs. To remove a job, its job number is passed in the command
<u>atq</u>	It displays the list of pending jobs which are scheduled by the user
<u>autoconf</u>	Used in Linux to generate configuration scripts
<u>autoheader</u>	Used to create a template file of C “#define” or any other template header for configure to use
<u>automake</u>	Used for automatically generating Makefile.in files compliant with the set GNU Coding Standards
<u>autoreconf</u>	Used to create automatically buildable source code for Unix-like systems

<u>autoupdate</u>	Used to update configure.in file in our Linux system to a newer Autoconf.
<u>awk</u>	It is a scripting language used for manipulating data and generating reports

<u>banner</u>	Used to print the ASCII character string in large letter to standrad output
<u>basename</u>	It strips directory information and suffixes from file names i.e. it prints the file name NAME with any leading directory components removed
<u>batch</u>	Used to read commands from standard input or a specified file and execute them when system load levels permit i.e. when the load average drops below 1.5

<u>bc</u>	Used for command line calculator
<u>bg</u>	Used to place foreground jobs in background
<u>biff</u>	A mail notification system for unix that notifies the user at the command line when new mail arrives and tells from whom it is
<u>bind</u>	Used to set Readline key bindings and variables
<u>bison</u>	It is basically a parser generator similar to yacc
<u>break</u>	Used to terminate the execution of for loop, while loop and until loop

<u>builtin</u>	Used to run a shell builtin, passing it arguments(args), and also to get the exit status
<u>bzcmp</u>	Used to invoke the cmp utility on bzip2 compressed files
<u>bzdiff</u>	Used to compare the bzip2 compressed files
<u>bzgrep</u>	Used to search for a pattern or an expression but inside a bzip2-compressed file
<u>bzip2</u>	Used to compress and decompress the files
<u>bzless</u>	It does not have to read the entire input file before starting, so with a large file, it starts up faster

<u>bzmore</u>	Used as a filter for CRT viewing of bzip2 compressed files, which are saved with .bz2 suffix
<u>cal</u>	Used to see the calendar of a specific month or a whole year. By default, it shows current month's calendar as output
<u>case</u>	It is the best alternative when we had to use multiple if/elif on a single variable
<u>cat</u>	Reads data from file and gives their content as output. It helps us to create, view, concatenate files
<u>cc</u>	It is used to compile the C language codes and create executables

<u>ccrypt</u>	It is a command line tool for encryption and decryption of data
<u>cd</u>	Known as change directory command. It is used to change current working directory
<u>cfdisk</u>	It displays or manipulates the disk partition table by providing a text-based “graphical” interface
<u>chage</u>	Used to view and change the user password expiry information
<u>chattr</u>	It is a file system command which is used for changing the attributes of a file in a directory
<u>chfn</u>	It allows you to change a user’s name and other details easily. chfn stands for Change finger

<u>chgrp</u>	Used to change the group ownership of a file or directory
<u>chkconfig</u>	Used to list all available services and view or update their run level settings
<u>chmod</u>	Used to change the access mode of a file
<u>chown</u>	Used to change the file Owner or group
<u>chpasswd</u>	Used to change password for multiple users at a time
<u>chroot</u>	Used to change the root directory
<u>chrt</u>	Used for manipulating the real-time attributes of a process

<u>chsh</u>	Used to change the user's login shell(currently login shell)
<u>chvt</u>	Used to switch between the different TTY (TeleTYpewriter) terminals available
<u>cksum</u>	Used to display a CRC(Cyclic Redundancy Check) value, the byte size of the file and the name of the file to standard output
<u>clear</u>	Used to clear the terminal screen
<u>cmp</u>	Used to compare the two files byte by byte and helps you to find out whether the two files are identical or not
<u>col</u>	It is used to filter out reverse line feeds. The col utility simply reads from the standard input and writes to standard output

<u>colcrt</u>	Used to format the text processor output so that it can be viewed on Cathode Ray Tube displays
<u>colrm</u>	Removes selected columns from a file
<u>column</u>	Used to display the contents of a file in columns
<u>comm</u>	Compares two sorted files line by line and write to standard output; the lines that are common and the lines that are unique
<u>compress</u>	Used to reduce the file size. After compression, the file will be available with an added .Z extension
<u>continue</u>	Used to skip the current iteration in for, while and until loop

<u>cp</u>	Used to copy files or group of files or directory
<u>cpio</u>	cpio stands for “copy in, copy out“. It is used for processing the archive files like *.cpio or *.tar. This command can copy files to and from archives
<u>cpp</u>	It is automatically used by C compiler to transform your program before compilation
<u>cron</u>	A software utility, offered by Linux-like operating system which automates the scheduled task at a predetermined time
<u>crontab</u>	A list of commands that you want to run on a regular schedule, and also the name of the command used to manage that list
<u>csplit</u>	Used to split any file into many parts as required by the user

<u>ctags</u>	It allows quick access across the files (For example quickly seeing definition of a function)
<u>cupsd</u>	It is a type of scheduler for CUPS (Common Unit Printing System). It implements the printing system on the basis of the Internet Printing Protocol
<u>curl</u>	A tool to transfer data to or from a server, using any of the supported protocols
<u>cut</u>	For cutting out the sections from each line of files and writing the result to standard output
<u>cvs</u>	Used to store the history of a file. Whenever a file gets corrupted or anything goes wrong “cvs” help us to go back to the previous version and restore our file

<u>date</u>	Used to display the system date and time. It is also used to set date and time of the system
<u>dc</u>	Used to evaluate arithmetic expressions. It evaluates expressions in the form of a postfix expression
<u>dd</u>	It is a command-line utility for Unix and Unix-like operating systems whose primary purpose is to convert and copy files
<u>declare</u>	Used to declare shell variables and functions, set their attributes and display their values
<u>depmod</u>	Used to generate a list of dependency description of kernel modules and its associated map files
<u>df</u>	Used to display information related to file systems about total space and available space

<u>diff</u>	Used to display the differences in the files by comparing the files line by line
<u>diff3</u>	Used to compare the three files line by line
<u>dir</u>	Used to list the contents of a directory
<u>dirname</u>	Used to remove the trailing forward slashes “/” from the NAME and prints the remaining portion
<u>dirs</u>	Used to display the list of currently remembered directories
<u>disable</u>	Used to stop the printers or classes

<u>dmesg</u>	Used to examine the kernel ring buffer and print the message buffer of kernel
<u>dmidecode</u>	Used when the user wants to retrieve system's hardware related information such as Processor, RAM(DIMMs), BIOS detail, etc. of Linux system in a readable format
<u>domainname</u>	Used to return the Network Information System (NIS) domain name of the host
<u>dos2unix</u>	Converts a DOS text file to UNIX format
<u>dosfsck</u>	Diagnoses MS-DOS file system for problems and attempts to repair them
<u>dstat</u>	Used to retrieve information or statistics form components of the system such as network connections, IO devices, or CPU, etc.

<u>du</u>	Used to track the files and directories which are consuming excessive amount of space on hard disk drive
<u>dump</u>	Used to backup the filesystem to some storage device
<u>dumpe2fs</u>	Used to print the super block and blocks group information for the filesystem present on device
<u>dumpkeys</u>	Used for the dump keyboard translation tables

<u>echo</u>	Used to display line of text/string that are passed as an argument
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<u>ed</u>	Used for launching the ed text editor which is a line-based text editor with a minimal interface which makes it less complex for working on text files i.e creating, editing, displaying and manipulating files
<u>egrep</u>	It treats the pattern as an extended regular expression and prints out the lines that match the pattern
<u>eject</u>	It allows ejecting a removable media (typically a CD-ROM, floppy disk, tape, or JAZ or ZIP disk) using the software
<u>emacs</u>	It is a editor having simple user interface. Also, there is no insert mode in this editor. It only have editing mode.
<u>enable</u>	Used to start the printers or classes
<u>env</u>	Used to either print environment variables. It is also used to run a utility or command in a custom environment

<u>eval</u>	Built-in command used to execute arguments as a shell command
<u>ex</u>	It is a text editor in Linux which is also termed as the line editor mode of the vi editor
<u>exec</u>	Used to execute a command from the bash itself
<u>exit</u>	Used to exit the shell where it is currently running
<u>expand</u>	Allows you to convert tabs into spaces in a file and when no file is specified it reads from standard input
<u>expect</u>	This command or scripting language works with scripts that expect user inputs. It automates the task by providing inputs

<u>export</u>	It is bash shell BUILTINS commands, which means it is part of the shell. It marks an environment variables to be exported to child-processes
<u>expr</u>	It evaluates a given expression and displays its corresponding output
<u>factor</u>	Used to print the prime factors of the given numbers, either given from command line or read from standard input
<u>fc</u>	Used to list, edit or re-execute the commands previously entered into an interactive shell
<u>fc-cache</u>	It scans the font directories and build font cache for applications which use fontconfig for their font handling

<u>fc-list</u>	It is used to list the available fonts and font styles. Using the format option, the list of all fonts can be filtered and sorted out
<u>fdisk</u>	Format disk is a dialog-driven command in Linux used for creating and manipulating disk partition table
<u>fg</u>	Used to put a background job in foreground
<u>fgrep</u>	Used to search for the fixed-character strings in a file
<u>file</u>	Used to determine the type of a file. .file type may be of human-readable(e.g. 'ASCII text') or MIME type(e.g. 'text/plain; charset=us-ascii')
<u>find</u>	Used to find files and directories and perform subsequent operations on them

<u>finger</u>	It is a user information lookup command which gives details of all the users logged in.
<u>fmt</u>	Works as a formatter for simplifying and optimizing text files
<u>fold</u>	It wraps each line in an input file to fit a specified width and prints it to the standard output
<u>for</u>	Used to repeatedly execute a set of command for every element present in the list
<u>free</u>	Displays the total amount of free space available along with the amount of memory used and swap memory in the system, and also the buffers used by the kernel
<u>Fun</u>	Used to draw various type of patterns on the terminal

<u>function</u>	Used to create functions or methods
<u>g++</u>	Used for preprocessing, compilation, assembly and linking of source code to generate an executable file
<u>gawk</u>	Used for pattern scanning and processing language
<u>gcc</u>	GNU Compiler Collections is used to compile mainly C and C++ language. It can also be used to compile Objective C and Objective C++
<u>gdb</u>	GNU Debugger tool helps to debug the programs written in C, C++, Ada, Fortran, etc.
<u>getent</u>	Used to get the entries in a number of important text files called databases

<u>gpsswd</u>	Used to administer the /etc/group and /etc/gshadow
<u>grep</u>	Searches a file for a particular pattern of characters, and displays all lines that contain that pattern
<u>groupadd</u>	Used to create a new user group
<u>groupdel</u>	Used to delete a existing group
<u>groupmod</u>	Used to modify or change the existing group on Linux system
<u>groups</u>	Groups are the collection of users. Groups make it easy to manage users with the same security and access privileges

<u>grpck</u>	It verifies the integrity of the groups information. It checks that all entries in /etc/group and /etc/gshadow have the proper format and contain valid data
<u>grpconv</u>	It is used to convert to shadow groups. The grpconv command creates a gshadow from the group and an optionally existing gshadow
<u>gs</u>	This command invokes Ghostscript, which is an interpreter of Adobe Systems PostScript and Portable Document Format(PDF) languages
<u>gunzip</u>	Used to compress or expand a file or a list of files in Linux
<u>gzexe</u>	Used to compress executable files and also used to automatically uncompress and execute the files
<u>gzip</u>	This command compresses files. Each single file is compressed into a single file.

<u>halt</u>	Used to instruct the hardware to stop all the CPU functions. Basically, it reboots or stops the system.
<u>hash</u>	Used to maintain a hash table of recently executed programs
<u>hdparm</u>	Used to get statistics about the hard disk, alter writing intervals, acoustic management, and DMA settings
<u>Head</u>	Prints the top N number of data of the given input
<u>help</u>	Displays information about shell built-in commands
<u>hexdump</u>	Used to filter and display the specified files, or standard input in a human readable specified format

<u>history</u>	Used to view the previously executed command
<u>host</u>	Used for DNS (Domain Name System) lookup operations
<u>hostid</u>	Used to displays the Host's ID in hexadecimal format
<u>hostname</u>	Used to obtain the DNS(Domain Name System) name and set the system's hostname or NIS(Network Information System) domain name.
<u>hostnamectl</u>	Provides a proper API used to control Linux system hostname and change its related settings
<u>htop</u>	It is a command line utility that allows the user to interactively monitor the system's vital resources or server's processes in real time

<u>hwclock</u>	Utility for accessing the hardware clock, also called Real Time Clock (RTC)
<u>iconv</u>	Used to convert some text in one encoding into another encoding
<u>id</u>	Used to find out user and group names and numeric ID's (UID or group ID) of the current user or any other user in the server
<u>if</u>	Used to execute commands based on conditions
<u>ifconfig</u>	Used to configure the kernel-resident network interfaces.
<u>iftop</u>	It is a network analyzing tool used by system administrators to view the bandwidth related stats

<u>ifup</u>	It basically brings the network interface up, allowing it to transmit and receive data
<u>import</u>	Used for capturing a screenshot for any of the active pages we have and it gives the output as an image file
<u>info</u>	Reads documentation in the info format. It will give detailed information for a command when compared with the main page
<u>insmod</u>	Used to insert modules into the kernel
<u>install</u>	Used to copy files and set attributes
<u>iostat</u>	Used for monitoring system input/output statistics for devices and partitions

<u>iotop</u>	Used to display and monitor the disk IO usage details and even gets a table of existing IO utilization by the process
<u>ip</u>	Used for performing several network administration tasks
<u>ipcrm</u>	Used to remove some IPC(Inter-Process Communication) resources. It eliminates the IPC objects and their associated data structure form the system
<u>ipcs</u>	Shows information on the inter-process communication facilities for which the calling process has read access
<u>iptables</u>	Used to set up and maintain tables for the Netfilter firewall for IPv4, included in the Linux kernel
<u>iptables-save</u>	It will save the current iptables rules in a user specified file, that can be used later when the user wants

[iwconfig](#)

Used to display the parameters, and the wireless statistics which are extracted from /proc/net/wireless

[join](#)

It is a command line utility for joining lines of two files based on a key field present in both the files

[journalctl](#)

Used to view systemd, kernel and journal logs

[kill](#)

Used to terminate processes manually. kill command sends a signal to a process which terminates the process

[last](#)

Used to display the list of all the users logged in and out since the file /var/log/wtmp was created

<u>less</u>	Used to read contents of text file one page(one screen) per time
<u>let</u>	Used to evaluate arithmetic expressions on shell variables
<u>ln</u>	Used to create links between files
<u>locate</u>	Used to find the files by name
<u>look</u>	Shows the lines beginning with a given string
<u>lsblk</u>	Used to display details about block devices and these block devices(Except ram disk) are basically those files that represent devices connected to the pc.

<u>lshw</u>	Used to generate the detailed information of the system's hardware configuration from various files in the /proc directory
<u>lsmod</u>	Used to display the status of modules in the Linux kernel. It results in a list of loaded modules
<u>lsdf</u>	Provides a list of files that are opened
<u>lsusb</u>	Used to display the information about USB buses and the devices connected to them
<u>mailq</u>	This command in Linux prints the mail queue i.e the list of messages that are there in the mail queue
<u>man</u>	Used to display the user manual of any command that we can run on the terminal

<u>md5sum</u>	To verify data integrity using MD5 (Message Digest Algorithm 5)
<u>mkdir</u>	Allows the user to create directories. This command can create multiple directories at once
<u>modinfo</u>	Used to display the information about a Linux Kernel module
<u>more</u>	Used to view the text files in the command prompt, displaying one screen at a time in case the file is large (For example log files)
<u>mount</u>	Used to mount the filesystem found on a device to big tree structure(Linux filesystem) rooted at '/'
<u>mpstat</u>	Used to report processor related statistics.

<u>mv</u>	Used to move one or more files or directories from one place to another in file system like UNIX
<u>nc(netcat)</u>	It is one of the powerful networking tool, security tool or network monitoring tool.
<u>netstat</u>	Displays various network related information such as network connections, routing tables, interface statistics, masquerade connections, multicast memberships, etc.
<u>nmcli</u>	Used for controlling NetworkManager. nmcli command can also be used to display network device status, create, edit, activate/deactivate, and delete network connections
<u>nslookup</u>	It is a network administration tool for querying the Domain Name System (DNS) to obtain domain name or IP address mapping or any other specific DNS record

<u>od</u>	Used to convert the content of input in different formats with octal format as the default format
<u>passwd</u>	Used to change the user account passwords
<u>paste</u>	Used to join files horizontally (parallel merging) by outputting lines consisting of lines from each file specified, separated by tab as delimiter, to the standard output
<u>pidof</u>	Used to find out the process IDs of a specific running program
<u>ping</u>	Used to check the network connectivity between host and server/host

<u>pinky</u>	It is a user information lookup command which gives details of all the users logged in. Unlike finger, in the pinky, you may trim the information of your interest.
<u>pmap</u>	Used to display the memory map of a process. A memory map indicates how memory is spread out
<u>poweroff</u>	Sends an ACPI signal which instructs the system to power down
<u>printf</u>	Used to display the given string, number or any other format specifier on the terminal window
<u>ps</u>	Used to list the currently running processes and their PIDs along with some other information depends on different options
<u>pwd</u>	It prints the path of the working directory, starting from the root

<u>ranlib</u>	Used to generate index to archive
<u>rcp</u>	Used to copy files from one computer to another computer
<u>read</u>	Reads up the total number of bytes from the specified file descriptor into the buffer
<u>readelf</u>	Used to get information of ELF(Executable and Linkable Format) Files
<u>readlink</u>	Used to print resolved symbolic links or canonical file names
<u>reboot</u>	Instructs the system to restart or reboot

<u>rename</u>	Used to rename the named files according to the regular expression perlexpr
<u>reset</u>	Used to initialize the terminal. This is useful once a program dies leaving a terminal in an abnormal state
<u>restore</u>	Used for restoring files from a backup created using dump
<u>return</u>	Used to exit from a shell function.
<u>rev</u>	Used to reverse the lines characterwise
<u>rm</u>	Used to remove objects such as files, directories, symbolic links and so on from the file system like UNIX

<u>rmmdir</u>	Used to remove empty directories from the filesystem in Linux
<u>rmmod</u>	Used to remove a module from the kernel
<u>route</u>	Used when you want to work with the IP/kernel routing table
<u>rsync</u>	It is a software utility for Unix-Like systems that efficiently sync files and directories between two hosts or machines
<u>sar</u>	Used to monitor Linux system's resources like CPU usage, Memory utilization, I/O devices consumption, etc.
<u>scp</u>	Used to copy file(s) between servers in a secure way.

<u>screen</u>	Provides the ability to launch and use multiple shell sessions from a single ssh session
<u>script</u>	Used to make typescript or record all the terminal activities
<u>scriptreplay</u>	Used to replay a typescript/terminal_activity stored in the log file that was recorded by the script command
<u>sdiff</u>	Used to compare two files and then writes the results to standard output in a side-by-side format
<u>sed</u>	Used for finding, filtering, text substitution, replacement and text manipulations like insertion, deletion search etc.
<u>select</u>	Used to create a numbered menu from which a user can select an option

<u>seq</u>	Used to generate numbers from FIRST to LAST in steps of INCREMENT
<u>setsid</u>	Used to run a program in a new session
<u>shift</u>	Shifts/moves the command line arguments to one position left.
<u>showkey</u>	prints to standard output either the scan codes or the key code or the `ascii' code of each key pressed
<u>shred</u>	Used in order to delete a file completely from hard disk
<u>shutdown</u>	Used to shutdown the system in a safe way

<u>sleep</u>	Used to create a dummy job. A dummy job helps in delaying the execution
<u>source</u>	Used to read and execute the content of a file(generally set of commands), passed as an argument in the current shell script
<u>sort</u>	Used to sort a file, arranging the records in a particular order
<u>split</u>	Used to split large files into smaller files
<u>ssh</u>	Protocol used to securely connect to a remote server/system
<u>strace</u>	It is one of the most powerful process monitoring, diagnostic, instructional tool of Linux.

<u>stty</u>	Used to change and print terminal line settings
<u>sudo</u>	Used as a prefix of some command that only superuser are allowed to run
<u>sum</u>	Used to find checksum and count the blocks in a file
<u>sync</u>	Used to synchronize cached writes to persistent storage
<u>systemctl</u>	Used to examine and control the state of “systemd” system and service manager
<u>tac</u>	Used to concatenate and print files in reverse

<u>Tail</u>	Prints the last N number of data of the given input
<u>tar</u>	Used to create Archive and extract the Archive files
<u>tee</u>	Reads the standard input and writes it to both the standard output and one or more files
<u>time</u>	Used to execute a command and prints a summary of real-time, user CPU time and system CPU time spent by executing a command when it terminates
<u>top</u>	Provides a dynamic real-time view of the running system
<u>touch</u>	Used to create, change and modify timestamps of a file

<u>tr</u>	It is a command line utility for translating or deleting characters
<u>tracpath</u>	Used to traces path to destination discovering MTU along this path
<u>traceroute</u>	Prints the route that a packet takes to reach the host
<u>Tree</u>	A recursive directory listing program that produces a depth-indented listing of files
<u>tty</u>	It displays the information related to terminal. It basically prints the file name of the terminal connected to standard input
<u>type</u>	Used to describe how its argument would be translated if used as commands

<u>uname</u>	Displays the information about the system
<u>unexpand</u>	Converts each spaces into tabs writing the produced output to the standard output
<u>uniq</u>	It is a command line utility that reports or filters out the repeated lines in a file
<u>unix2dos</u>	Converts a Unix text file to DOS format
<u>until</u>	Used to execute a set of commands as long as the final command in the 'until' Commands has an exit status which is not zero
<u>Uptime</u>	Used to find out how long the system is active (running)

<u>useradd</u>	Used to add user accounts to your system
<u>usermod</u>	Used to change the properties of a user in Linux through the command line
<u>username</u>	It provides a set of commands to fetch username and its configurations from the Linux host
<u>users</u>	Used to show the user names of users currently logged in to the current host
<u>userdel</u>	Used to delete a user account and related files
<u>vi</u>	It is the default editor that comes with the UNIX operating system is called visual editor.

<u>vmstat</u>	It is a performance monitoring command of the system as it gives the information about processes, memory, paging, block IO, disk and CPU scheduling
<u>vnstat</u>	Used by system administrators in order to monitor network parameters such as bandwidth consumption or maybe some traffic flowing in or out
<u>w</u>	Used to show who is logged on and what they are doing
<u>wall</u>	Displays a message, or the contents of a file, or otherwise its standard input, on the terminals of all currently logged in users
<u>watch</u>	Used to execute a program periodically, showing output in fullscreen

<u>wc</u>	Used to find out number of lines, word count, byte and characters count in the files specified in the file arguments
<u>Wget</u>	Used to download files from the server even when the user has not logged on to the system and it can work in background without hindering the current process
<u>whatis</u>	Used to get a one-line manual page descriptions
<u>which</u>	Used to locate the executable file associated with the given command by searching it in the path environment variable
<u>while</u>	Used to repeatedly execute a set of command as long as the COMMAND returns true
<u>who</u>	Used to get information about currently logged in user on to system

<u>whoami</u>	Displays the username of the current user when this command is invoked
<u>write</u>	Allows a user to communicate with other users, by copying lines from one user's terminal to others
<u>xargs</u>	Used to build and execute commands from standard input. It converts input recieved from standard input into arguments of a command
<u>xdg-open</u>	Used to open a file or URL in the user's preferred application
<u>yes</u>	Used to print a continous output stream of given STRING. If STRING is not mentioned then it prints 'y'

<u>zdiff</u>	Used to invoke the diff program on files compressed via gzip
<u>zdump</u>	Used to print the current time in the specified zone or you can say prints the current time in each zonename named on the command line
<u>zgrep</u>	Used to search out expressions from a given a file even if it is compressed
<u>zip</u>	It is a compression and file packaging utility for Unix. Each file is stored in single .zip { .zip-filename } file with the extension .zip

Daily life Linux Commands

[Clear](#) **the Terminal** : In our daily life, we use to work on Terminal if we are using LINUX. Continuous working on terminal makes the terminal screen full of commands and for removing them and making our screen totally free of character, we often use [clear](#) **command**. Key combination 'Ctrl+I' has the same effect as 'clear' command. So from next time use ctrl+I to clear your Linux Command Line Interface.

Note: Since ctrl+l is a key combination, so we can not use it inside a script. If we need to clear screen inside a shell script, we just have to call command 'clear'.

Run command and get back to the directory, together: This is also an amazing hack not known to many people. We may run command no matter what it is and then return back to the current directory. For this, all we need to do is to run the command in parentheses i.e., in between (and). For Example

Input :

```
cd /home/shivam/Downloads/ && ls -l
```

Output :

```
-rw-r----- 1 shivam shivam    54272 May 3 18:37 text1.txt
```

```
-rw-r----- 1 shivam shivam    54272 May 3 18:37 text2.txt
```

```
-rw-r----- 1 shivam shivam    54272 May 3 18:37 text3.txt
```

Explanation : In the above command it first changed the current directory to Downloads and then list the content of that directory before returning back to the current directory.

Shortcut to Directories: You can create a shortcut to frequently accessed directories by adding them to the CDPATH environment variable. So, say If you frequently access “/var/www/html/”.

Instead of typing “cd /var/www/html”, you can add /var/www/ to CDPATH and then you have to type “cd html” only.

```
shivam:~> export CDPATH=$CDPATH:/var/www/
```

```
shivam:~> cd html
```

```
shivam:~:html>
```

Replacing words or characters:

If you are working with any text file then to replace every instance of any word say “version” with “story” in myfile.txt, you can use [sed](#) command as:

```
# sed 's/version/story/g' myfile.txt
```

a.

Additionally, if you want to ignore character case then you may use **gi** instead of **g** as:

```
# sed 's/version/story/gi' myfile.txt
```

b.

Here are some useful shortcuts which you may use while working on terminal:

Cursor Movement Control:

- c. **Ctrl-a:** Move cursor to the start of a line
- d. **Ctrl-e:** Move cursor to the end of a line
- e. **Ctrl-Left/Right:** Navigate word by word (may not work in all terminals)

Modify Text:

- f. **Ctrl-w:** Delete the whole word to the left of the cursor
- g. **Ctrl-k:** Erase to end of line
- h. **Ctrl-u:** Erase to beginning of line

Run [top](#) in batch mode: 'top' is a handy utility for monitoring the utilization of your system. It is invoked from the command line and it works by displaying lots of useful information, including CPU and memory usage, the number of running processes, load, the top

resource hitters, and other useful bits. By default, top refreshes its report every 3 seconds.

Mostly we run 'top' inside the terminal, look on the statistics for a few seconds and then graciously quit and continue our work.

Better yet, if we want to run such a utility only for a given period of time, without any user interaction:

There are many possible answers:

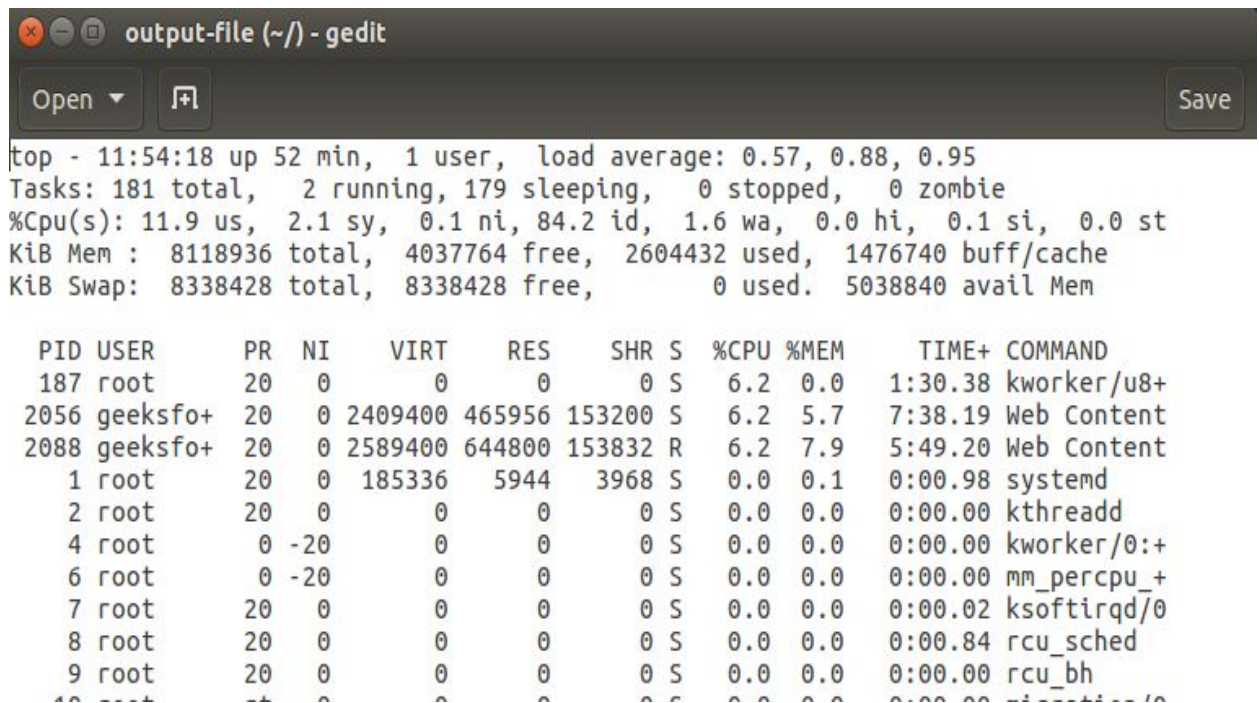
- i. You could schedule a job via cron.
- j. You could run a shell script that runs ps every X seconds

Instead of going wild about trying to patch a script, there's a much, much simpler solution:

```
top -b -d 10 -n 3 >> top-file
```

We have top running in batch mode (-b). It's going to refresh every 10 seconds, as specified by the delay (-d) flag, for a total count of 3 iterations (-n). The output will be sent to a file. Here is a screenshot

of output:



```
top - 11:54:18 up 52 min, 1 user, load average: 0.57, 0.88, 0.95
Tasks: 181 total, 2 running, 179 sleeping, 0 stopped, 0 zombie
%Cpu(s): 11.9 us, 2.1 sy, 0.1 ni, 84.2 id, 1.6 wa, 0.0 hi, 0.1 si, 0.0 st
KiB Mem : 8118936 total, 4037764 free, 2604432 used, 1476740 buff/cache
KiB Swap: 8338428 total, 8338428 free, 0 used. 5038840 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM     TIME+ COMMAND
  187 root        20   0       0       0       0  S   6.2   0.0   1:30.38 kworker/u8+
 2056 geeksfo+   20   0 2409400 465956 153200 S   6.2   5.7   7:38.19 Web Content
 2088 geeksfo+   20   0 2589400 644800 153832 R   6.2   7.9   5:49.20 Web Content
    1 root        20   0  185336    5944    3968  S   0.0   0.1   0:00.98 systemd
    2 root        20   0         0         0         0  S   0.0   0.0   0:00.00 kthreadd
    4 root         0 -20         0         0         0  S   0.0   0.0   0:00.00 kworker/0:
    6 root         0 -20         0         0         0  S   0.0   0.0   0:00.00 mm_percpu_
    7 root        20   0         0         0         0  S   0.0   0.0   0:00.02 ksoftirqd/0
    8 root        20   0         0         0         0  S   0.0   0.0   0:00.84 rcu_sched
    9 root        20   0         0         0         0  S   0.0   0.0   0:00.00 rcu_bh
  40 root        20   0         0         0         0  S   0.0   0.0   0:00.00
```

Duplicate [pipe](#) content: ‘tee’ is a very useful utility that duplicates pipe content. Now, what makes tee really useful is that it can append data to existing files, making it ideal for writing periodic log information to multiple files at once.

```
ps | tee file1 file2 file3
```

We’re sending the output of the ps command to three different files! Or as many as we want. As you can see in the screenshots below, all three files were created at the same time and they all contain the same data.

[export](#): The 'export' command is one of the bash shell BUILTINS commands. It has three available command options. In general, it marks an environment variable to be exported with any newly forked child processes and thus it allows a child process to inherit all marked variables.

Frequently Used Options with 'export'

- k. -p : List of all names that are exported in the current shell
- l. -n: Remove names from export list
- m. -f : Names are exported as functions

Example :

command without 'export':

```
$ a = geeksforgeeks.org
```

```
$ echo $a
```

```
geeksforgeeks.org
```

```
$ bash
```

```
$ echo $a
```

From the above we can see that any new child process forked from a parent process by default does not inherit parent's variables. This is where the export command comes handy.

```
$ a = geeksforgeeks.org
```

```
$ echo $a
```

```
geeksforgeeks.org
```

```
$ export a
```

```
$ bash
```

```
$ echo $a
```

```
geeksforgeeks.org
```

n. \$

On line 3, we now have used the export command to make the variable “a” to be exported when a new child process is created. As a result the variable “a” still contains the string “geeksforgeeks.org” even after a new bash shell was created.

[basename](#) – Strips directory and suffix from filenames. `basename` prints NAME with any leading directory components removed. If Suffix is specified, it will also remove a trailing SUFFIX. For example:

To get the name of the file present in test folder

```
$ basename test/gfg.txt
```

`gfg.txt`

[grep](#): `grep` searches files for a given character string or pattern and can replace the string with another. This is one method of searching for files within Linux.

```
grep [option(s)] pattern [file(s)]
```

- i. **Search number of files:** `grep` can search any number of files simultaneously. Thus, for example, the following would search the three files `file1`, `file2` and `file3` for any line that contains the string `GfG`

```
grep GfG file1 file2 file3
```

- ii. **Search text in all files:** To search all text files in the current directory (i.e., the directory in which the user is currently working), if there is a phrase “Linux is”

```
grep 'Linux is' *
```

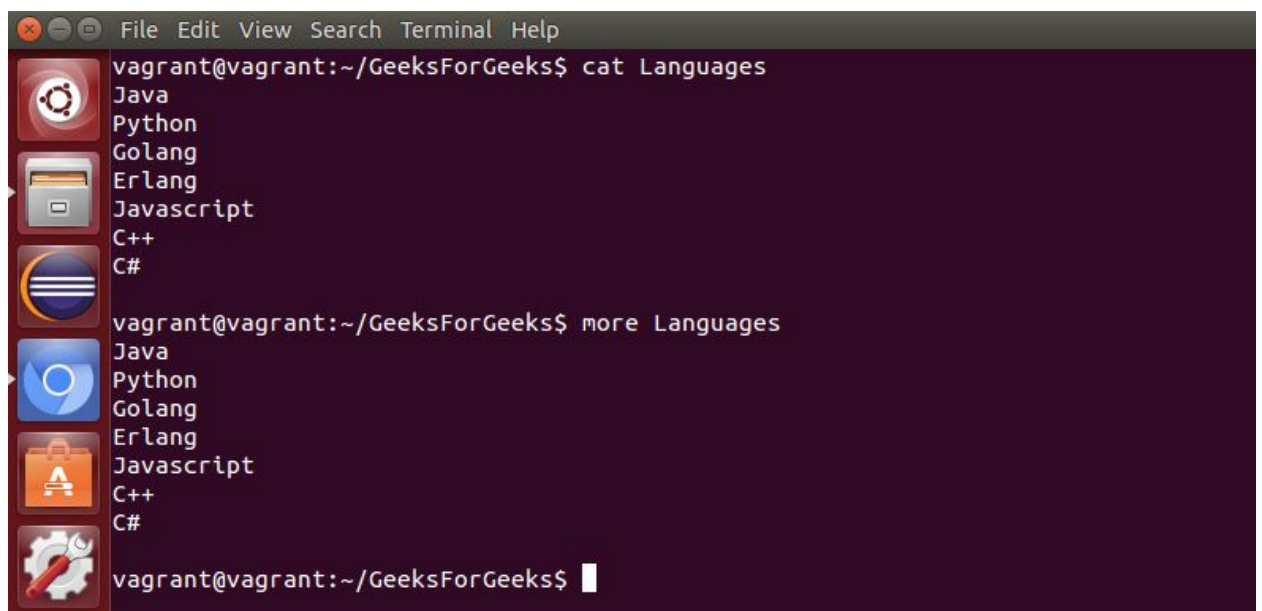
Basic Shell Commands in Linux

- Difficulty Level : [Easy](#)
- Last Updated : 03 Jul, 2020

A [shell](#) is a special user program which provides an interface to the user to use operating system services. Shell accept human readable commands from the user and convert them into something which kernel can understand. It is a command language interpreter that execute commands read from input devices such as keyboards or from files. The shell gets started when the user logs in or start the terminal.

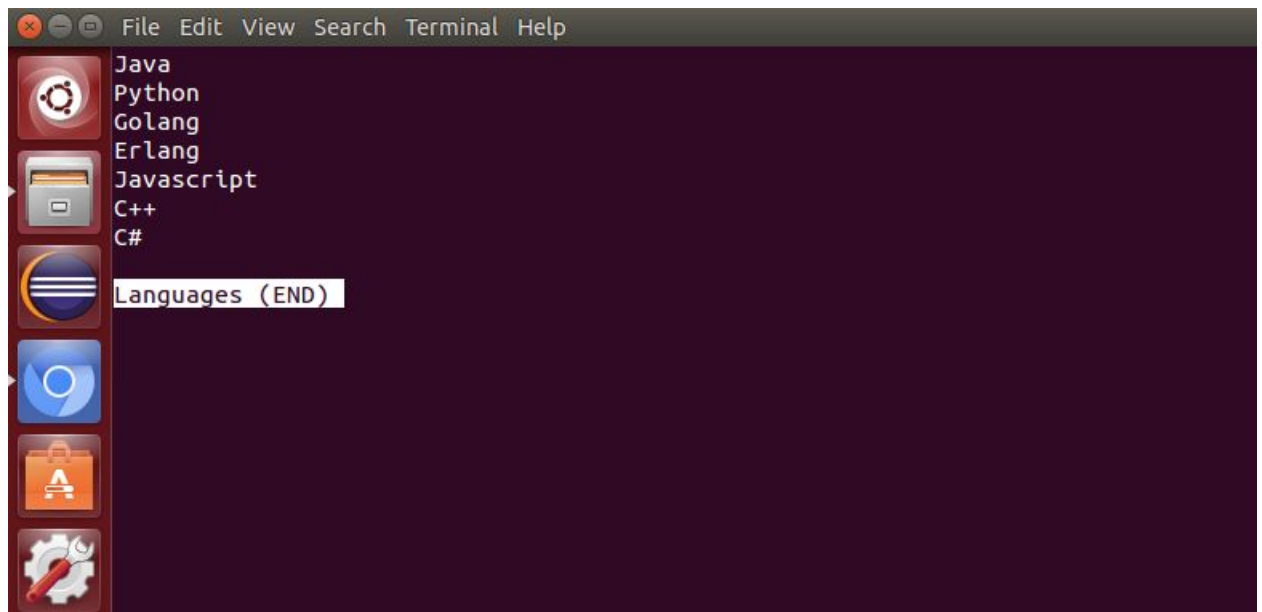
1). Displaying the file contents on the terminal:

- [cat](#) : It is generally used to concatenate the files. It gives the output on the standard output.
- [more](#) : It is a filter for paging through text one screenful at a time.



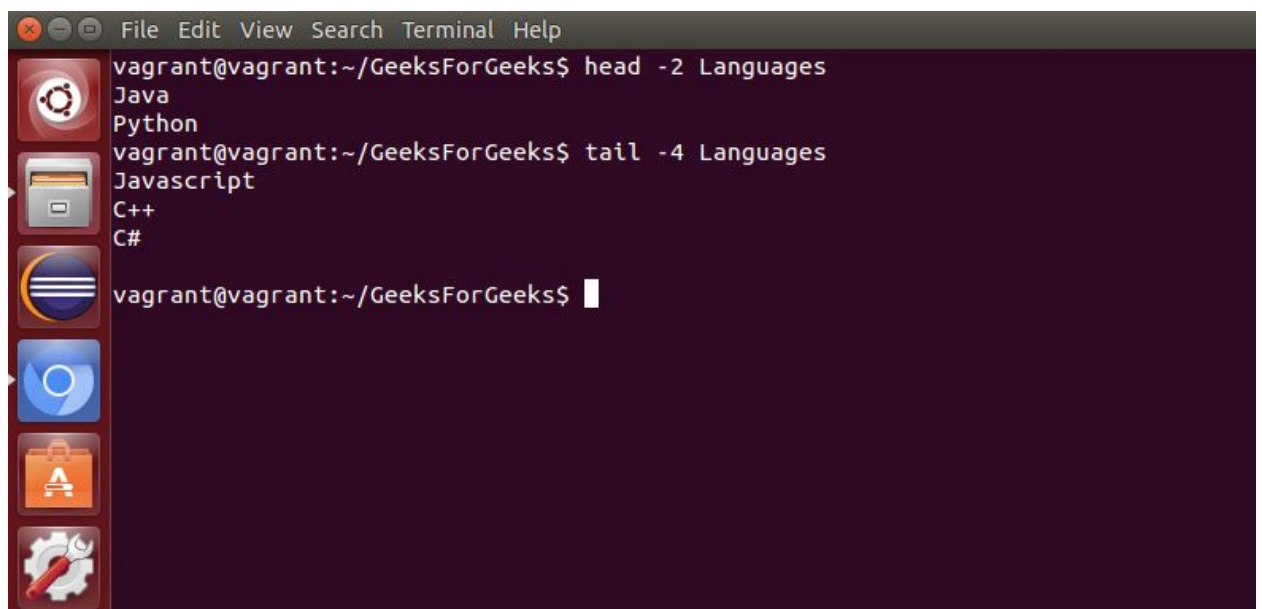
```
File Edit View Search Terminal Help
vagrant@vagrant:~/GeeksForGeeks$ cat Languages
Java
Python
Golang
Erlang
Javascript
C++
C#
vagrant@vagrant:~/GeeksForGeeks$ more Languages
Java
Python
Golang
Erlang
Javascript
C++
C#
vagrant@vagrant:~/GeeksForGeeks$
```


- [less](#) : It is used to viewing the files instead of opening the file. Similar to *more* command but it allows backward as well as forward movement.



```
File Edit View Search Terminal Help
Java
Python
Golang
Erlang
Javascript
C++
C#
Languages (END)
```

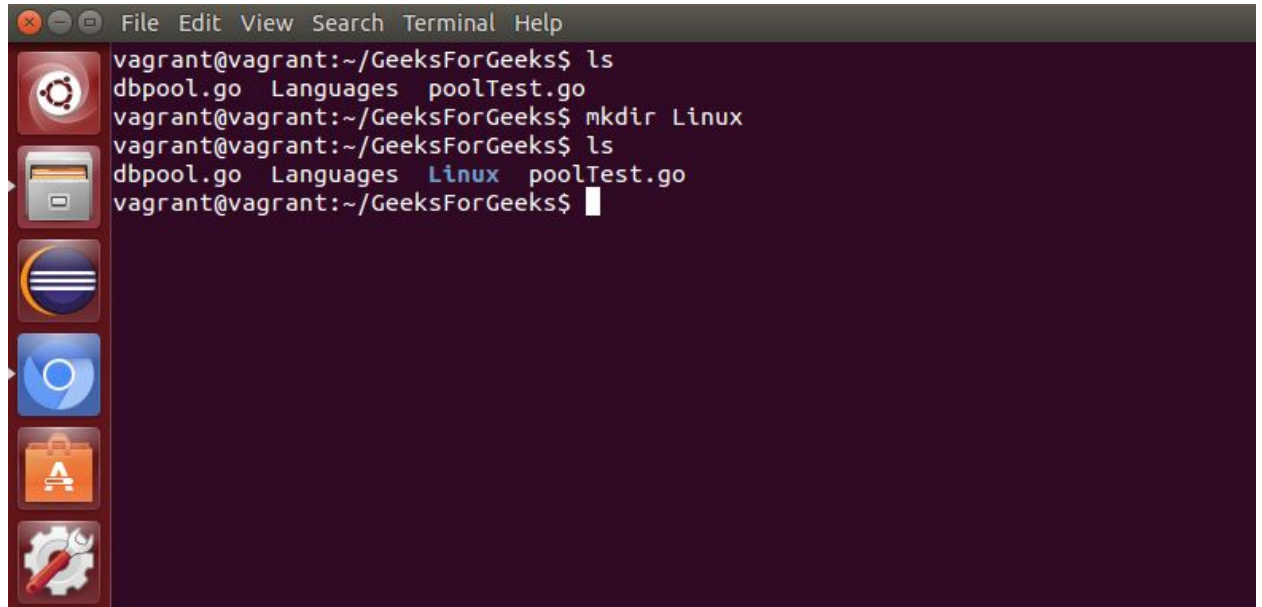
- [head](#) : Used to print the first N lines of a file. It accepts N as input and the default value of N is 10.
- [tail](#) : Used to print the last N-1 lines of a file. It accepts N as input and the default value of N is 10.



```
File Edit View Search Terminal Help
vagrant@vagrant:~/GeeksForGeeks$ head -2 Languages
Java
Python
vagrant@vagrant:~/GeeksForGeeks$ tail -4 Languages
Javascript
C++
C#
vagrant@vagrant:~/GeeksForGeeks$
```

2). File and Directory Manipulation Commands:

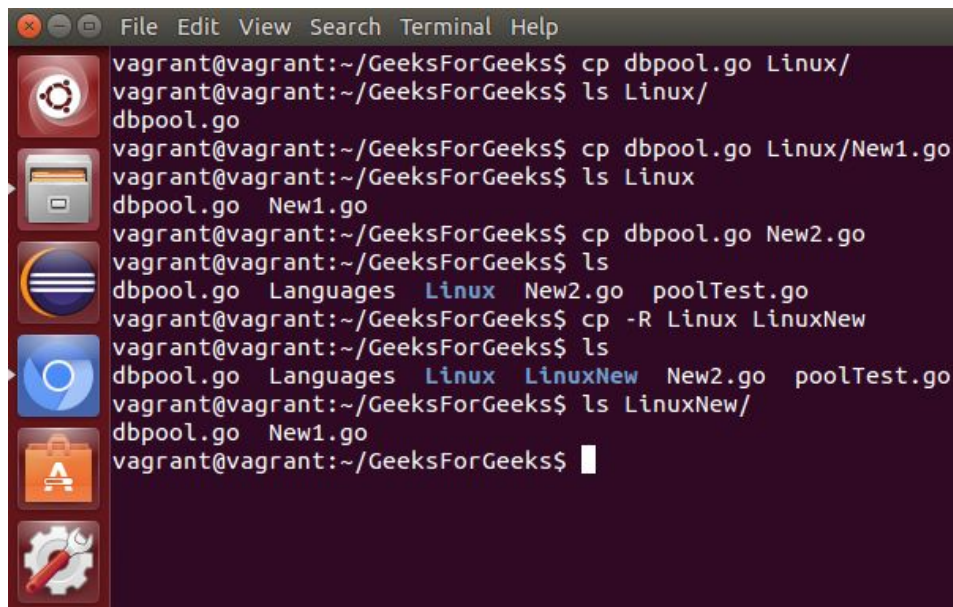
- [mkdir](#) : Used to create a directory if not already exist. It accepts directory name as input parameter.

A screenshot of a terminal window with a dark purple background. The window has a title bar with 'File Edit View Search Terminal Help' and a sidebar on the left with icons for various applications. The terminal shows the following commands and output:

```
vagrant@vagrant:~/GeeksForGeeks$ ls
dbpool.go  Languages  poolTest.go
vagrant@vagrant:~/GeeksForGeeks$ mkdir Linux
vagrant@vagrant:~/GeeksForGeeks$ ls
dbpool.go  Languages  Linux  poolTest.go
vagrant@vagrant:~/GeeksForGeeks$
```

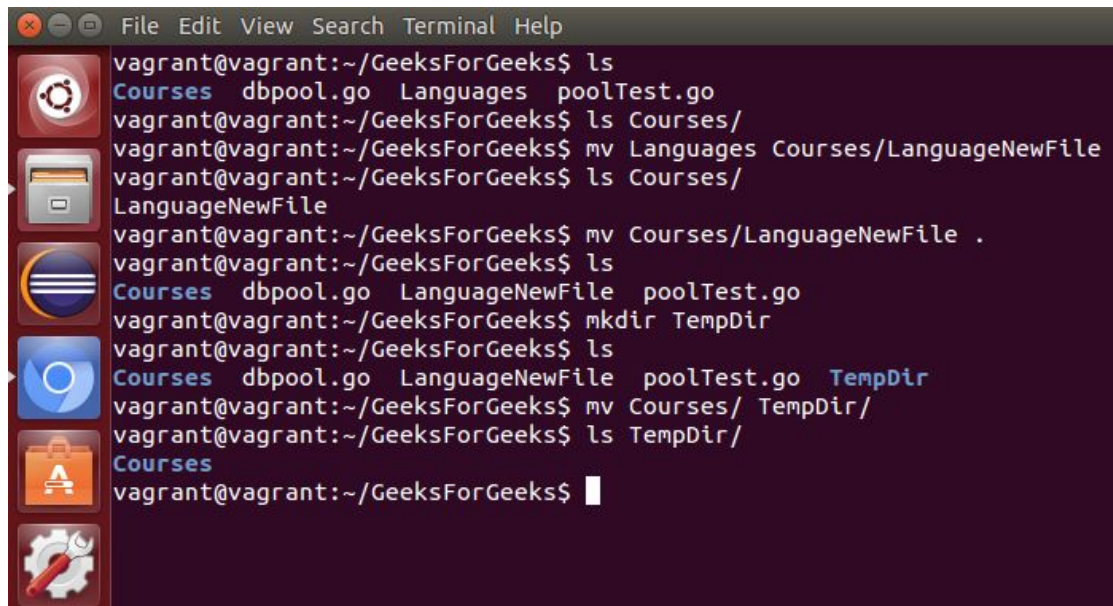
- [cp](#) : This command will copy the files and directories from source path to destination path. It can copy a file/directory with new name to the destination path. It accepts source file/directory and destination

file/directory.



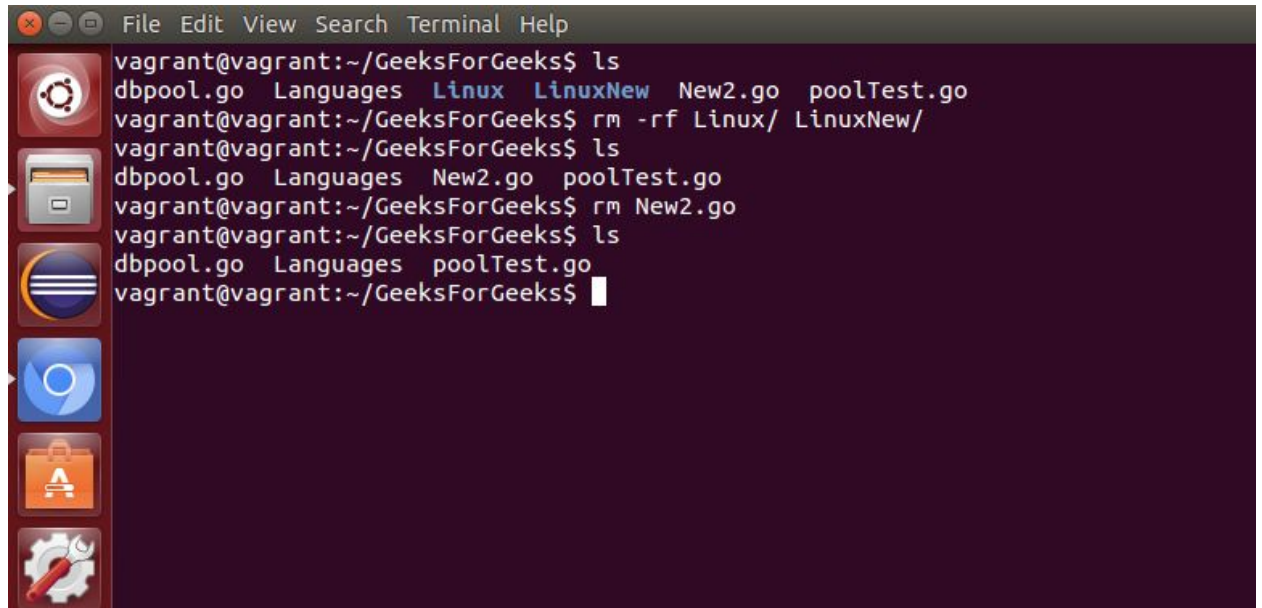
```
File Edit View Search Terminal Help
vagrant@vagrant:~/GeeksForGeeks$ cp dbpool.go Linux/
vagrant@vagrant:~/GeeksForGeeks$ ls Linux/
dbpool.go
vagrant@vagrant:~/GeeksForGeeks$ cp dbpool.go Linux/New1.go
vagrant@vagrant:~/GeeksForGeeks$ ls Linux
dbpool.go New1.go
vagrant@vagrant:~/GeeksForGeeks$ cp dbpool.go New2.go
vagrant@vagrant:~/GeeksForGeeks$ ls
dbpool.go Languages Linux New2.go poolTest.go
vagrant@vagrant:~/GeeksForGeeks$ cp -R Linux LinuxNew
vagrant@vagrant:~/GeeksForGeeks$ ls
dbpool.go Languages Linux LinuxNew New2.go poolTest.go
vagrant@vagrant:~/GeeksForGeeks$ ls LinuxNew/
dbpool.go New1.go
vagrant@vagrant:~/GeeksForGeeks$
```

- [mv](#) : Used to move the files or directories. This command's working is almost similar to *cp* command but it deletes copy of file or directory from source path.



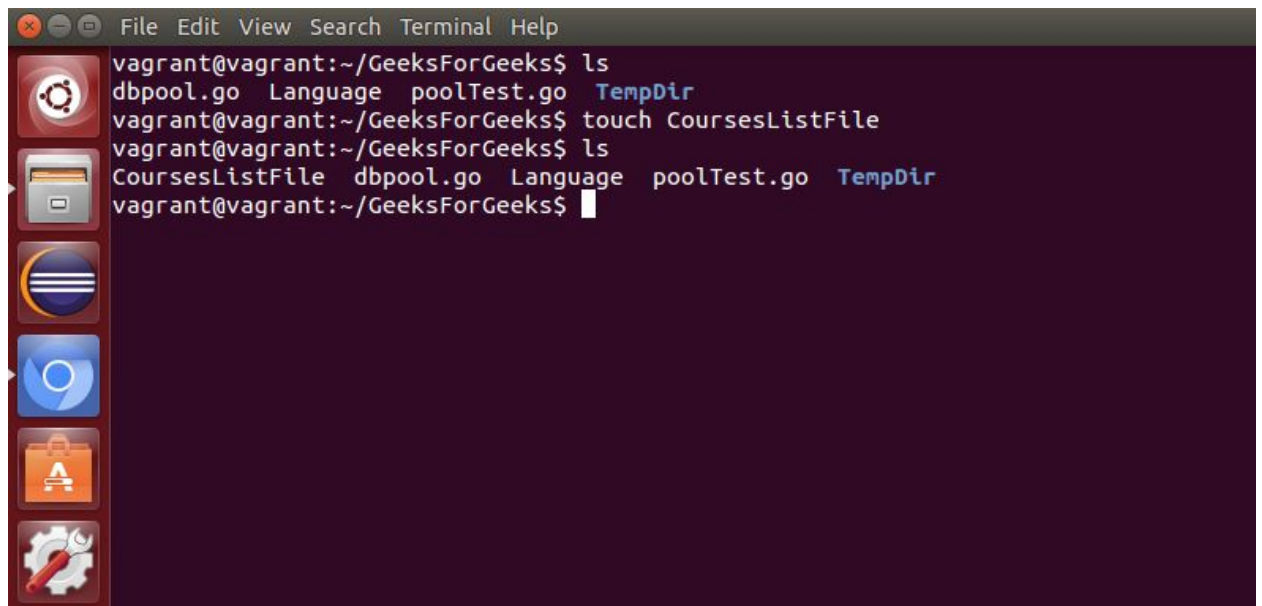
```
File Edit View Search Terminal Help
vagrant@vagrant:~/GeeksForGeeks$ ls
Courses dbpool.go Languages poolTest.go
vagrant@vagrant:~/GeeksForGeeks$ ls Courses/
vagrant@vagrant:~/GeeksForGeeks$ mv Languages Courses/LanguageNewFile
vagrant@vagrant:~/GeeksForGeeks$ ls Courses/
LanguageNewFile
vagrant@vagrant:~/GeeksForGeeks$ mv Courses/LanguageNewFile .
vagrant@vagrant:~/GeeksForGeeks$ ls
Courses dbpool.go LanguageNewFile poolTest.go
vagrant@vagrant:~/GeeksForGeeks$ mkdir TempDir
vagrant@vagrant:~/GeeksForGeeks$ ls
Courses dbpool.go LanguageNewFile poolTest.go TempDir
vagrant@vagrant:~/GeeksForGeeks$ mv Courses/ TempDir/
vagrant@vagrant:~/GeeksForGeeks$ ls TempDir/
Courses
vagrant@vagrant:~/GeeksForGeeks$
```

- [rm](#) : Used to remove files or directories.



```
File Edit View Search Terminal Help
vagrant@vagrant:~/GeeksForGeeks$ ls
dbpool.go  Languages  Linux  LinuxNew  New2.go  poolTest.go
vagrant@vagrant:~/GeeksForGeeks$ rm -rf Linux/ LinuxNew/
vagrant@vagrant:~/GeeksForGeeks$ ls
dbpool.go  Languages  New2.go  poolTest.go
vagrant@vagrant:~/GeeksForGeeks$ rm New2.go
vagrant@vagrant:~/GeeksForGeeks$ ls
dbpool.go  Languages  poolTest.go
vagrant@vagrant:~/GeeksForGeeks$
```

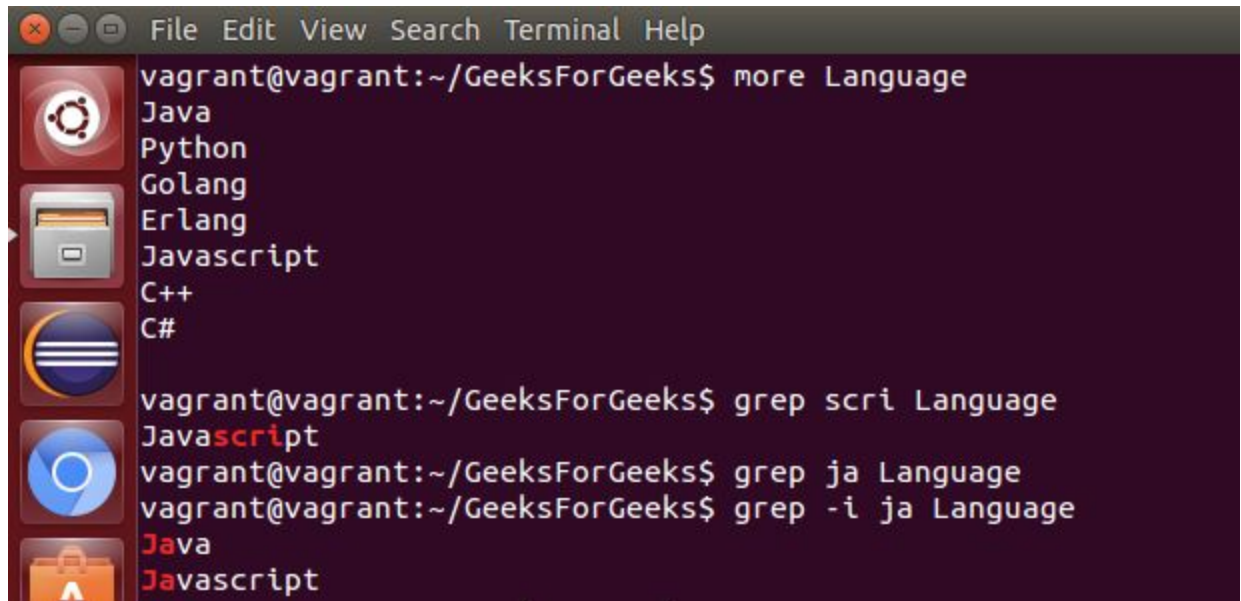
- [touch](#) : Used to create or update a file.



```
File Edit View Search Terminal Help
vagrant@vagrant:~/GeeksForGeeks$ ls
dbpool.go  Language  poolTest.go  TempDir
vagrant@vagrant:~/GeeksForGeeks$ touch CoursesListFile
vagrant@vagrant:~/GeeksForGeeks$ ls
CoursesListFile  dbpool.go  Language  poolTest.go  TempDir
vagrant@vagrant:~/GeeksForGeeks$
```

3). Extract, sort and filter data Commands:

- [grep](#) : This command is used to search for the specified text in a file.

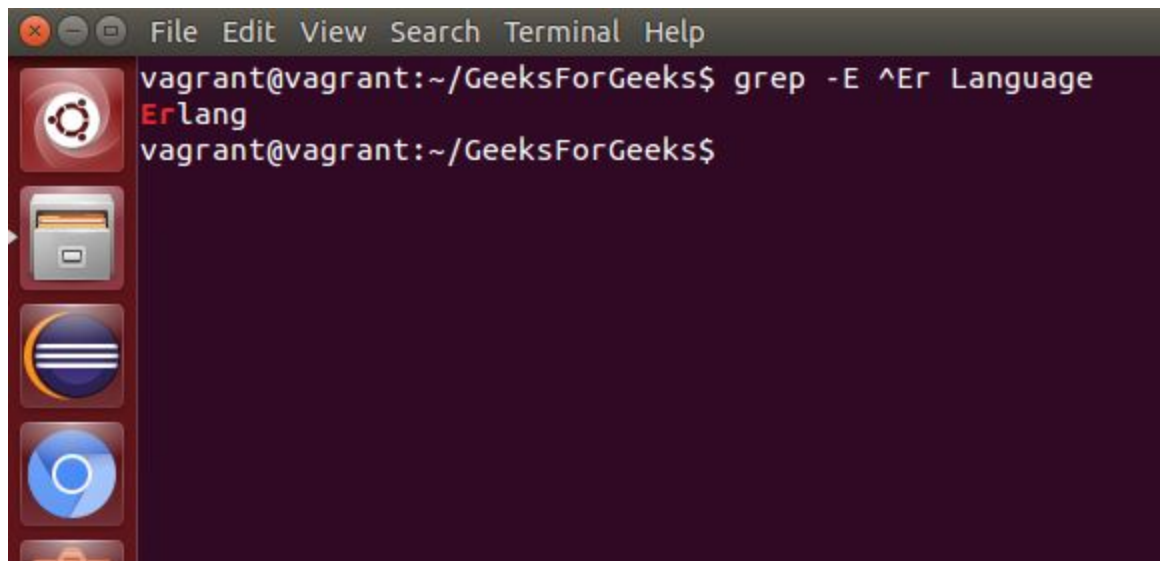
A terminal window with a dark background and a sidebar on the left containing icons for various applications. The terminal shows the following commands and output:

```
vagrant@vagrant:~/GeeksForGeeks$ more Language
Java
Python
Golang
Erlang
Javascript
C++
C#

vagrant@vagrant:~/GeeksForGeeks$ grep scri Language
Javascript

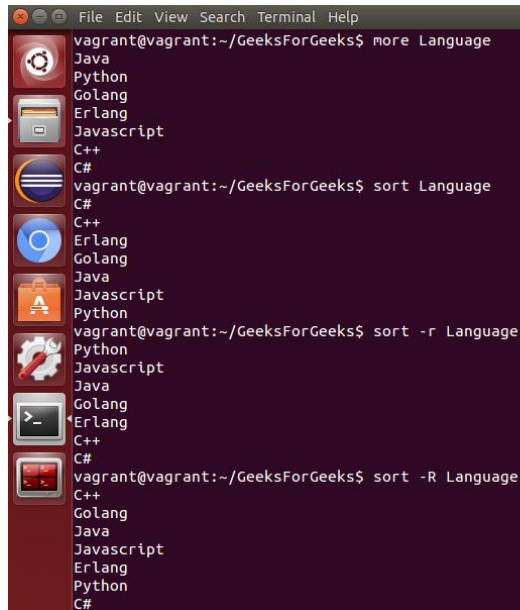
vagrant@vagrant:~/GeeksForGeeks$ grep ja Language
vagrant@vagrant:~/GeeksForGeeks$ grep -i ja Language
Java
Javascript
```

- **grep with Regular Expressions** : Used to search for text using specific regular expressions in file.

A terminal window with a dark background and a sidebar on the left containing icons for various applications. The terminal shows the following commands and output:

```
vagrant@vagrant:~/GeeksForGeeks$ grep -E ^Er Language
Erlang
vagrant@vagrant:~/GeeksForGeeks$
```

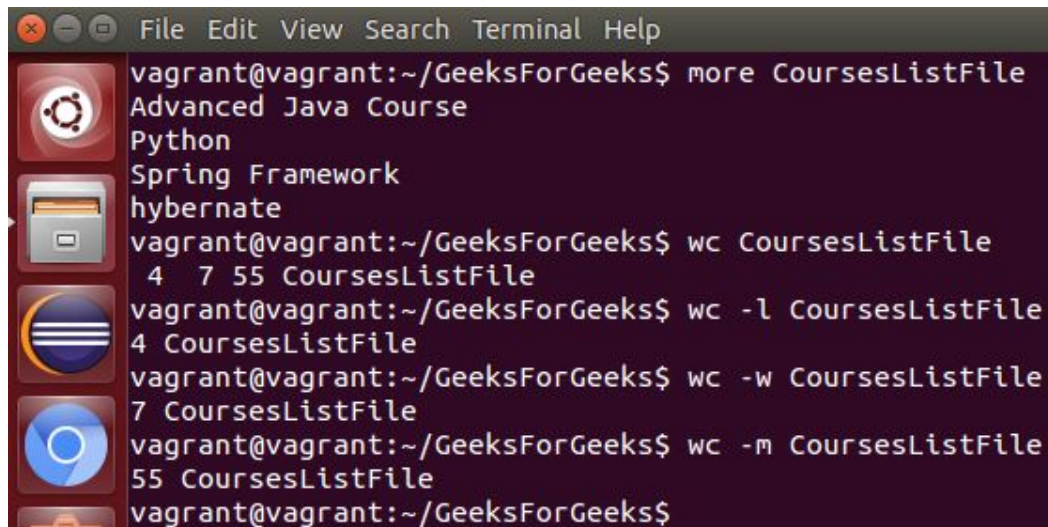

- [sort](#) : This commands is used to sort the contents of files.



A terminal window with a dark purple background and a sidebar on the left containing icons for various programming languages. The terminal shows the following commands and their outputs:

```
vagrant@vagrant:~/GeeksForGeeks$ more Language
Java
Python
Golang
Erlang
Javascript
C++
C#
vagrant@vagrant:~/GeeksForGeeks$ sort Language
C#
C++
Erlang
Golang
Java
Javascript
Python
vagrant@vagrant:~/GeeksForGeeks$ sort -r Language
Python
Javascript
Java
Golang
Erlang
C++
C#
vagrant@vagrant:~/GeeksForGeeks$ sort -R Language
C++
Golang
Java
Javascript
Erlang
Python
C#
```

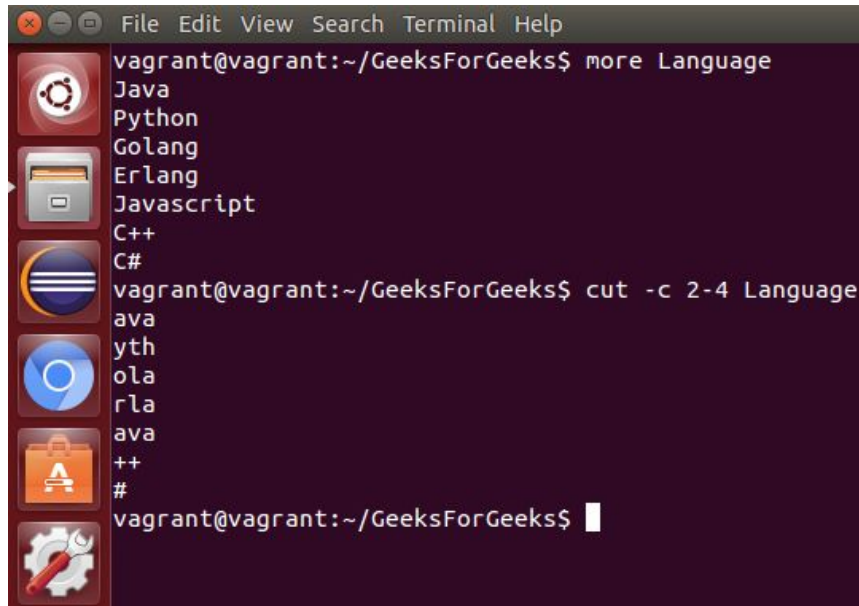
- [wc](#) : Used to count the number of characters, words in a file.



A terminal window with a dark purple background and a sidebar on the left containing icons for various programming languages. The terminal shows the following commands and their outputs:

```
vagrant@vagrant:~/GeeksForGeeks$ more CoursesListFile
Advanced Java Course
Python
Spring Framework
hibernate
vagrant@vagrant:~/GeeksForGeeks$ wc CoursesListFile
 4  7 55 CoursesListFile
vagrant@vagrant:~/GeeksForGeeks$ wc -l CoursesListFile
4 CoursesListFile
vagrant@vagrant:~/GeeksForGeeks$ wc -w CoursesListFile
7 CoursesListFile
vagrant@vagrant:~/GeeksForGeeks$ wc -m CoursesListFile
55 CoursesListFile
vagrant@vagrant:~/GeeksForGeeks$
```

- [cut](#) : Used to cut a specified part of a file.



The screenshot shows a terminal window with a menu bar (File, Edit, View, Search, Terminal, Help) and a sidebar with application icons. The terminal text is as follows:

```
vagrant@vagrant:~/GeeksForGeeks$ more Language
Java
Python
Golang
Erlang
Javascript
C++
C#
vagrant@vagrant:~/GeeksForGeeks$ cut -c 2-4 Language
ava
yth
ola
rla
ava
++
#
vagrant@vagrant:~/GeeksForGeeks$
```

4). Basic Terminal Navigation Commands:

- [ls](#) : To get the list of all the files or folders.
- [cd](#) : Used to change the directory.
- [du](#) : Show disk usage.
- [pwd](#) : Show the present working directory.
- [man](#) : Used to show the manual of any command present in Linux.
- [rmdir](#) : It is used to delete a directory if it is empty.
- [ln file1 file2](#) : Creates physical link.
- [ln -s file1 file2](#) : Creates symbolic link.

5). File Permissions Commands: The *chmod* and *chown* commands are used to control access to files in UNIX and Linux systems.

- [chown](#) : Used to change the owner of file.
- [chgrp](#) : Used to change the group owner of file.
- [chmod](#) : Used to modify the access/permission of a user.