

1.

```
ubuntu@ip-10-219-1-122:~$ uname -a
Linux ip-10-219-1-122 6.8.0-1021-aws #23-Ubuntu SMP Mon Dec 9
23:59:34 UTC 2024 x86_64 x86_64 x86_64 GNU/Linux
```

a.

```
-a, --all                print all information, in the following
order,
                        except omit -p and -i if unknown:
-s, --kernel-name        print the kernel name
-n, --nodename            print the network node hostname
-r, --kernel-release     print the kernel release
-v, --kernel-version     print the kernel version
-m, --machine            print the machine hardware name
-p, --processor          print the processor type (non-portable)
-i, --hardware-platform  print the hardware platform (non-portable)
-o, --operating-system   print the operating system
--help                  display this help and exit
--version               output version information and exit
```

2.

```
ubuntu@ip-10-219-1-122:~$ cd /sbin
ubuntu@ip-10-219-1-122:/sbin$ ls -l
total 67864
-rwxr-xr-x 1 root root 2165576 Mar 31 2024 ModemManager
-rwxr-xr-x 1 root root 3407256 Oct 23 11:04 NetworkManager
-rwxr-xr-x 1 root root 39680 Jul 18 18:28 aa-load
-rwxr-xr-x 1 root root 3225 Jul 18 18:28 aa-remove-unknown
-rwxr-xr-x 1 root root 40000 Jul 18 18:28 aa-status
-rwxr-xr-x 1 root root 137 Apr 12 2024 aa-teardown
-rwxr-xr-x 1 root root 14904 Apr 8 2024 accessdb
-rwxr-xr-x 1 root root 53920 Apr 8 2024 acpid
-rwxr-xr-x 1 root root 1053 Mar 31 2024 add-shell
-rwxr-xr-x 1 root root 3075 Apr 6 2024 addgnupghome
lrwxrwxrwx 1 root root 7 Jul 5 2023 addgroup -> adduser
-rwxr-xr-x 1 root root 55191 Jul 5 2023 adduser
-rwxr-xr-x 1 root root 60992 Aug 9 02:33 agetty
-rwxr-xr-x 1 root root 1629848 Jul 18 18:28 apparmor_parser
lrwxrwxrwx 1 root root 9 Jul 18 18:28 apparmor_status -> aa-
status
-rwxr-xr-x 1 root root 2217 Apr 6 2024 applygnupgdefaults
-rwxr-xr-x 1 root root 1394 May 22 2023 aptd
-rwxr-xr-x 1 root root 63088 Apr 8 2024 arp
-rwxr-xr-x 1 root root 26960 Mar 31 2024 arpd
lrwxrwxrwx 1 root root 27 Oct 26 2020 arptables -> /etc/
alternatives/arptables
lrwxrwxrwx 1 root root 17 Apr 8 2024 arptables-nft ->
xtables-nft-multi
lrwxrwxrwx 1 root root 17 Apr 8 2024 arptables-nft-restore ->
xtables-nft-multi
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lrwxrwxrwx 1 root root          17 Apr  8 2024 arptables-nft-save ->
xtables-nft-multi
lrwxrwxrwx 1 root root          35 Oct 26 2020 arptables-restore -> /
etc/alternatives/arptables-restore
lrwxrwxrwx 1 root root          32 Oct 26 2020 arptables-save -> /etc/
alternatives/arptables-save
-rwxr-xr-x 1 root root      13685 Sep  7 2023 aspell-autobuildhash
-rwxr-xr-x 1 root root     150024 Apr  5 2024 avahi-daemon
-rwxr-xr-x 1 root root      35144 Apr 28 2024 badblocks
-rwxr-xr-x 1 root root      14648 Apr  8 2024 bcache-super-show
-rwxr-xr-x 1 root root      27856 Oct 14 20:25 biosdecode
-rwxr-xr-x 1 root root      16351 Jul  1 2024 blkdeactivate
-rwxr-xr-x 1 root root      22912 Aug  9 02:33 blkdiscard
-rwxr-xr-x 1 root root      55720 Aug  9 02:33 blkid
-rwxr-xr-x 1 root root      35200 Aug  9 02:33 blkzone
-rwxr-xr-x 1 root root      35200 Aug  9 02:33 blockdev
lrwxrwxrwx 1 root root          31 Apr  7 2024 bluetoothd -> ../
libexec/bluetooth/bluetoothd
-rwxr-xr-x 1 root root      1622 Nov 30 18:21 bpftool
-rwxr-xr-x 1 root root      39152 Apr  8 2024 brctl
-rwxr-xr-x 1 root root     111096 Mar 31 2024 bridge
lrwxrwxrwx 1 root root          11 Jul  1 2024 cache_check ->
pdata_tools
lrwxrwxrwx 1 root root          11 Jul  1 2024 cache_dump ->
pdata_tools
lrwxrwxrwx 1 root root          11 Jul  1 2024 cache_metadata_size ->
pdata_tools
lrwxrwxrwx 1 root root          11 Jul  1 2024 cache_repair ->
pdata_tools
lrwxrwxrwx 1 root root          11 Jul  1 2024 cache_restore ->
pdata_tools
lrwxrwxrwx 1 root root          11 Jul  1 2024 cache_writeback ->
pdata_tools
-rwxr-xr-x 1 root root      58456 Apr  8 2024 capsh
-rwxr-xr-x 1 root root      97008 Aug  9 02:33 cfdisk
-rwxr-xr-x 1 root root     170480 Mar 31 2024 cgdisk
-rwxr-xr-x 1 root root      31040 Apr  3 2024 chat
-rwxr-xr-x 1 root root      31104 Aug  9 02:33 chcpu
-rwxr-xr-x 1 root root      59720 May 30 2024 chgpasswd
-rwxr-xr-x 1 root root      35200 Aug  9 02:33 chmem
-rwxr-xr-x 1 root root      55736 May 30 2024 chpasswd
-rwxr-xr-x 1 root root      39432 Apr  5 2024 chroot
-rwxr-xr-x 1 root root      98424 Apr  4 2024 conntrack
lrwxrwxrwx 1 root root           4 May 30 2024 cpgr -> cppw
-rwxr-xr-x 1 root root      49608 May 30 2024 cppw
-rwxr-xr-x 1 root root      14488 Mar 31 2024 cracklib-check
-rwxr-xr-x 1 root root       231 Mar 31 2024 cracklib-format
-rwxr-xr-x 1 root root      14488 Mar 31 2024 cracklib-packer
-rwxr-xr-x 1 root root      14488 Mar 31 2024 cracklib-unpacker
-rwxr-xr-x 1 root root       990 Mar 31 2024 create-cracklib-dict

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-rwxr-xr-x	1	root	root	60080	Mar	31	2024	cron
-rwxr-xr-x	1	root	root	1544	Jun	5	2024	cryptdisks_start
-rwxr-xr-x	1	root	root	844	Jun	5	2024	cryptdisks_stop
-rwxr-xr-x	1	root	root	231320	Jul	1	2024	cryptsetup
-rwxr-xr-x	1	root	root	14720	Aug	9	02:33	ctrlaltdel
-rwxr-xr-x	1	root	root	203472	Oct	8	12:19	cups-browsed
-rwxr-xr-x	1	root	root	14648	Sep	26	11:15	cupsaccept
-rwxr-xr-x	1	root	root	14720	Sep	26	11:15	cupsctl
-rwxr-xr-x	1	root	root	490336	Sep	26	11:15	cupsd
lrwxrwxrwx	1	root	root	10	Sep	26	11:15	cupsdisable ->
cupsaccept								
lrwxrwxrwx	1	root	root	10	Sep	26	11:15	cupsenable -> cupsaccept
-rwxr-xr-x	1	root	root	47712	Sep	26	11:15	cupsfilter
lrwxrwxrwx	1	root	root	10	Sep	26	11:15	cupsreject -> cupsaccept
-rwxr-xr-x	1	root	root	82448	Mar	31	2024	dcg
-rwxr-xr-x	1	root	root	231288	Apr	28	2024	debugfs
lrwxrwxrwx	1	root	root	7	Jul	5	2023	delgroup -> deluser
-rwxr-xr-x	1	root	root	18977	Jul	5	2023	deluser
lrwxrwxrwx	1	root	root	11	Apr	18	2024	depmod -> ../bin/kmod
-rwxr-xr-x	1	root	root	154480	Mar	31	2024	devlink
-rwxr-xr-x	1	root	root	404888	May	7	2024	dhcpcd
-rwxr-xr-x	1	root	root	51592	Jul	1	2024	dmeventd
-rwxr-xr-x	1	root	root	138496	Oct	14	20:25	dmidecode
-rwxr-xr-x	1	root	root	175160	Jul	1	2024	dmsetup
lrwxrwxrwx	1	root	root	7	Jul	1	2024	dmstats -> dmsetup
-rwxr-xr-x	1	root	root	491888	Mar	31	2024	dnsmasq
lrwxrwxrwx	1	root	root	8	Mar	31	2024	dosfsck -> fsck.fat
lrwxrwxrwx	1	root	root	8	Mar	31	2024	dosfslabel -> fatlabel
-rwxr-xr-x	1	root	root	4356	Apr	12	2024	dpkg-preconfigure
-rwxr-xr-x	1	root	root	4536	Apr	12	2024	dpkg-reconfigure
-rwxr-xr-x	1	root	root	35136	Apr	28	2024	dumpe2fs
-rwxr-xr-x	1	root	root	18744	Apr	28	2024	e2freefrag
-rwxr-xr-x	1	root	root	373080	Apr	28	2024	e2fsck
-rwxr-xr-x	1	root	root	43328	Apr	28	2024	e2image
lrwxrwxrwx	1	root	root	7	Apr	28	2024	e2label -> tune2fs
lrwxrwxrwx	1	root	root	8	Apr	28	2024	e2mmpstatus -> dumpe2fs
-rwxr-xr-x	1	root	root	7294	Apr	28	2024	e2scrub
-rwxr-xr-x	1	root	root	5394	Apr	28	2024	e2scrub_all
-rwxr-xr-x	1	root	root	22840	Apr	28	2024	e2undo
-rwxr-xr-x	1	root	root	31104	Apr	28	2024	e4crypt
-rwxr-xr-x	1	root	root	35128	Apr	28	2024	e4defrag
lrwxrwxrwx	1	root	root	26	Oct	26	2020	ebtables -> /etc/
alternatives/ebtables								
lrwxrwxrwx	1	root	root	17	Apr	8	2024	ebtables-nft -> xtables-
nft-multi								
lrwxrwxrwx	1	root	root	17	Apr	8	2024	ebtables-nft-restore ->
xtables-nft-multi								
lrwxrwxrwx	1	root	root	17	Apr	8	2024	ebtables-nft-save ->
xtables-nft-multi								
lrwxrwxrwx	1	root	root	34	Oct	26	2020	ebtables-restore -> /

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etc/alternatives/ebtables-restore
lrwxrwxrwx 1 root root          31 Oct 26  2020 ebtables-save -> /etc/
alternatives/ebtables-save
lrwxrwxrwx 1 root root          17 Apr  8  2024 ebtables-translate ->
xtables-nft-multi
lrwxrwxrwx 1 root root          11 Jul  1  2024 era_check -> pdata_tools
lrwxrwxrwx 1 root root          11 Jul  1  2024 era_dump -> pdata_tools
lrwxrwxrwx 1 root root          11 Jul  1  2024 era_invalidate ->
pdata_tools
lrwxrwxrwx 1 root root          11 Jul  1  2024 era_restore ->
pdata_tools
-rwxr-xr-x 1 root root    667320 Apr  8  2024 ethtool
-rwxr-xr-x 1 root root    22848 May  2  2024 faillock
-rwxr-xr-x 1 root root    36058 Apr  9  2022 fanatic
-rwxr-xr-x 1 root root    42984 Jan 21  2021 fanctl
-rwxr-xr-x 1 root root    39304 Mar 31  2024 fatlabel
-rwxr-xr-x 1 root root   117168 Aug  9 02:33 fdisk
-rwxr-xr-x 1 root root    18760 Apr 28  2024 filefrag
-rwxr-xr-x 1 root root    14720 Aug  9 02:33 findfs
-rwxr-xr-x 1 root root    59880 Mar 31  2024 fixparts
-rwxr-xr-x 1 root root    24580 Jul  1  2024 fsadm
-rwxr-xr-x 1 root root    43440 Aug  9 02:33 fsck
-rwxr-xr-x 1 root root     1185 Mar 31  2024 fsck.btrfs
-rwxr-xr-x 1 root root    31168 Aug  9 02:33 fsck.cramfs
lrwxrwxrwx 1 root root         6 Apr 28  2024 fsck.ext2 -> e2fsck
lrwxrwxrwx 1 root root         6 Apr 28  2024 fsck.ext3 -> e2fsck
lrwxrwxrwx 1 root root         6 Apr 28  2024 fsck.ext4 -> e2fsck
-rwxr-xr-x 1 root root    80264 Mar 31  2024 fsck.fat
-rwxr-xr-x 1 root root    55712 Aug  9 02:33 fsck.minix
lrwxrwxrwx 1 root root         8 Mar 31  2024 fsck.msdos -> fsck.fat
lrwxrwxrwx 1 root root         8 Mar 31  2024 fsck.vfat -> fsck.fat
-rwxr-xr-x 1 root root     2594 Mar 31  2024 fsck.xfs
-rwxr-xr-x 1 root root    14720 Aug  9 02:33 fsfreeze
-rwxr-xr-x 1 root root    14648 Apr  8  2024 fstab-decode
-rwxr-xr-x 1 root root    43392 Aug  9 02:33 fstrim
-rwxr-xr-x 1 root root   203248 Mar 31  2024 gdisk
-rwxr-xr-x 1 root root   420584 Apr  4  2024 gdm3
-rwxr-xr-x 1 root root   123472 Mar 31  2024 genl
-rwxr-xr-x 1 root root    14648 Apr  8  2024 getcap
-rwxr-xr-x 1 root root    14648 Apr  8  2024 getpcaps
lrwxrwxrwx 1 root root         6 Aug  9 02:33 getty -> agetty
-rwxr-xr-x 1 root root     2288 Jan 11  2023 gnome-menus-blacklist
-rwxr-xr-x 1 root root    72840 May 30  2024 groupadd
-rwxr-xr-x 1 root root    64424 May 30  2024 groupdel
-rwxr-xr-x 1 root root    59744 May 30  2024 groupmems
-rwxr-xr-x 1 root root    72744 May 30  2024 groupmod
-rwxr-xr-x 1 root root    59720 May 30  2024 grpck
-rwxr-xr-x 1 root root    51368 May 30  2024 grpconv
-rwxr-xr-x 1 root root    51368 May 30  2024 grpunconv
lrwxrwxrwx 1 root root         35 Apr  4  2024 grub-bios-setup -> ../

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lib/grub/i386-pc/grub-bios-setup
-rwxr-xr-x 1 root root 1220416 Apr 4 2024 grub-install
-rwxr-xr-x 1 root root 963784 Apr 4 2024 grub-macbless
-rwxr-xr-x 1 root root 8838 Apr 4 2024 grub-mkconfig
-rwxr-xr-x 1 root root 72384 Apr 4 2024 grub-mkdevicemap
-rwxr-xr-x 1 root root 972232 Apr 4 2024 grub-probe
-rwxr-xr-x 1 root root 4839 Apr 4 2024 grub-reboot
-rwxr-xr-x 1 root root 3554 Apr 4 2024 grub-set-default
-rwxr-xr-x 1 root root 6660 Apr 8 2024 guest-account
lrwxrwxrwx 1 root root 16 Aug 8 14:51 halt -> ../bin/systemctl
-rwxr-xr-x 1 root root 142776 Apr 8 2024 hdparm
-rwxr-xr-x 1 root root 35296 Aug 8 14:47 iconvconfig
-rwxr-xr-x 1 root root 79024 Apr 8 2024 ifconfig
-rwxr-xr-x 1 root root 43528 Apr 1 2024 inetd
lrwxrwxrwx 1 root root 22 Aug 8 14:51 init -> ../lib/systemd/
systemd
lrwxrwxrwx 1 root root 11 Apr 18 2024 insmod -> ../bin/kmod
-rwxr-xr-x 1 root root 4551 Oct 6 2022 install-sgmlcatalog
-rwxr-xr-x 1 root root 2659 Mar 31 2024 installkernel
-rwxr-xr-x 1 root root 68672 Jul 1 2024 integritysetup
-rwxr-xr-x 1 root root 16517 Dec 6 2023 invoke-rc.d
lrwxrwxrwx 1 root root 7 Mar 31 2024 ip -> /bin/ip
lrwxrwxrwx 1 root root 27 Oct 26 2020 ip6tables -> /etc/
alternatives/ip6tables
lrwxrwxrwx 1 root root 14 Apr 8 2024 ip6tables-apply ->
iptables-apply
lrwxrwxrwx 1 root root 20 Apr 8 2024 ip6tables-legacy ->
xtables-legacy-multi
lrwxrwxrwx 1 root root 20 Apr 8 2024 ip6tables-legacy-restore
-> xtables-legacy-multi
lrwxrwxrwx 1 root root 20 Apr 8 2024 ip6tables-legacy-save ->
xtables-legacy-multi
lrwxrwxrwx 1 root root 17 Apr 8 2024 ip6tables-nft ->
xtables-nft-multi
lrwxrwxrwx 1 root root 17 Apr 8 2024 ip6tables-nft-restore ->
xtables-nft-multi
lrwxrwxrwx 1 root root 17 Apr 8 2024 ip6tables-nft-save ->
xtables-nft-multi
lrwxrwxrwx 1 root root 35 Oct 26 2020 ip6tables-restore -> /
etc/alternatives/ip6tables-restore
lrwxrwxrwx 1 root root 17 Apr 8 2024 ip6tables-restore-
translate -> xtables-nft-multi
lrwxrwxrwx 1 root root 32 Oct 26 2020 ip6tables-save -> /etc/
alternatives/ip6tables-save
lrwxrwxrwx 1 root root 17 Apr 8 2024 ip6tables-translate ->
xtables-nft-multi
-rwxr-xr-x 1 root root 18744 Apr 8 2024 ipmaddr
-rwxr-xr-x 1 root root 6167992 Oct 24 00:34 ipp-usb
-rwxr-xr-x 1 root root 18744 Sep 26 11:15 ippevepcl
-rwxr-xr-x 1 root root 178568 Sep 26 11:15 ippeveprinter

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-rwxr-xr-x 1 root root	31032	Sep 26 11:15	ippeveps
lrwxrwxrwx 1 root root	26 Oct 26 2020	iptables -> /etc/	
alternatives/iptables			
-rwxr-xr-x 1 root root	7052 Aug 12 2023	iptables-apply	
lrwxrwxrwx 1 root root	20 Apr 8 2024	iptables-legacy ->	
xtables-legacy-multi			
lrwxrwxrwx 1 root root	20 Apr 8 2024	iptables-legacy-restore	
-> xtables-legacy-multi			
lrwxrwxrwx 1 root root	20 Apr 8 2024	iptables-legacy-save ->	
xtables-legacy-multi			
lrwxrwxrwx 1 root root	17 Apr 8 2024	iptables-nft -> xtables-	
nft-multi			
lrwxrwxrwx 1 root root	17 Apr 8 2024	iptables-nft-restore ->	
xtables-nft-multi			
lrwxrwxrwx 1 root root	17 Apr 8 2024	iptables-nft-save ->	
xtables-nft-multi			
lrwxrwxrwx 1 root root	34 Oct 26 2020	iptables-restore -> /	
etc/alternatives/iptables-restore			
lrwxrwxrwx 1 root root	17 Apr 8 2024	iptables-restore-	
translate -> xtables-nft-multi			
lrwxrwxrwx 1 root root	31 Oct 26 2020	iptables-save -> /etc/	
alternatives/iptables-save			
lrwxrwxrwx 1 root root	17 Apr 8 2024	iptables-translate ->	
xtables-nft-multi			
-rwxr-xr-x 1 root root	18744 Apr 8 2024	iptunnel	
-rwxr-xr-x 1 root root	14648 Mar 31 2024	isadump	
-rwxr-xr-x 1 root root	14648 Mar 31 2024	isaset	
-rwxr-xr-x 1 root root	18744 Sep 2 08:02	iscsi-iname	
-rwxr-xr-x 1 root root	5293 Sep 2 08:02	iscsi_discovery	
-rwxr-xr-x 1 root root	379320 Sep 2 08:02	iscsiadm	
-rwxr-xr-x 1 root root	293432 Sep 2 08:02	iscsid	
-rwxr-xr-x 1 root root	281080 Sep 2 08:02	iscsistart	
-rwxr-xr-x 1 root root	14720 Aug 9 02:33	isosize	
-rwxr-xr-x 1 root root	15896 Sep 7 2023	ispell-autobuildhash	
lrwxrwxrwx 1 root root	11 Apr 8 2024	iucode-tool ->	
iucode_tool			
-rwxr-xr-x 1 root root	55640 Apr 8 2024	iucode_tool	
-rwxr-xr-x 1 root root	18752 Mar 31 2024	kbdrate	
-rwxr-xr-x 1 root root	26856 Apr 8 2024	killall5	
-rwxr-xr-x 1 root root	43176 Apr 7 2024	kpartx	
-rwxr-xr-x 1 root root	27008 Aug 9 02:33	ldattach	
-rwxr-xr-x 1 root root	387 Aug 8 14:47	ldconfig	
-rwxr-xr-x 1 root root	1051280 Aug 8 14:47	ldconfig.real	
-rwxr-xr-x 1 root root	256232 Apr 8 2024	lightdm	
-rwxr-xr-x 1 root root	2982 Aug 14 2019	lightdm-session	
-rwxr-xr-x 1 root root	4316 Aug 8 13:37	locale-gen	
-rwxr-xr-x 1 root root	96504 Apr 8 2024	logrotate	
-rwxr-xr-x 1 root root	14496 Apr 28 2024	logsave	
-rwxr-xr-x 1 root root	76304 Aug 9 02:33	losetup	
-rwxr-xr-x 1 root root	35128 Sep 26 11:15	lpadmin	

-rwxr-xr-x	1	root	root	14648	Sep	26	11:15	lpinfo
-rwxr-xr-x	1	root	root	14648	Sep	26	11:15	lpmove
lrwxrwxrwx	1	root	root	11	Apr	18	2024	lsmod -> ../bin/kmod
-rwxr-xr-x	1	root	root	3401	Jun	5	2024	luksformat
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvchange -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvconvert -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvcreate -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvdisplay -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvextend -> lvm
-rwxr-xr-x	1	root	root	3156712	Jul	1	2024	lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvmconfig -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvmdiskscan -> lvm
-rwxr-xr-x	1	root	root	10364	Jul	1	2024	lvmdump
-rwxr-xr-x	1	root	root	241632	Jul	1	2024	lvmpolld
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvmsadc -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvmsar -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvreduce -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvremove -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvrename -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvresize -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvs -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	lvscan -> lvm
-rwxr-xr-x	1	root	root	589	May	7	2024	lxc
-rwxr-xr-x	1	root	root	589	May	7	2024	lxd
-rwxr-xr-x	1	root	root	22912	Apr	8	2024	make-bcache
-rwxr-xr-x	1	root	root	6812	Oct	1	2023	make-ssl-cert
-rwxr-xr-x	1	root	root	637144	Jul	29	08:06	mdadm
-rwxr-xr-x	1	root	root	265016	Jul	29	08:06	mdmon
-rwxr-xr-x	1	root	root	27376	Apr	8	2024	mii-tool
lrwxrwxrwx	1	root	root	8	Mar	31	2024	mkdosfs -> mkfs.fat
-rwxr-xr-x	1	root	root	133752	Apr	28	2024	mke2fs
-rwxr-xr-x	1	root	root	14720	Aug	9	02:33	mkfs
-rwxr-xr-x	1	root	root	22912	Aug	9	02:33	mkfs.bfs
-rwxr-xr-x	1	root	root	573752	Mar	31	2024	mkfs.btrfs
-rwxr-xr-x	1	root	root	35144	Aug	9	02:33	mkfs.cramfs
lrwxrwxrwx	1	root	root	6	Apr	28	2024	mkfs.ext2 -> mke2fs
lrwxrwxrwx	1	root	root	6	Apr	28	2024	mkfs.ext3 -> mke2fs
lrwxrwxrwx	1	root	root	6	Apr	28	2024	mkfs.ext4 -> mke2fs
-rwxr-xr-x	1	root	root	52048	Mar	31	2024	mkfs.fat
-rwxr-xr-x	1	root	root	43408	Aug	9	02:33	mkfs.minix
lrwxrwxrwx	1	root	root	8	Mar	31	2024	mkfs.msdos -> mkfs.fat
lrwxrwxrwx	1	root	root	6	Apr	8	2024	mkfs.ntfs -> mkntfs
lrwxrwxrwx	1	root	root	8	Mar	31	2024	mkfs.vfat -> mkfs.fat
-rwxr-xr-x	1	root	root	449528	Mar	31	2024	mkfs.xfs
-rwxr-xr-x	1	root	root	22872	May	2	2024	mkhomedir_helper
-rwxr-xr-x	1	root	root	15762	Sep	24	10:49	mkinitramfs
-rwxr-xr-x	1	root	root	14648	Apr	28	2024	mklost+found
-rwxr-xr-x	1	root	root	67976	Apr	8	2024	mkntfs
-rwxr-xr-x	1	root	root	51592	Aug	9	02:33	mkswap
lrwxrwxrwx	1	root	root	11	Apr	18	2024	modinfo -> ../bin/kmod

lrwxrwxrwx 1 root root	11 Apr 18	2024	modprobe -> ../bin/kmod
lrwxrwxrwx 1 root root	11 Apr 8	2024	mount.fuse ->
mount.fuse3			
-rwxr-xr-x 1 root root	18736 Apr 8	2024	mount.fuse3
lrwxrwxrwx 1 root root	15 Apr 8	2024	mount.lowntfs-3g -> /
bin/lowntfs-3g			
lrwxrwxrwx 1 root root	13 Apr 8	2024	mount.ntfs ->
mount.ntfs-3g			
lrwxrwxrwx 1 root root	12 Apr 8	2024	mount.ntfs-3g -> /bin/
ntfs-3g			
-rwxr-xr-x 1 root root	31960 Apr 7	2024	mpathpersist
-rwxr-xr-x 1 root root	35128 Apr 7	2024	multipath
-rwxr-xr-x 1 root root	18744 Apr 7	2024	multipathc
-rwxr-xr-x 1 root root	145880 Apr 7	2024	multipathd
-rwxr-xr-x 1 root root	14736 Apr 8	2024	nameif
-rwxr-xr-x 1 root root	41092 Dec 5	11:53	needrestart
lrwxrwxrwx 1 root root	31 Oct 22	13:54	netplan -> ../share/
netplan/netplan.script			
-rwxr-xr-x 1 root root	89048 May 30	2024	newusers
-rwxr-xr-x 1 root root	18736 Apr 8	2024	nfnl_osf
-rwxr-xr-x 1 root root	26856 Apr 8	2024	nft
-rwxr-xr-x 1 root root	14640 May 30	2024	nologin
-rwxr-xr-x 1 root root	51592 Apr 8	2024	ntfsclone
-rwxr-xr-x 1 root root	31104 Apr 8	2024	ntfscp
-rwxr-xr-x 1 root root	22912 Apr 8	2024	ntfslabel
-rwxr-xr-x 1 root root	63888 Apr 8	2024	ntfsresize
-rwxr-xr-x 1 root root	51592 Apr 8	2024	ntfsundelete
-rwxr-xr-x 1 root root	2228 Aug 20	2022	on_ac_power
-rwxr-xr-x 1 root root	2510 Jul 3	2024	overlayroot-chroot
-rwxr-xr-x 1 root root	14792 Oct 14	20:25	ownership
-rwxr-xr-x 1 root root	21465 Apr 30	2024	pam-auth-update
-rwxr-sr-x 1 root shadow	26944 May 2	2024	pam_extrausers_chkpwd
-rwxr-xr-x 1 root root	35136 May 2	2024	pam_extrausers_update
-rwxr-xr-x 1 root root	2890 Apr 30	2024	pam_getenv
-rwxr-xr-x 1 root root	467 May 2	2024	pam_namespace_helper
-rwxr-xr-x 1 root root	14656 May 2	2024	pam_timestamp_check
-rwxr-xr-x 1 root root	4170 Apr 8	2024	paperconfig
-rwxr-xr-x 1 root root	96664 Mar 31	2024	parted
-rwxr-xr-x 1 root root	14720 Mar 31	2024	partprobe
-rwxr-xr-x 1 root root	1430568 Jul 1	2024	pdata_tools
-rwxr-xr-x 1 root root	14720 Aug 9	02:33	pivot_root
-rwxr-xr-x 1 root root	14648 Apr 8	2024	plipconfig
-rwxr-xr-x 1 root root	150088 Mar 31	2024	plymouthd
lrwxrwxrwx 1 root root	16 Aug 8	14:51	poweroff -> ../bin/
systemctl			
-rwsr-xr-- 1 root dip	420416 Apr 3	2024	pppd
-rwxr-xr-x 1 root root	18832 Apr 3	2024	pppdump
-rwxr-xr-x 1 root root	26928 Apr 3	2024	pppoe-discovery
-rwxr-xr-x 1 root root	18736 Apr 3	2024	pppstats
-rwxr-xr-x 1 root root	68664 Apr 8	2024	pptp

-rwxr-xr-x	1	root	root	6616	Apr	8	2024	pptpsetup
lrwxrwxrwx	1	root	root	3	Jul	1	2024	pvchange -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	pvck -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	pvcreate -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	pvdisplay -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	pvmove -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	pvremove -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	pvresize -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	pvs -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	pvscan -> lvm
-rwxr-xr-x	1	root	root	55592	May	30	2024	pwck
-rwxr-xr-x	1	root	root	47272	May	30	2024	pwconv
-rwxr-xr-x	1	root	root	22848	May	2	2024	pwhistory_helper
-rwxr-xr-x	1	root	root	47272	May	30	2024	pwunconv
-rwxr-xr-x	1	root	root	33104	Apr	8	2024	rarp
-rwxr-xr-x	1	root	root	22944	Aug	9	02:33	readprofile
lrwxrwxrwx	1	root	root	16	Aug	8	14:51	reboot -> ../bin/
systemctl								
-rwxr-xr-x	1	root	root	3955808	Aug	9	02:33	recvtty
-rwxr-xr-x	1	root	root	2932	Sep	7	2023	remove-default-ispell
-rwxr-xr-x	1	root	root	2931	Sep	7	2023	remove-default-wordlist
-rwxr-xr-x	1	root	root	1111	Mar	31	2024	remove-shell
-rwxr-xr-x	1	root	root	71992	Apr	28	2024	resize2fs
lrwxrwxrwx	1	root	root	17	Aug	8	14:51	resolvconf -> ../bin/
resolvectl								
lrwxrwxrwx	1	root	root	11	Apr	18	2024	rmmod -> ../bin/kmod
lrwxrwxrwx	1	root	root	21	Oct	26	2020	rmt -> /etc/
alternatives/rmt								
-rwxr-xr-x	1	root	root	56024	Apr	8	2024	rmt-tar
-rwxr-xr-x	1	root	root	69904	Apr	8	2024	route
-rwxr-xr-x	1	root	root	790192	Apr	8	2024	rsyslogd
-rwxr-xr-x	1	root	root	28992	Mar	31	2024	rtacct
-rwxr-xr-x	1	root	root	35200	Aug	9	02:33	rtcwake
-rwxr-xr-x	1	root	root	14720	Apr	8	2024	rtkitctl
-rwxr-xr-x	1	root	root	119312	Mar	31	2024	rtmon
-rwxr-xr-x	1	root	root	9191432	Aug	9	02:33	runc
lrwxrwxrwx	1	root	root	16	Aug	8	14:51	runlevel -> ../bin/
systemctl								
-rwxr-xr-x	1	root	root	55680	Aug	9	02:33	runuser
-rwxr-xr-x	1	root	root	14688	Apr	5	2024	safe_finger
-rwxr-xr-x	1	root	root	72472	Mar	31	2024	saned
-rwxr-xr-x	1	root	root	3779904	Aug	9	02:33	sd-helper
-rwxr-xr-x	1	root	root	2489248	Aug	9	02:33	seccompagent
-rwxr-xr-x	1	root	root	3303	Sep	7	2023	select-default-ispell
-rwxr-xr-x	1	root	root	3284	Sep	7	2023	select-default-wordlist
-rwxr-xr-x	1	root	root	218088	Mar	31	2024	sensors-detect
-rwxr-xr-x	1	root	root	9104	Dec	6	2023	service
-rwxr-xr-x	1	root	root	14648	Apr	8	2024	setcap
-rwxr-xr-x	1	root	root	14712	Mar	31	2024	setvesablank
-rwxr-xr-x	1	root	root	14776	Mar	31	2024	setvtrgb

```

-rwxr-xr-x 1 root root      108928 Aug  9 02:33 sfdisk
-rwxr-xr-x 1 root root      182768 Mar 31 2024 sgdisk
-rwxr-xr-x 1 root root        2273 May  7 2024 shadowconfig
lrwxrwxrwx 1 root root         16 Aug  8 14:51 shutdown -> ../bin/
systemctl
-rwxr-xr-x 1 root root       36944 Apr  8 2024 slattach
-rwxr-xr-x 1 root root      917320 Aug  9 02:33 sshd
-rwxr-xr-x 1 root root       48632 Jul 17 09:09 start-stop-daemon
-rwxr-xr-x 1 root root     254464 Apr  8 2024 sudo_logsrvd
-rwxr-xr-x 1 root root     134832 Apr  8 2024 sudo_sendlog
-rwxr-xr-x 1 root root       43392 Aug  9 02:33 sulogin
-rwxr-xr-x 1 root root       18816 Aug  9 02:33 swaplabel
-rwxr-xr-x 1 root root       22912 Aug  9 02:33 swaponoff
-rwxr-xr-x 1 root root       43392 Aug  9 02:33 swapon
-rwxr-xr-x 1 root root       22912 Aug  9 02:33 switch_root
-rwxr-xr-x 1 root root       31112 Sep 26 08:44 sysctl
-rwxr-xr-x 1 root root         936 Jan  1 2024 tarcat
-rwxr-xr-x 1 root root     645200 Mar 31 2024 tc
-rwxr-xr-x 1 root root       14648 Apr  5 2024 tcpd
-rwxr-xr-x 1 root root       31136 Apr  5 2024 tcpdchk
-rwxr-xr-x 1 root root       22848 Apr  5 2024 tcpdmatch
lrwxrwxrwx 1 root root         31 Dec 25 2023 tcptraceroute -> /etc/
alternatives/tcptraceroute
-rwxr-xr-x 1 root root       1593 Dec 25 2023 tcptraceroute.db
lrwxrwxrwx 1 root root         16 Aug  8 14:51 telinit -> ../bin/
systemctl
-rwxr-xr-x 1 root root     121152 Mar 31 2024 telnetd
lrwxrwxrwx 1 root root         11 Jul  1 2024 thin_check ->
pdata_tools
lrwxrwxrwx 1 root root         11 Jul  1 2024 thin_delta ->
pdata_tools
lrwxrwxrwx 1 root root         11 Jul  1 2024 thin_dump -> pdata_tools
lrwxrwxrwx 1 root root         11 Jul  1 2024 thin_ls -> pdata_tools
lrwxrwxrwx 1 root root         11 Jul  1 2024 thin_metadata_size ->
pdata_tools
lrwxrwxrwx 1 root root         11 Jul  1 2024 thin_repair ->
pdata_tools
lrwxrwxrwx 1 root root         11 Jul  1 2024 thin_restore ->
pdata_tools
lrwxrwxrwx 1 root root         11 Jul  1 2024 thin_rmap -> pdata_tools
lrwxrwxrwx 1 root root         11 Jul  1 2024 thin_trim -> pdata_tools
-rwxr-xr-x 1 root root       22864 Apr  1 2024 tigervncsession
-rwxr-xr-x 1 root root       92688 Mar 31 2024 tipc
lrwxrwxrwx 1 root root         33 Dec 25 2023 traceroute -> /etc/
alternatives/traceroute.sbin
-rwxr-xr-x 1 root root       14648 Apr  5 2024 try-from
-rwxr-xr-x 1 root root     113216 Apr 28 2024 tune2fs
-rwxr-xr-x 1 root root        4959 Mar 11 2024 ufw
-rwxr-xr-x 1 root root       14640 Nov 18 16:06 umount.udisks2
-rwxr-xr-x 1 root root     395496 Sep  9 10:38 unity-greeter

```

-rwxr-sr-x	1	root	shadow	31040	May	2	2024	unix_chkpwd
-rwxr-xr-x	1	root	root	35136	May	2	2024	unix_update
-rwxr-xr-x	1	root	root	93800	Mar	29	2024	update-binfmts
-rwxr-xr-x	1	root	root	5446	Feb	4	2024	update-ca-certificates
-rwxr-xr-x	1	root	root	9393	Oct	6	2022	update-catalog
-rwxr-xr-x	1	root	root	1182	Nov	29	2022	update-cracklib
lrwxrwxrwx	1	root	root	24	Sep	7	2023	update-default-aspell ->
update-dictcommon-aspell								
-rwxr-xr-x	1	root	root	9910	Sep	7	2023	update-default-ispell
-rwxr-xr-x	1	root	root	7680	Sep	7	2023	update-default-wordlist
-rwxr-xr-x	1	root	root	1028	Sep	7	2023	update-dictcommon-aspell
-rwxr-xr-x	1	root	root	782	Sep	7	2023	update-dictcommon-
hunspell								
-rwxr-xr-x	1	root	root	5852	Aug	21	2016	update-fonts-alias
-rwxr-xr-x	1	root	root	4076	Aug	21	2016	update-fonts-dir
-rwxr-xr-x	1	root	root	6244	Aug	21	2016	update-fonts-scale
-rwxr-xr-x	1	root	root	64	Feb	23	2024	update-grub
-rwxr-xr-x	1	root	root	301	Mar	27	2015	update-grub-gfxpayload
lrwxrwxrwx	1	root	root	11	Apr	4	2024	update-grub2 -> update-
grub								
-rwxr-xr-x	1	root	root	390	Nov	6	16:35	update-gsfontmap
-rwxr-xr-x	1	root	root	596	Aug	28	08:09	update-icon-caches
-rwxr-xr-x	1	root	root	5969	Feb	9	2023	update-inetd
-rwxr-xr-x	1	root	root	1700	Jan	13	2024	update-info-dir
-rwxr-xr-x	1	root	root	6908	Sep	20	12:00	update-initramfs
-rwxr-xr-x	1	root	root	3057	Aug	8	13:37	update-locale
-rwxr-xr-x	1	root	root	9613	Dec	10	2021	update-mime
-rwxr-xr-x	1	root	root	35392	Apr	8	2024	update-passwd
-rwxr-xr-x	1	root	root	1778	Apr	8	2024	update-pciids
-rwxr-xr-x	1	root	root	18147	Dec	6	2023	update-rc.d
-rwxr-xr-x	1	root	root	3984	Mar	31	2024	update-shells
-rwxr-xr-x	1	root	root	17284	Dec	12	2023	update-xmlcatalog
-rwxr-xr-x	1	root	root	1596	Mar	21	2024	upgrade-from-grub-legacy
-rwxr-xr-x	1	root	root	61096	Apr	8	2024	usb_modeswitch
-rwxr-xr-x	1	root	root	27418	Apr	8	2024	
usb_modeswitch_dispatcher								
-rwxr-xr-x	1	root	root	92776	Mar	31	2024	usbmuxd
-rwxr-xr-x	1	root	root	143232	May	30	2024	useradd
-rwxr-xr-x	1	root	root	93192	May	30	2024	userdel
-rwxr-xr-x	1	root	root	130712	May	30	2024	usermod
-rwxr-xr-x	1	root	root	31624	Aug	9	02:33	uuid
-rwxr-xr-x	1	root	root	1773	Aug	2	2022	validlocale
-rwxr-xr-x	1	root	root	14640	Mar	31	2024	vcstime
-rwxr-xr-x	1	root	root	35392	Mar	31	2024	vdpa
-rwxr-xr-x	1	root	root	44992	Jul	1	2024	veritysetup
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgcfgbackup -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgcfgrestore -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgchange -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgck -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgconvert -> lvm

lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgcreate -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgdisplay -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgexport -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgextend -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgimport -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgimportclone -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgmerge -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgmknodes -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgreduce -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgremove -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgrename -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgs -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgscan -> lvm
lrwxrwxrwx	1	root	root	3	Jul	1	2024	vgsplit -> lvm
lrwxrwxrwx	1	root	root	4	May	30	2024	vigr -> vipw
-rwxr-xr-x	1	root	root	62144	May	30	2024	vipw
-rwxr-xr-x	1	root	root	254680	Apr	8	2024	visudo
lrwxrwxrwx	1	root	root	28	Jan	12	21:43	vncsession -> /etc/alternatives/vncsession
-rwxr-xr-x	1	root	root	14928	Oct	14	20:25	vpddecode
-rwxr-xr-x	1	root	root	39296	Aug	9	02:33	wipefs
-rwxr-xr-x	1	root	root	1735	Dec	25	2023	wpa_action
-rwxr-xr-x	1	root	root	143680	Aug	2	12:06	wpa_cli
-rwxr-xr-x	1	root	root	3368376	Aug	2	12:06	wpa_supPLICANT
-rwxr-xr-x	1	root	root	14488	Apr	17	2024	xfce4-kiosk-query
-rwxr-xr-x	1	root	root	14656	Mar	31	2024	xfce4-pm-helper
-rwxr-xr-x	1	root	root	14656	Mar	31	2024	xfpm-power-backlight-helper
-rwxr-xr-x	1	root	root	2174	Mar	31	2024	xfs_admin
-rwxr-xr-x	1	root	root	695	Mar	31	2024	xfs_bmap
-rwxr-xr-x	1	root	root	92608	Mar	31	2024	xfs_copy
-rwxr-xr-x	1	root	root	705088	Mar	31	2024	xfs_db
-rwxr-xr-x	1	root	root	14504	Mar	31	2024	xfs_estimate
-rwxr-xr-x	1	root	root	800	Mar	31	2024	xfs_freeze
-rwxr-xr-x	1	root	root	43192	Mar	31	2024	xfs_fsr
-rwxr-xr-x	1	root	root	39152	Mar	31	2024	xfs_growfs
-rwxr-xr-x	1	root	root	1294	Mar	31	2024	xfs_info
-rwxr-xr-x	1	root	root	208536	Mar	31	2024	xfs_io
-rwxr-xr-x	1	root	root	80144	Mar	31	2024	xfs_logprint
-rwxr-xr-x	1	root	root	35048	Mar	31	2024	xfs_mdrestore
-rwxr-xr-x	1	root	root	816	Mar	31	2024	xfs_metadump
-rwxr-xr-x	1	root	root	1040	Mar	31	2024	xfs_mkfile
-rwxr-xr-x	1	root	root	685	Mar	31	2024	xfs_ncheck
-rwxr-xr-x	1	root	root	92328	Mar	31	2024	xfs_quota
-rwxr-xr-x	1	root	root	658760	Mar	31	2024	xfs_repair
-rwxr-xr-x	1	root	root	18584	Mar	31	2024	xfs_rtcp
-rwxr-xr-x	1	root	root	108816	Mar	31	2024	xfs_scrub
-rwxr-xr-x	1	root	root	7841	Mar	31	2024	xfs_scrub_all
-rwxr-xr-x	1	root	root	43320	Mar	31	2024	xfs_spaceman
-rwxr-xr-x	1	root	root	95176	Apr	8	2024	xtables-legacy-multi

```
lrwxrwxrwx 1 root root          17 Apr  8 2024 xtables-monitor ->
xtables-nft-multi
-rwxr-xr-x 1 root root    224424 Apr  8 2024 xtables-nft-multi
-rwxr-xr-x 1 root root    14488 Mar 31 2024 zerofree
-rwxr-xr-x 1 root root    67984 Aug  8 14:47 zic
-rwxr-xr-x 1 root root    55824 Aug  9 02:33 zramctl
```

FILES: zic, zramctl
DIRECTORIES: None
LINKS: xtables-monitor, vncsession

3.
ubuntu@ip-10-219-1-122:/sbin\$ cd
ubuntu@ip-10-219-1-122:~\$

4.
ubuntu@ip-10-219-1-122:~\$ ls -a
.
touch
..
..
.ansible
.bash_history
.bash_logout
.bashrc
.cache
.config
.lessht
.local
.profile
.ssh
.sudo_as_admin_successful
.viminfo
cscd240.txt
ls_l.txt

5.
ubuntu@ip-10-219-1-122:~\$ more .bash_history

```
ll
cd
ll
rm .bash_history
ll
exit
ls
l
ls
uname -a
ls -al
cat cscd240.txt
exit
l
exit
l
file cscd240.txt
less cscd240.txt
apt install zsh
sudo apt install zsh
sudo apt upgrade
pwd
cd /
ls
```

```
cd
pws
pwd
clear
zsh --version
echo $SHELL
chsh -s $(which zsh)
pass
passwd
clear
chsh
curl -sS https://starship.rs/install.sh | sh
clear
ls
cd ..
ls
ls . ubuntu/
ls -lt
ls -l
ls -t
l
clear
less /etc/passwd
ls /etc/passwd
ls -l
l
ls
ls -l
clear
cd
exit
ls -al /
sudo do-release-upgrade
sudo apt upgrade
sudo do-release-upgrade
reboot
sudo reboot
sudo do-release-upgrade
l
ls -lt
l
ip a
uname
alias showhome 'uname;cd ~;ls -la'
alias showhome="uname;cd ~;ls -la"
showhome
l
mkdir test
cd test/
showhome
```

```
rm -rf test/
l
alias goback="cd ../;pwd;ls"
goback
cd
alias showuser="pwd;uname"
showuser
clear
alias
goback
cd
showhome
cd ../..
showhome
cl
clear
showuser
showhome
goback
clear
type
clear
help
apropos
apropos ls
whatis alias
type ls
type cp
l
ls -a
vi .bashrc
la
vim .bashrc
type la
man ls
apropos ls
apropos partition
addpart
man addpart
man -k partition
whatis ls
whatis addpart
info ls
info coreutils
exit
do-release-upgrade
l
ls
ls -a
vi .bashrc
```

```
la
ls
cd
app clean
apt clean
sudo apt clean
l
ls
ls -la /test &>> test.txt
ls
less test.txt
rm test.txt
ls
exit
sudo apt upgrade
clear
uname -a
uname --help
cd /sbin
ls -l
ls -l > ls_l.txt
ls -l > touch ls_l.txt
l
ls
ls -l > ~/touch ls_l.txt
cat ls -l > ~/touch ls_l.txt
ls -l > ~/ls_l.txt
cd
l
less ls_l.txt
cd /sbin
ls -la
cd
ls
less ls_l.txt
cat ls_l.txt
cd /sbin
ls -l
ls
cd pppd
type pppd
type pam_extrausers_update
cd ls -l
ls -l
cd
uname -a
ls -a
more .bash_history
mkdir cscd240
ls
```



```
mkdir cscd240/lab1
ls
ls cscd240
cd
cp .bashrc cscd240/lab1/bashrc.copy
ls cscd240/lab1/
cd cscd240/lab1/
touch test test1 test21 test3 something nothing
vim test1
vim test3
ls -l
man nano
ls
history
cd ..
cd lab1/
cd ..
pwd
man exit
```

LAST 3 COMMANDS:

```
cd ..
pwd
man exit
```

6.
ubuntu@ip-10-219-1-122:~\$ mkdir cscd240
ubuntu@ip-10-219-1-122:~\$ ls
cscd240 cscd240.txt ls_l.txt touch

7.
ubuntu@ip-10-219-1-122:~\$ mkdir cscd240/lab1
ubuntu@ip-10-219-1-122:~\$ ls cscd240
lab1

8.
ubuntu@ip-10-219-1-122:~\$ cp .bashrc cscd240/lab1/bashrc.copy

9.
ubuntu@ip-10-219-1-122:~/cscd240/lab1\$ cd ..
ubuntu@ip-10-219-1-122:~/cscd240\$ pwd
/home/ubuntu/cscd240

10.
a.
ubuntu@ip-10-219-1-122:~/cscd240/lab1\$ touch test test1 test21 test3
something nothing

c.
ubuntu@ip-10-219-1-122:~/cscd240/lab1\$ ls -l

```
total 12
-rw-r--r-- 1 ubuntu ubuntu 3771 Jan 13 22:46 bashrc.copy
-rw-rw-r-- 1 ubuntu ubuntu    0 Jan 13 22:48 nothing
-rw-rw-r-- 1 ubuntu ubuntu    0 Jan 13 22:48 something
-rw-rw-r-- 1 ubuntu ubuntu    0 Jan 13 22:48 test
-rw-rw-r-- 1 ubuntu ubuntu   11 Jan 13 22:48 test1
-rw-rw-r-- 1 ubuntu ubuntu    0 Jan 13 22:48 test21
-rw-rw-r-- 1 ubuntu ubuntu   16 Jan 13 22:48 test3
```

d. yes

11.

```
ubuntu@ip-10-219-1-122:~/cscd240/lab1$ history
```

```
 1  ll
 2  cd
 3  ll
 4  rm .bash_history
 5  ll
 6  exit
 7  ls
 8  l
 9  ls
10  uname -a
11  ls -al
12  cat cscd240.txt
13  exit
14  l
15  exit
16  l
17  file cscd240.txt
18  less cscd240.txt
19  apt install zsh
20  sudo apt install zsh
21  sudo apt upgrade
22  pwd
23  cd /
24  ls
25  cd
26  pws
27  pwd
28  clear
29  zsh --version
30  echo $SHELL
31  chsh -s $(which zsh)
32  pass
33  passwd
34  clear
35  chsh
36  curl -sS https://starship.rs/install.sh | sh
37  clear
```

```
38  ls
39  cd ..
40  ls
41  ls . ubuntu/
42  ls -lt
43  ls -l
44  ls -t
45  l
46  clear
47  less /etc/passwd
48  ls /etc/passwd
49  ls -l
50  l
51  ls
52  ls -l
53  clear
54  cd
55  exit
56  ls -al /
57  sudo do-release-upgrade
58  sudo apt upgrade
59  sudo do-release-upgrade
60  reboot
61  sudo reboot
62  sudo do-release-upgrade
63  l
64  ls -lt
65  l
66  ip a
67  uname
68  alias showhome uname;cd ~;/ls -la
69  alias showhome="uname;cd ~;/ls -la"
70  showhome
71  l
72  mkdir test
73  cd test/
74  showhome
75  rm -rf test/
76  l
77  alias goback="cd ../;pwd;ls"
78  goback
79  cd
80  alias showuser="pwd;uname"
81  showuser
82  clear
83  alias
84  goback
85  cd
86  showhome
87  cd ../..
```

```
88 showhome
89 cl
90 clear
91 showuser
92 showhome
93 goback
94 clear
95 type
96 clear
97 help
98 apropos
99 apropos ls
100 whatis alias
101 type ls
102 type cp
103 l
104 ls -a
105 vi .bashrc
106 la
107 vim .bashrc
108 type la
109 man ls
110 apropos ls
111 apropos partition
112 addpart
113 man addpart
114 man -k partition
115 whatis ls
116 whatis addpart
117 info ls
118 info coreutils
119 exit
120 do-release-upgrade
121 l
122 ls
123 ls -a
124 vi .bashrc
125 la
126 ls
127 cd
128 apt clean
129 apt clean
130 sudo apt clean
131 l
132 ls
133 ls -la /test &>> test.txt
134 ls
135 less test.txt
136 rm test.txt
137 ls
```

```
138 exit
139 sudo apt upgrade
140 clear
141 uname -a
142 uname --help
143 cd /sbin
144 ls -l
145 ls -l > ls_l.txt
146 ls -l > touch ls_l.txt
147 l
148 ls
149 ls -l > ~/touch ls_l.txt
150 cat ls -l > ~/touch ls_l.txt
151 ls -l > ~/ls_l.txt
152 cd
153 l
154 less ls_l.txt
155 cd /sbin
156 ls -la
157 cd
158 ls
159 less ls_l.txt
160 cat ls_l.txt
161 cd /sbin
162 ls -l
163 ls
164 cd pppd
165 type pppd
166 type pam_extrausers_update
167 cd ls -l
168 ls -l
169 cd 170  uname -a
171 ls -a
172 more .bash_history
173 mkdir cscd240
174 ls
175 mkdir cscd240/lab1
176 ls
177 ls cscd240
178 cd
179 cp .bashrc cscd240/lab1/bashrc.copy
180 ls cscd240/lab1/
181 cd cscd240/lab1/
182 touch test test1 test21 test3 something nothing
183 vim test1
184 vim test3
185 ls -l
186 man nano
187 ls
188 history
```

188 lines

12. press the up key and hit enter.

13.

ubuntu@ip-10-219-1-122:~/cscd240\$ man exit

```
exit(3)                      Library Functions Manual
exit(3)
```

NAME

exit – cause normal process termination

LIBRARY

Standard C library (libc, -lc)

SYNOPSIS

```
#include <stdlib.h>
```

```
[[noreturn]] void exit(int status);
```

DESCRIPTION

The `exit()` function causes normal process termination and the least significant byte of status (i.e., `status & 0xFF`) is returned to the parent (see `wait(2)`).

All functions registered with `atexit(3)` and `on_exit(3)` are called, in the reverse order of their registration. (It is possible for one of these functions to use `atexit(3)` or `on_exit(3)` to register an additional function to be executed during exit processing; the new registration is added to the front of the list of functions that remain to be called.) If one of these functions does not return (e.g., it calls `_exit(2)`, or kills itself with a signal), then none of the remaining functions is called, and further exit processing (in particular, flushing of `stdio(3)` streams) is abandoned. If a function has been registered multiple times using `atexit(3)` or `on_exit(3)`, then it is called as many times as it was registered.

All open `stdio(3)` streams are flushed and closed. Files created by `tmpfile(3)` are removed.

The C standard specifies two constants, `EXIT_SUCCESS` and `EXIT_FAILURE`, that may be passed to `exit()` to indicate successful or unsuccessful termination, respectively.

RETURN VALUE

The `exit()` function does not return.

ATTRIBUTES

For an explanation of the terms used in this section, see `attributes(7)`.

Interface		Attribute	Value
race:exit	exit()	Thread safety	MT-Unsafe

The `exit()` function uses a global variable that is not protected, so it is not thread-safe.

STANDARDS

C11, POSIX.1-2008.

HISTORY

C89, POSIX.1-2001, SVr4, 4.3BSD.

NOTES

The behavior is undefined if one of the functions registered using `atexit(3)` and `on_exit(3)` calls either `exit()` or `longjmp(3)`. Note that a call to `execve(2)` removes registrations created using `atexit(3)` and `on_exit(3)`.

The use of EXIT_SUCCESS and EXIT_FAILURE is slightly more portable (to non-UNIX environments) than the use of 0 and some nonzero value like 1 or -1. In particular, VMS uses a different convention.

BSD has attempted to standardize exit codes (which some C libraries such as the GNU C library have also adopted); see the file <sysexit.h>.

After exit(), the exit status must be transmitted to the parent process. There are three cases:

- If the parent has set SA_NOCLDWAIT, or has set the SIGCHLD handler to SIG_IGN, the status is discarded and the child dies immediately.
- If the parent was waiting on the child, it is notified of the exit status and the child dies immediately.
- Otherwise, the child becomes a "zombie" process: most of the process resources are recycled, but a slot containing minimal information about the child process (termination status, resource usage statistics) is retained in process table. This allows the parent to subsequently use waitpid(2) (or similar) to learn the termination status of the child; at that point the zombie process slot is released.

If the implementation supports the SIGCHLD signal, this signal is sent to the parent. If the parent has set SA_NOCLDWAIT, it is undefined whether a SIGCHLD signal is sent.

Signals sent to other processes

If the exiting process is a session leader and its controlling terminal is the controlling terminal of the session, then each process in the

foreground process group of this controlling terminal is sent a SIGHUP signal, and the terminal is disassociated from this session, allowing it to be acquired by a new controlling process.

If the exit of the process causes a process group to become orphaned, and if any member of the newly orphaned process group is stopped, then a SIGHUP signal followed by a SIGCONT signal will be sent to each process in this process group. See setpgid(2) for an explanation of orphaned process groups.

Except in the above cases, where the signalled processes may be children of the terminating process, termination of a process does not in general cause a signal to be sent to children of that process. However, a process can use the prctl(2) PR_SET_PDEATHSIG operation to arrange that it receives a signal if its parent terminates.

SEE ALSO

_exit(2), get_robust_list(2), setpgid(2), wait(2),
atexit(3),
on_exit(3), tmpfile(3)

Linux man-pages 6.7
exit(3)

2023-10-31

a. section 3

b. No. Man page is much more in-depth on how exit works as a command while help simply provides a simple explanation of its use to the user.