

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 |
| 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 | date +" %d" | Displays only date |
| 20 | date +" %m" | Display only month in number |
| 21 | date +" %y" | Display only year in number |
| 22 | date +" %H" | Display only hour |
| 23 | date +" %M" | Display only minutes |
| 24 | date +" %S" | Display only seconds |
| 25 | date +" %D" | Display the full date (MM/DD/YY) |
| 26 | date +" %F" | Display the full date (YYYY-MM-DD) |
| 27 | date +" %A" | Display day of the week |
| 28 | date +" %B" | Display month of year |
| 29 | date +" %C" | 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 | It shows filesystem type |
| 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 | It will list the USB device connected to the system |

3. Process Management commands:

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|----|--|--|
| 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 | 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 |

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|----|---|--|
| 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 source 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:

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|----|---|---|
| 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> | 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:

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|-----|---|--|
| 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--

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|-----|---|--|
| 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:

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|-----|---|---|
| 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 moder replacement for netstat for better performance |
| 111 | tracert <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 -I <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 |

10. Package management commands:

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| 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 zypper 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> sneep list sneep 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:

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|-----|---|--|
| 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 archieve |
| 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:

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|-----|--|--|
| 129 | find. -file_name | Used to find a file in current dir. |
| 130 | find. -type d -foldername | Used to find folder |
| 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. |