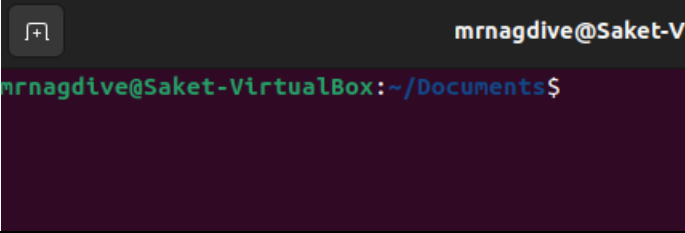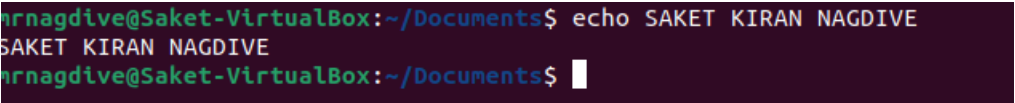Name: Saket Nagdive
Class: TYIT-(C)
Roll no: 333077
Prn No: 22120250

Assignment 01: Study Linux Commands

Command	Description	Output
1) ls	The most frequently used command in Linux to list directories	
2) pwd	Print working directory command in Linux.	
3) cd	Linux command to navigate through directories.	

| 4) mkdir | Command used to create directories in linux. | ```
mrnagdive@Saket-VirtualBox:~/Documents/cc$ mkdir test
mrnagdive@Saket-VirtualBox:~/Documents/cc$ cd test
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ ls
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ mkdir chap{00...99}
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ ls
chap{00...99}
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ echo chap{00...99}
chap{00...99}
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ mkdir chap{00......99}
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ ls
chap{00......99}  chap{00...99}
``` |
|---|---|---|
| 5) mv | Move or rename files in Linux. | ```
mv: cannot stat 'a.txt': No such file or directory
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ mkdir a.txt, b.txt
mkdir: cannot create directory 'a.txt,': File exists
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ mv a.txt abcd.txt
mv: cannot stat 'a.txt': No such file or directory
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ mv a.txt saket.txt
mv: cannot stat 'a.txt': No such file or directory
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ mv a.txt, saket.txt
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ ls
b.txt  b.txt,  chap{00......99}  chap{00...99}  c.txt,  d.txt  saket.txt
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ ls tree
``` |
| 6) cp | Similar usage as mv but for copying files in Linux | ```
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ cp -r saket.txt /home/mrnagdive/Documents
mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ cd /home/mrnagdive/Documents
mrnagdive@Saket-VirtualBox:~/Documents$ ls
cc  saket  saket.txt
``` |

| 7) rm | Delete files or directories | ```
mrnagdive@Saket-VirtualBox:~/Documents$ ls
cc   saket  saket.txt
mrnagdive@Saket-VirtualBox:~/Documents$ rm saket.txt
mrnagdive@Saket-VirtualBox:~/Documents$ ls
cc   saket
mrnagdive@Saket-VirtualBox:~/Documents$
``` |
|---|---|---|
| 8) touch | Create blank/empty files | ```
mrnagdive@Saket-VirtualBox:~/Documents$ touch marks.txt
mrnagdive@Saket-VirtualBox:~/Documents$ ls
cc   marks.txt  saket
``` |
| 9) ln | Create symbolic links (shortcuts) to other files | ```
┌──(kali㉿kali)-[~]
└─$ ln --help
Usage: ln [OPTION] ... [-T] TARGET LINK_NAME
  or:  ln [OPTION] ... TARGET
  or:  ln [OPTION] ... TARGET ... DIRECTORY
  or:  ln [OPTION] ... -t DIRECTORY TARGET ...
``` |
| 10)      cat | echoDisplay file contents on the terminal | ```
mrnagdive@Saket-VirtualBox:~/Documents$ ls
cc   marks.txt  saket
mrnagdive@Saket-VirtualBox:~/Documents$ cat marks.txt
mrnagdive@Saket-VirtualBox:~/Documents$ cat marks.txt
my name saket nagdive
i love to run commands
mrnagdive@Saket-VirtualBox:~/Documents$ █
``` |
| 11)   clear | | |

	Clear the terminal display clear	mrnagdive@Saket-V mrnagdive@Saket-VirtualBox:~/Documents$
12) echo	Print any text that follows the command	mrnagdive@Saket-VirtualBox:~/Documents$ echo SAKET KIRAN NAGDIVE SAKET KIRAN NAGDIVE mrnagdive@Saket-VirtualBox:~/Documents$

13) less	Linux command to display paged outputs in the terminal	
		
		`(kali⊛kali)-[~/Desktop/Cloud & DevOps/test]`
		`$ less Linux\ Commands\ for\ DevOps\ Engineer`
		
		There are the top 55 Linux Commands You Must Know as a cloud&devops engineer:
		
		01. ls — The most frequently used command in Linux to list directories
		02. pwd — Print working directory command in Linux
		03. cd — Linux command to navigate through directories
		04. mkdir — Command used to create directories in Linux
		05. mv — Move or rename files in Linux
		06. cp — Similar usage as mv but for copying files in Linux
		07. rm — Delete files or directories
		07. touch — Create blank/empty files
		07. ln — Create symbolic links (shortcuts) to other files
		08. cat — Display file contents on the terminal
		09. clear — Clear the terminal display
		10. echo — Print any text that follows the command
		11. less — Linux command to display paged outputs in the terminal
		12. man — Access manual pages for all Linux commands
		13. uname — Linux command to get basic information about the OS
		14. whoami — Get the active username
		15. tar — Command to extract and compress files in Linux
		16. grep — Search for a string within an output
		17. head — Return the specified number of lines from the top
		18. tail — Return the specified number of lines from the bottom
		19. diff — Find the difference between two files
		20. cmp — Allows you to check if two files are identical
		21. comm — Combines the functionality of diff and cmp
		22. sort — Linux command to sort the content of a file while outputting
		23. export — Export environment variables in Linux
		24. zip — Zip files in Linux
		25. unzip — Unzip files in Linux
		25. ssh — Secure Shell command in Linux
		26. service — Linux command to start and stop services
		:

14)	man	Accesss manual pages for all linux commands	
15)	unname	Linux command to get basic information about os.	

16)	whoami	Get the active username	![whoami terminal output showing `mrnagdive@Saket-VirtualBox:~$ whoami` returning `mrnagdive`]
17)	tar	Command to extract and compress files in Linux	Terminal output: `mrnagdive@Saket-VirtualBox:~/Documents/cc$ tar -cf archive.tar test` `mrnagdive@Saket-VirtualBox:~/Documents/cc$ ls` `archive.tar  four  one  test  three  two` `mrnagdive@Saket-VirtualBox:~/Documents/cc$`
18)	grep	Search for a string within an output	Terminal output: `mrnagdive@Saket-VirtualBox:~/Documents/cc$ cd ..` `mrnagdive@Saket-VirtualBox:~/Documents$ grep -c "love" marks.txt` `1` `mrnagdive@Saket-VirtualBox:~/Documents$ grep -l "love" *` `grep: cc: Is a directory` `marks.txt` `mrnagdive@Saket-VirtualBox:~/Documents$`
19)	head	Return the specified number of lines from the top	Terminal output: `(kali⊛kali)-[~/Desktop/Cloud & DevOps/test]` `$ head Linux\ Commands\ for\ DevOps\ Engineer` `There are the top 55 Linux Commands You Must Know as a cloud&devops engineer:` `01. ls — The most frequently used command in Linux to list directories` `02. pwd — Print working directory command in Linux` `03. cd — Linux command to navigate through directories` `04. mkdir — Command used to create directories in Linux` `05. mv — Move or rename files in Linux` `06. cp — Similar usage as mv but for copying files in Linux` `07. rm — Delete files or directories` `07. touch — Create blank/empty files`

| 20) | tail | Return the specified number of lines from the bottom | ```
┌──(kali㉿kali)-[~/Desktop/Cloud & DevOps/test]
└─$ tail Linux\ Commands\ for\ DevOps\ Engineer
49. kill --Command to kill the process (PID)
50. w -- to check how many users logged into the linux
51. date -- used to check the current date, time in linux
52. ls -a --List the hidden files in directory (hidden files are denatoed as .
.)
53. ls -l --Use to check the permissions on all the files
54. ls -R -- used to list information about files and directories within the f
ile system.
55. rm -rf -- remove directory with the files


Reference: Collected this, from the post of Kishan Patro.
``` |
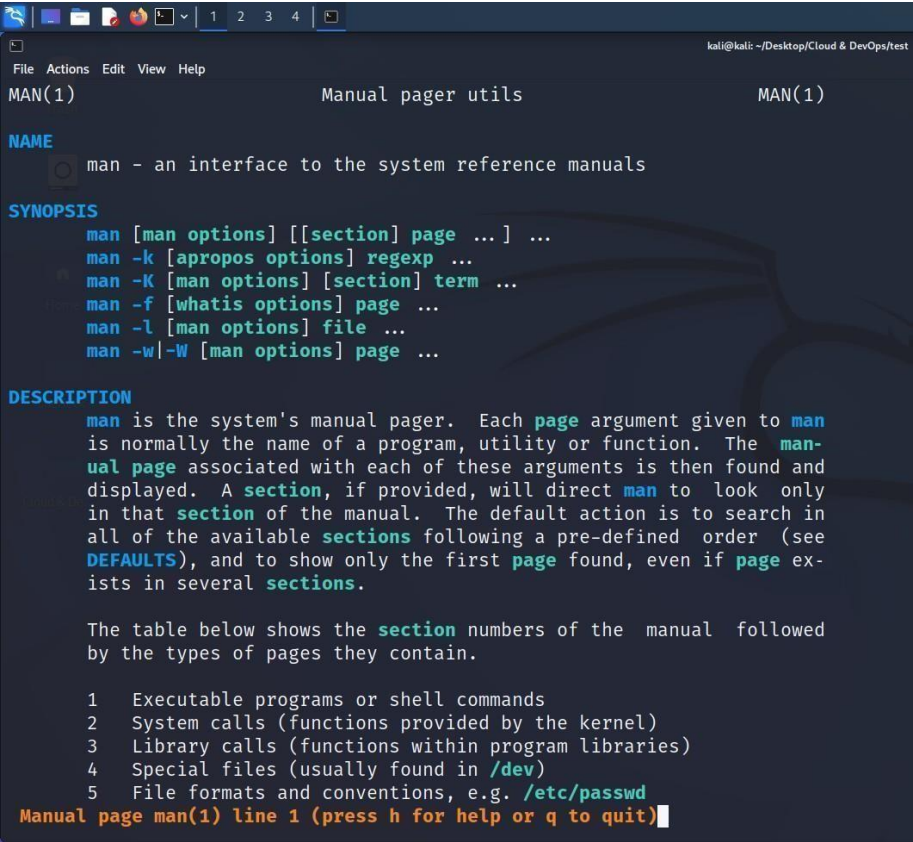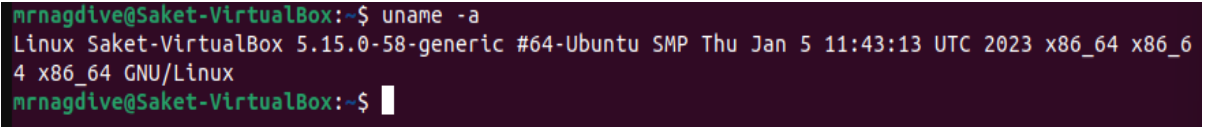|-----|------|--|---|
| 21) | diff | Find the difference between two files | ```
┌──(kali㉿kali)-[~/Desktop/Cloud & DevOps/test]
└─$ diff new.txt archive.tar
Binary files new.txt and archive.tar differ
``` |
| 22) | cmp | Allows you to check if two files are identical | ```
┌──(kali㉿kali)-[~/Desktop/Cloud & DevOps/test]
└─$ cmp new.txt sample.txt

┌──(kali㉿kali)-[~/Desktop/Cloud & DevOps/test]
└─$

┌──(kali㉿kali)-[~/Desktop/Cloud & DevOps/test]
└─$ cmp new.txt archive.tar
new.txt archive.tar differ: byte 1, line 1

┌──(kali㉿kali)-[~/Desktop/Cloud & DevOps/test]
└─$
``` |

23)	comm	Combines the functionality of diff and cmp	
24)	sort	Linux command to sort the content of a file while outputting	
25)	export	Export environment variables in Linux	

26)	zip	Zip files in linux	
27)	unzip	Unzip files in linux	
28)	ssh	Secure shell command linux	

29)	service	Linux command to start and stop services	
30)	ps	Display active processes	
31)	df	Display disk filesystem information	

			mrnagdive@Saket-VirtualBox:~/Documents/cc/test$ df Filesystem 1K-blocks Used Available Use% Mounted on tmpfs 1127128 1580 1125548 1% /run /dev/sda3 102106072 10881704 85991524 12% / tmpfs 5635624 0 5635624 0% /dev/shm Ubuntu Software 5120 4 5116 1% /run/lock 524252 5364 518888 2% /boot/efi tmpfs 1127124 4732 1122392 1% /run/user/1000 /dev/sr0 51806 51806 0 100% /media/mrnagdive/VBox_GAs_ 7.0.6
32)	kill/killall	Kill active processes by process ID or name	┌──(kali㉿kali)-[~/Desktop/Cloud & DevOps/test] └─$ kill -l HUP INT QUIT ILL TRAP IOT BUS FPE KILL USR1 SEGV USR2 PIPE ALRM TERM STKFLT CHLD CONT STOP TSTP TTIN TTO U URG XCPU XFSZ VTALRM PROF WINCH POLL PWR SYS
33)	mount	Mount file systems in Linux	┌──(kali㉿kali)-[~/Desktop/Cloud & DevOps/test] └─$ mount -l sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime) proc on /proc type proc (rw,nosuid,nodev,noexec,relatime) udev on /dev type devtmpfs (rw,nosuid,relatime,size=974100k,nr_inodes=243525,mode=755,inode64) devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000) tmpfs on /run type tmpfs (rw,nosuid,nodev,noexec,relatime,size=202028k,mode=755,inode64) /dev/sda1 on / type ext4 (rw,relatime,errors=remount-ro) [root] securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relatime) tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev,inode64) tmpfs on /run/lock type tmpfs (rw,nosuid,nodev,noexec,relatime,size=5120k,inode64) cgroup2 on /sys/fs/cgroup type cgroup2 (rw,nosuid,nodev,noexec,relatime,nsdelegate,memory_recursiveprot) pstore on /sys/fs/pstore type pstore (rw,nosuid,nodev,noexec,relatime) bpf on /sys/fs/bpf type bpf (rw,nosuid,nodev,noexec,relatime,mode=700) systemd-1 on /proc/sys/fs/binfmt_misc type autofs (rw,relatime,fd=29,pgrp=1,timeout=0,minproto=5,maxprot o=5,direct,pipe_ino=16270) hugetlbfs on /dev/hugepages type hugetlbfs (rw,relatime,pagesize=2M) mqueue on /dev/mqueue type mqueue (rw,nosuid,nodev,noexec,relatime) debugfs on /sys/kernel/debug type debugfs (rw,nosuid,nodev,noexec,relatime) tracefs on /sys/kernel/tracing type tracefs (rw,nosuid,nodev,noexec,relatime) fusectl on /sys/fs/fuse/connections type fusectl (rw,nosuid,nodev,noexec,relatime) configfs on /sys/kernel/config type configfs (rw,nosuid,nodev,noexec,relatime) ramfs on /run/credentials/systemd-sysusers.service type ramfs (ro,nosuid,nodev,noexec,relatime,mode=700)
34)	chmod	Command to change file permissions	┌──(kali㉿kali)-[~/Desktop/Cloud & DevOps/test] └─$ chmod u=rw,go=rw sample.txt ┌──(kali㉿kali)-[~/Desktop/Cloud & DevOps/test] └─$ ls -l sample.txt -rw-rw-rw- 1 kali kali 62 Jan 21 10:51 sample.txt

35)	chown	Command for granting ownership of files or folders	
36)	ifconfig	Display network interfaces and IP addresses	
37)	traceroute	Trace all the network hops to reach the destination	
38)	wget	Direct download files from internet.	

39)	ufw	Firewall command	
40)	iptables	Base firewall for all other firewall utilities to interface with	
41)	apt, pacman, yum, rpm	Package managers depending on the distro	
42)	sudo	Command to escalate privileges in Linux	

| 43) | cal | View a command-line calendar | ```
┌──(kali㊀kali)-[~/Desktop/Cloud & DevOps/test]
└─$ cal
    January 2023
Su Mo Tu We Th Fr Sa
 1  2  3  4  5  6  7
 8  9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31
``` |
|-----|-----|------|------|
| 44) | alias | Create custom shortcuts for regularly used commands | ```
┌──(kali㊀kali)-[~/Desktop/Cloud & DevOps/test]
└─$ alias -- CD='cd Desktop'
``` |
| 45) | dd | Majorly used for creating bootable USB sticks | ```
┌──(kali㊀kali)-[~/Desktop/Cloud & DevOps/test]
└─$ dd
-help
^C0+1 records in
0+0 records out
0 bytes copied, 8.03898 s, 0.0 kB/s
``` |
| 46) | whereis | Locate the binary, source, and manual pages for a command | ```
┌──(kali㊀kali)-[~]
└─$ whereis wget
wget: /usr/bin/wget /usr/share/man/man1/wget.1.gz /usr/share/info/wget.info.gz
``` |
| 47) | whatis | Find what a command is used for | ```
┌──(kali㊀kali)-[~]
└─$ whatis wget
wget (1)          - The non-interactive network downloader.
``` |

| 48) | top | View active processes live with their system usage | ```
top - 07:32:41 up 27 min,  1 user,  load average: 0.42, 0.25, 0.19
Tasks: 193 total,   1 running, 192 sleeping,   0 stopped,   0 zombie
%Cpu(s):  3.9 us,  9.2 sy,  0.0 ni, 86.8 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   1972.9 total,    402.3 free,    631.1 used,    939.4 buff/cache
MiB Swap:   1024.0 total,   1024.0 free,      0.0 used.   1176.4 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
``` |
|---|---|---|---|
| 49) | useradd and usermod | Add new user or change existing users data | ```
(root@kali)-[~]
# sudo useradd test_user

(root@kali)-[~]
# cat etc/passwd | grep test_user
cat: etc/passwd: No such file or directory

(root@kali)-[~]
# cat /etc/passwd | grep test_user
test_user:x:1002:1002::/home/test_user:/bin/sh
``` |
| 50) | paswd | Create or update passwords for existing users | ```
(root@kali)-[~]
# passwd -S test_user
test_user L 2023-01-23 0 99999 7 -1
``` |
| 51) | ls -1 \| wc -1 | Command to get the count of the files present into directory. | ```
(kali@kali)-[~/Desktop/Cloud & DevOps]
$ ls -1 | wc -l
1
``` |
| 52) | Kill | Command to kill the process (PID) | ```
(kali@kali)-[~/Desktop/Cloud & DevOps]
$ kill -l
HUP INT QUIT ILL TRAP IOT BUS FPE KILL USR1 SEGV USR2 PIPE ALRM TERM STKFLT CHLD CONT STOP TSTP TTIN TTO
U URG XCPU XFSZ VTALRM PROF WINCH POLL PWR SYS
``` |

53)	W	to check how many users logged into the linux	(kali⊛kali)-[~/Desktop/Cloud & DevOps] └$ w 07:46:04 up 40 min, 1 user, load average: 0.13, 0.38, 0.35 USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT kali tty7 :0 07:05 40:46 2:24 0.73s xfce4-session
54)	Date	used to check the current date, time in linux	(kali⊛kali)-[~/Desktop/Cloud & DevOps] └$ date Mon Jan 23 07:46:11 AM EST 2023
55)	Ls-a	List the hidden files in directory (hidden files are denoted as ..)	(kali⊛kali)-[~/Desktop/Cloud & DevOps] └$ ls -a . .. test
56)	Ls-l	Use to check the permissions on all the files	(kali⊛kali)-[~/Desktop/Cloud & DevOps] └$ ls -l total 4 drwxr-xr-x 2 kali kali 4096 Jan 22 15:30 test
57)	Ls-r	used to list information about files and directories within the file system.	(kali⊛kali)-[~/Desktop/Cloud & DevOps] └$ ls -r test

58) Rm--rf	remove directory with the files	