

1. What is LINUX?
2. What is Software? Types of Software.
3. What is Operating System? With example.
4. What are the Functionalities of Operating System?
5. What are the types of Operating System?
6. How to choose the OS?
7. Examples of OS?
8. What is LINUX OS?
9. What are the Key Features of Linux?
- 10.What is Distribution of Linux? Distribution of Linux is also called as? With example.
- 11.History of Linux.
- 12.Architecture of Linux. What are the components of Linux and explain them?
- 13.Difference between Linux & Windows.
- 14.Different types of Linux commands.

#Basic commands:

1. `pwd` = present working directory
2. `clear` = clear the screen
3. `exit` = exit from the terminal
4. `history` = it will show all previous commands taken by the user
5. `history -c` = clear the history
6. `history -d <line number>` = to delete particular command

CHEATSHEET OF LINUX:**1. System Commands or Information:**

01	uname	Used to get type of OS
02	uname -s	Used to get kernel name
03	uname -r	Used to get release of kernel
04	uname -v	Used to get version of kernel
05	uname -m	Used to get machine hardware type
06	uname -p	Used to get processor type
07	uname -a	Used to get all information about OS
08	uptime	Used to get sinch how long our system is in running state
09	uptime -p	Only time of our system is in running state
10	hostname	Used to get host of our system
11	hostname -i	Used to get private ip of our system
12	hostname <name>	Used to change the hostname
13	hostnamectl set-hostname <name>	Used to change the hostname
14	date	Used to get todays date
15	timedatectl	Used to get time zone
16	timedatectl set-timezone Asia/Kolkata	Used to change the time zone to ISD Asia/Kolkata
17	who	Used to see how many users have been login to our system.
18	whoami	Used to see the current user

#extra date time commands:

19	<code>date +"%d"</code> <code>date +"%d"</code>	Displays only date
20	<code>date +"%m"</code>	Display only month in number
21	<code>date +"%y"</code>	Display only year in number
22	<code>date +"%H"</code>	Display only hour
23	<code>date +"%M"</code>	Display only minutes
24	<code>date +"%S"</code>	Display only seconds
25	<code>date +"%D"</code>	Display the full date (MM/DD/YY)
26	<code>date +"%F"</code>	Display the full date (YYYY-MM-DD)
27	<code>date +"%A"</code>	Display day of the week
28	<code>date +"%B"</code>	Display month of year
29	<code>date +"%C"</code>	Display the year of Century

2. Hardware Commands or Information:

30	df	It shows information about DISKSPACE USAGE
31	df -h	It shows information about DISKSPACE USAGE in human readable format
32	df -t -h <filesystem_type>	It shows filesystem type df -h -t ext4
33	du	It shows DISK USAGE of files and folders
34	du -h	It shows information about DISKUSAGE in human readable format
35	du -s	It displays only the total size of folders
36	free	It displays the system's MEMORY USAGE
37	free -h	It displays the system's MEMORY USAGE in human readable format
38	free -t	It displays total MEMORY USAGE
39	lscpu	It will list the cpu information
40	lsblk	It will list the block devices (hard drive, SSDS. etc)
41	lspci	It will list all pc / device in the system, including graphic card. Etc
42	lsusb no usb in aw	It will list the USB device connected to the system

3. Process Management commands:

43	ps	It will display the snapshot of current processes. PID
44	ps aux	It will display all the processes for all users.
45	ps -f	It will display full format listing
46	ps -e / ps -A	It will display all processes
47	top	It will display dynamic real-time system processes
48	htop sudo yum install htop -y	It will display interactive process viewer provides colorized output
49	kill <PID>	It will terminate the process by PID
50	SIGkill <PID> / kill -9 <PID>	It will terminate the process forcefully
51	killall	It will terminate all the process
52	bg #bg job_id #jobs (using this we get job id)	It resumes a stopped job in the background
53	fg #fg job_id	If will bring a background job to the foreground

4. File Management commands:

54	touch <filename> touch <filename> <filename> touch <filename>{1..n}	Used to create a file Used to create a multiple file Used to create n number of files
55	vim <filename> esc :wq to save and quite :w to save :!q to exit	Used to edit the file. If file is not present it will create file
56	nano <filename> ctrl + s for save ctrl + x for quite	Used to edit the file. If file is not present it will create file
57	cat <filename>	It will display the content inside the file
58	cat > <filename>	It is used to add content to the file. It will remove all previous contents. If file not exists it will create
59	cat >> <filename>	It is used to add content to the file. It will not remove previous contents. If file not exists it will create
60	tac <filename>	It will display the content in reverse order
61	head <filename> head -n <filename>	It will display first 10 lines of the file It will display particular number of lines from first
62	tail <filename> tail -n <filename>	It will display last 10 lines of the file It will display particular number of lines from last
63	sed -n '5,9p' <filename>	It will display the content of file from line 5 to 9
64	mkdir <foldername> mkdir <fol_name> <fol_name> mkdir <fol_name>{1..n} mkdir -p fol_name/subfol/subfol2	Used to create the folder Used to create multiple folder Used to create multiple folders using numbers Used to create sub folder inside the folder
65	ls	Used to list the files and folders
66	ll	Used to list the full information about files and folders
67	ls -l	Used to list the files and folders with file permission
68	ls -a	Used to list files and folder with hide files and folders
69	ls -t	Used to list files and folders sorted by most recently modified
70	ls -ltr	Used to list files and folders reverse order, showing the oldest file first

71	cd <dir_name>	Change directory
72	cd	It will go to root
73	cd ..	It will take you to previous directory
74	cd ...	It will take you to 2 step back
75	rm <filename> rm <filename> <filename> rm <filename>{1..n} rm * rm *.exe rm a*	Used to remove file Used to remove multiple file Used to remove multiple files with number Used to remove all files Used to remove all files with same extensions Used to remove file starts with 'a'
76	rm -f <filename>	Used to remove file forcefully
77	rmdir <folder_name> rmdir <folder_name>{1..n} rmdir *	Used to remove empty folder Used to remove multiple folder with number Used to remove all empty folders
78	rm -r <folder_name> rm -r <folder_name>/.exe rm -r *	Used to remove all files inside the folder with folder Used to remove particular extension files from folder Used to remove all folders with files
79	cp source_fol destination_folder cp -r ab ab cp -r rp rp cp -r ab rp cp -r rp ab cp -r src/file dest_fol cp -r src/* dest_fol cp -r src/*exe dest_fol	Copy file from souce to destination Copy folder with file Ab: absolute path eg: home/ubuntu/folder/ Rp: relative path (current working directory)
80	mv <filename> <newfilename> mv source_fol destination_folder mv ab ab mv rp rp mv ab rp mv rp ab mv src/file dest_fol mv src/* dest_fol mv src/*.exe dest_fol	Used to change the file name or foldername Move

5. User Management commands:

81	adduser <username> useradd <username> useradd -m -s /bin/bash <username>	Used to create user. By default group, dir will be created Used to create user. dir will not be created and passwd Used to create user with -m mkdir -s shell, passwd not created
82	usermod -l <new_username> <old_username>	Used to change the username
83	Passwd <username>	Used to create a passwd for mentioned user
84	getent passwd cat /etc/passwd tail -n /etc/passwd	Used to list/see the users
85	id <username>	Used to see specific user details like group. etc
86	sudo -i	Switch to root
87	su <username>	Switch to user
88	userdel <username> userdel <username> -r	Used to delete user Used to delete user forcefully
89	ps -u <username>	Used to check what is happening in that user then need to exit (use this if user is not getting deleted)
90	visudo (root) sudo visudo (user)	To make user sudoers
91	useradd -e <yyyy-mm-dd> <username>	Set expire date to the user. after the date user will be no longer available
92	ls -ld \username	See the permission of the username`

6. Group Management commands:

93	groupadd <groupname>	Used to create group
94	getent group cat /etc/group tail -n /etc/group	Used to list the group
95	groupdel <group_name>	Used to delete group
96	grep groupname /etc/group	Used to list the specific group
97	usermod -aG <groupname> <username> usermod -aG <groupname> user1 user2 user3 user4	Used to add user to group Used to add multiple users to the one group

	usermod -aG group1,group2,group3 username	Used to add one user to the multiple group
98	gpasswd -d <username> <group_name>	Used to remove user from group
99	groupmod -n <newgroup_name> <oldgroup_name>	Used to change the group name

7. Changing ownership commands:

100	chown <username> <filename>/<fol_name> chown <username> *	Used to change the owner of file or folder Used to change the owner for all files and folders
101	chgrp <groupname> <filename>	Used to change the groupname of the file
102	chown <username>:<groupname> <filename>/<fol_name>	Used to change the user and group at a time to file/folder
103	chown -R <username>:<groupname> <foldername>	Used to change the owner of a folder with files inside that folder

8. File permissions: rwxr--r--

104	chmod ugo+rwx <file_name>/<folder_name> chmod u+rwx chmod g+rwx chmod o+rwx chmod u+rw chmod g+r chmod o+r	Used to add the permission of file or folder U:user g: group o: other r: read w: write x: execution
105	chmod ugo-rwx <file_name>/<folder_name>	Used to remove the permission of file or folder
106	Chmod 644 <filename>/<folder_name>	Change mode with number 644 is default 6= user have rw permission 4=group have only read permission 4=other have only read permission r=4 w=2 x=1 -=0

9. Network commands:

107	Ping <host> Ex: ping google.com	Used to check the network connectivity to a specific host
108	ifconfig	Used to get network interface and display information about them
109	ip addr / ip -a ip route / ip -r	Used to get private ip addresses of all network
110	netstat netstat -tuln ss ss -tuln	It shows the network connection, routing tables and interface statistics It shows the open ports and services listening for incoming connections t=tcp u=udp l=listening -n=numeric addresses it is modern replacement for netstat for better performance
111	traceroute <host>	It is used to trace the route that packets taken from your system to remote destination
112	curl curl <url> ex: curl http://example.com curl -o <url>/ ex: curl http://example.com/file.zip curl -l <url>	Curl is used to transfer data over various protocols like http, https ..etc commonly used for testing API's and download the files Retrieve the content of url Download the files Fetch the http headers
113	wget <url>	Used to download files from web over http, https, ftp

hostname -i = private ip
 curl ifconfig.me = public ip

10. Package management commands:

116	Debian/ ubuntu based distributions: apt update / apt-get update apt upgrade apt install <package_name> apt remove <package_name> apt search <package_name> apt show <package_name> apt autoremove dpkg -i <package_name>	Advance package tool (APT) Used to update the available package Used to upgrade the installed package Used to install package Used to remove package Used to search the package Used to see the information about package Used to cleanup unused packages Used to install a. deb package
117	Redhat/centOs/Alma Linux/RHEL: yum update yum install <package_name> yum remove <package_name> yum search <package_name> yum info <package_name> yum clean all	Yellowdog updater, modified (YUM) Used to update the available package Used to install package Used to remove package Used to search the package Used to see the information about package Used to clean the cached data
118	Fedora, centOS 8+, RHEL 8+: dnf update dnf install <package_name> dnf remove <package_name> dnf search <package_name> dnf info <package_name> dnf clean all dnf list installed	Dandified yum (DNF) Used to update the available package Used to install package Used to remove package Used to search the package Used to see the information about package Used to clean the cached data List the installed package
119	OpenSUSE, SUSE linux: zypper update zypper install <package_name> zypper remove <package_name> zypper search <package_name> zypper info <package_name> zypper clean all zipper list installed	Zypper Used to update the available package Used to install package Used to remove package Used to search the package Used to see the information about package Used to clean the cached data List the installed package

120	Arch Linux, manjaro and other arch-based pacman -Syu pacman -S <package_name> pacman -R <package_name> pacman -Ss <package_name> pacman -Qi <package_name> pacman -Q pacman -Scc	Pacman Update Install Remove Search Show information List the installed packages Clean the package cache
121	Snap (universal package management) snap install <package_name> snap remove <package_name> snep list snep refresh	Installing software Install Remove List Update
122	Flatpack (universal package management) flatpack install <package_name> flatpack uninstall <package_name> flatpack list flatpack update	Installing apps Install Remove List Update

11. File compression/Achieve commands:

123	tar -cvf archive_name.tar file_name1, file_name2, file_nameN (or) tar -cvf archive_name.tar directory_name/	Tar is used to archive files. This command is used to archive file. -c = create new archive -v = lists files -f = specify the name of archive
124	tar -xvf archive_name.tar	Used to extract the files
125	gzip file_name	Gzip is used to compress individual files. This command to used to compress the file.
126	gzip -d file_name gzip -k file_name	To extract the file. Original file will be remain, compressed gzip file will be created.

127	zip archive_name.zip file1 file2	Zip is a popular compression format in both linux and windows. This is used to create zip folder
128	Unzip archive_name.zip	This is used to unzip the folder

12. Search commands:

129	find. -file_name find . -name "file1.txt"	Used to find a file in current dir.
130	find. -type d -foldername	Used to find folder find . -type d -name "foldername"
131	find. -type f -perm 777	Finds all the files permissions are 777
132	find. -type f -empty	Finds all empty files in current dir.
133	find -type d -empty	Finds all empty folders in current dir.
134	find. -perm /u=r	Finds read only files in current folder
135	find. /-user <username>	Find all files have a specific user
136	find. -mtime 10	Find all files modified 10 days back
137	find/ -atime 10	Find all files accessed 10 days back
138	find. -cmin -60	Find all files changed in last 1hr
139	find. -size 1k	Find all 1kb files
140	grep “word” file_name grep “word” file1 file2	Used to search for a word in file Used to search for a word in multiple files
141	grep -n “word” file_name	Used to search word in file with line number
142	grep -i “word” file_name	Used to search word in case-insensitive
143	grep -l “word” file_name	Used to print the filename which contains the word
144	grep -c “word” file_name	Used to count of word in a file
145	grep -e <pattern-1> -e <pattern-2> file_name	Used to search multiple patterns in file.