

Subject: Homework2

```
Cupeno
The authenticity of host '35.162.114.123 (35.162.114.123)' can't be established.
ECDSA key fingerprint is SHA256:Th/TZoGuA1PZVn0UaGK3as0nXMrDpufu16tsswkBi6A.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '35.162.114.123' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.1 LTS (GNU/Linux 4.15.0-1032-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Mon Feb 11 17:31:11 UTC 2019

System load:  0.0               Processes:    87
Usage of /:   25.4% of 7.69GB   Users logged in:  0
Memory usage: 19%              IP address for eth0: 172.31.22.132
Swap usage:   0%

 * 'snap info' now shows the freshness of each channel.
   Try 'snap info microk8s' for all the latest goodness.

Get cloud support with Ubuntu Advantage Cloud Guest:
http://www.ubuntu.com/business/services/cloud

 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
     https://ubuntu.com/livepatch

103 packages can be updated.
0 updates are security updates.

Last login: Tue Feb  5 23:22:05 2019 from 73.223.62.216
ubuntu@ip-172-31-22-132:~$ sudo bash
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# tcsh
Command 'tcsh' not found, but can be installed with:

apt install tcsh

root@ip-172-31-22-132:~# cd
root@ip-172-31-22-132:~# pwd
/home/ubuntu
root@ip-172-31-22-132:~# ls -la
total 44
drwxr-xr-x 5 ubuntu ubuntu 4096 Jan 21 20:30 .
drwxr-xr-x 3 root  root  4096 Jan 20 02:23 ..
-rw-r----- 1 root  root   57 Feb  6 01:31 .bash_history
-rw-r--r-- 1 ubuntu ubuntu 220 Apr  4 2018 .bash_logout
-rw-r--r-- 1 ubuntu ubuntu 3771 Apr  4 2018 .bashrc
drwx----- 2 ubuntu ubuntu 4096 Jan 20 02:45 .cache
drwx----- 3 ubuntu ubuntu 4096 Jan 20 02:45 .gnupg
-rw-r--r-- 1 ubuntu ubuntu 807 Apr  4 2018 .profile
-rw----- 1 ubuntu ubuntu 138 Jan 21 20:30 .python_history
drwx----- 2 ubuntu ubuntu 4096 Jan 20 02:23 .ssh
-rw-r--r-- 1 ubuntu ubuntu  0 Jan 20 22:26 .sudo_as_admin_successful
-rw-rw-r-- 1 ubuntu ubuntu 115 Jan 21 17:44 mtfile
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# cd .
root@ip-172-31-22-132:~# pwd
/home/ubuntu
```

Last `cd` takes you to the current working directory (`.`), which was already set to Home Dir by just typing '`cd`'.

```
Cupeno
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# cd ..
root@ip-172-31-22-132:/home# pwd
/home
root@ip-172-31-22-132:/home# ls -la
total 12
drwxr-xr-x  3 root root  4096 Jan 20 02:23 .
drwxr-xr-x 23 root root  4096 Feb 10 19:32 ..
drwxr-xr-x  5 ubuntu ubuntu 4096 Jan 21 20:30 ubuntu
root@ip-172-31-22-132:/home#
root@ip-172-31-22-132:/home#
root@ip-172-31-22-132:/home# cd ..
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls -la
total 96
drwxr-xr-x 23 root root  4096 Feb 10 19:32 .
drwxr-xr-x 23 root root  4096 Feb 10 19:32 ..
drwxr-xr-x  2 root root  4096 Jan 20 21:03 bin
drwxr-xr-x  3 root root  4096 Feb  5 21:26 boot
drwxr-xr-x 15 root root 3000 Feb 10 19:32 dev
drwxr-xr-x 88 root root  4096 Feb  7 06:00 etc
drwxr-xr-x  3 root root  4096 Jan 20 02:23 home
lrwxrwxrwx  1 root root    31 Feb  5 21:26 initrd.img -> boot/initrd.img-4.15.0-1032-aws
lrwxrwxrwx  1 root root    31 Feb  5 21:26 initrd.img.old -> boot/initrd.img-4.15.0-1031-aws
drwxr-xr-x 20 root root  4096 Sep 12 16:16 lib
drwxr-xr-x  2 root root  4096 Sep 12 15:56 lib64
drwx----- 2 root root 16384 Sep 12 16:10 lost+found
drwxr-xr-x  2 root root  4096 Sep 12 15:55 media
drwxr-xr-x  2 root root  4096 Sep 12 15:55 mnt
drwxr-xr-x  2 root root  4096 Sep 12 15:55 opt
dr-xr-xr-x 100 root root    0 Feb 10 19:32 proc
drwx----- 4 root root  4096 Jan 20 02:23 root
drwxr-xr-x 24 root root   900 Feb 11 17:31 run
drwxr-xr-x  2 root root 12288 Jan 20 21:02 sbin
drwxr-xr-x  5 root root  4096 Jan 20 02:23 snap
drwxr-xr-x  2 root root  4096 Sep 12 15:55 srv
dr-xr-xr-x 13 root root    0 Feb 10 19:32 sys
drwxrwxrwt  9 root root  4096 Feb 11 22:15 tmp
drwxr-xr-x 10 root root  4096 Sep 12 15:55 usr
drwxr-xr-x 13 root root  4096 Sep 12 15:59 var
lrwxrwxrwx  1 root root    28 Feb  5 21:26 vmlinuz -> boot/vmlinuz-4.15.0-1032-aws
lrwxrwxrwx  1 root root    28 Feb  5 21:26 vmlinuz.old -> boot/vmlinuz-4.15.0-1031-aws
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# cd /etc
root@ip-172-31-22-132:/etc# ls -la |more
total 796
drwxr-xr-x 88 root root      4096 Feb  7 06:00 .
drwxr-xr-x 23 root root      4096 Feb 10 19:32 ..
-rw----- 1 root root          0 Sep 12 15:56 .pwd.lock
```

Last `cd ..` takes you to the parent directory to `/home`, which is Root Dir.

```
Cupeno
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# cd /etc
root@ip-172-31-22-132:/etc# ls -la |more
total 796
drwxr-xr-x 88 root root      4096 Feb  7 06:00 .
drwxr-xr-x 23 root root      4096 Feb 10 19:32 ..
-rw-r--r--  1 root root         0 Sep 12 15:56 .pwd.lock
drwxr-xr-x  3 root root      4096 Sep 12 15:58 NetworkManager
drwxr-xr-x  4 root root      4096 Sep 12 15:57 X11
drwxr-xr-x  3 root root      4096 Sep 12 15:57 acpi
-rw-r--r--  1 root root     3028 Sep 12 15:56 adduser.conf
drwxr-xr-x  2 root root      4096 Sep 12 15:59 alternatives
drwxr-xr-x  3 root root      4096 Sep 12 15:57 apm
drwxr-xr-x  3 root root      4096 Jan 20 21:01 apparmor
drwxr-xr-x  9 root root      4096 Sep 12 15:59 apparmor.d
drwxr-xr-x  3 root root      4096 Sep 12 15:58 apport
drwxr-xr-x  6 root root      4096 Sep 12 15:56 apt
-rw-r--r--  1 root daemon    144 Feb 20 2018 at.deny
-rw-r--r--  1 root root    2319 Apr  4 2018 bash.bashrc
-rw-r--r--  1 root root      45 Apr  2 2018 bash_completion
drwxr-xr-x  2 root root      4096 Jan 20 21:02 bash_completion.d
-rw-r--r--  1 root root      367 Jan 27 2016 bindresvport.blacklist
drwxr-xr-x  2 root root      4096 Apr 20 2018 binfmt.d
drwxr-xr-x  2 root root      4096 Sep 12 15:58 byobu
drwxr-xr-x  3 root root      4096 Sep 12 15:56 ca-certificates
-rw-r--r--  1 root root     5898 Sep 12 15:56 ca-certificates.conf
drwxr-xr-x  2 root root      4096 Sep 12 15:58 calendar
drwxr-xr-x  4 root root      4096 Sep 12 15:59 cloud
drwxr-xr-x  2 root root      4096 Sep 12 15:57 console-setup
drwxr-xr-x  2 root root      4096 Sep 12 15:58 cron.d
drwxr-xr-x  2 root root      4096 Jan 23 06:27 cron.daily
drwxr-xr-x  2 root root      4096 Sep 12 15:56 cron.hourly
drwxr-xr-x  2 root root      4096 Sep 12 15:56 cron.monthly
drwxr-xr-x  2 root root      4096 Sep 12 15:59 cron.weekly
-rw-r--r--  1 root root      722 Nov 16 2017 crontab
drwxr-xr-x  2 root root      4096 Sep 12 15:58 cryptsetup-initramfs
-rw-r--r--  1 root root      54 Sep 12 15:57 crypttab
drwxr-xr-x  4 root root      4096 Sep 12 15:56 dbus-1
-rw-r--r--  1 root root     2969 Feb 28 2018 debconf.conf
-rw-r--r--  1 root root      11 Jun 25 2017 debian_version
drwxr-xr-x  3 root root      4096 Feb 10 19:32 default
-rw-r--r--  1 root root      604 Aug 13 2017 deluser.conf
drwxr-xr-x  2 root root      4096 Sep 12 15:56 depmod.d
drwxr-xr-x  4 root root      4096 Sep 12 15:56 dhcp
drwxr-xr-x  2 root root      4096 Sep 12 15:59 dnsmasq.d
drwxr-xr-x  2 root root      4096 Sep 12 15:59 dnsmasq.d-available
drwxr-xr-x  4 root root      4096 Sep 12 15:56 dpkg
-rw-r--r--  1 root root      35 Sep 12 15:59 ec2_version
-rw-r--r--  1 root root      96 Sep 12 15:56 environment
-rw-r--r--  1 root root    1317 Jun 28 2018 ethertypes
drwxr-xr-x  4 root root      4096 Sep 12 15:57 fonts
-rw-r--r--  1 root root      51 Sep 12 16:15 fstab
-rw-r--r--  1 root root     280 Jun 20 2014 fuse.conf
-rw-r--r--  1 root root    2584 Feb  1 2018 gai.conf
drwxr-xr-x  2 root root      4096 Sep 12 15:58 groff
-rw-r--r--  1 root root      757 Jan 20 02:23 group
-rw-r--r--  1 root root      675 Sep 12 15:59 group-
drwxr-xr-x  2 root root      4096 Sep 12 16:16 grub.d
-rw-r--r--  1 root shadow    639 Jan 20 02:23 gshadow
-rw-r--r--  1 root shadow    561 Sep 12 15:59 gshadow-
drwxr-xr-x  3 root root      4096 Sep 12 15:57 gss
-rw-r--r--  1 root root     4861 Feb 22 2018 hdparm.conf
-rw-r--r--  1 root root    1470 Nov 20 2017 hibagent-config.cfg
-rw-r--r--  1 root root      92 Apr  9 2018 host.conf
```



```
Cupeno
root@ip-172-31-22-132:/etc#
root@ip-172-31-22-132:/etc#
root@ip-172-31-22-132:/etc# cat passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin)/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd/netif:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd/resolve:/usr/sbin/nologin
syslog:x:102:106:/home/syslog:/usr/sbin/nologin
messagebus:x:103:107:/nonexistent:/usr/sbin/nologin
_apt:x:104:65534:/nonexistent:/usr/sbin/nologin
lxd:x:105:65534:/var/lib/lxd:/bin/false
uuid:x:106:110:/run/uuid:/usr/sbin/nologin
dnsmasq:x:107:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
landscape:x:108:112:/var/lib/landscape:/usr/sbin/nologin
sshd:x:109:65534:/run/sshd:/usr/sbin/nologin
pollinate:x:110:1:/var/cache/pollinate:/bin/false
ubuntu:x:1000:1000:Ubuntu:/home/ubuntu:/bin/bash
root@ip-172-31-22-132:/etc#
root@ip-172-31-22-132:/etc#
root@ip-172-31-22-132:/etc#
root@ip-172-31-22-132:/etc#
root@ip-172-31-22-132:/etc# cd -
/
root@ip-172-31-22-132:/# pwd
/
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls /bin
bash          chgrp         getfacl       mkfs.btrfs    ntfsmove      setupcon      ulockmgr_server
btrfs         chmod         grep          mknod         ntfsrecover   sh            umount
btrfs-debug-tree chown        gunzip        mktemp        ntfssecaudit  sh.distrib    uname
btrfs-find-root chvt         gzexe        more          ntfstruncate  sleep         uncompress
btrfs-image    cp           gzip         mount         ntfsusermap   ss            unicode_start
btrfs-map-logical cpio         hostname     mountpoint    ntfswipe      static-sh     vdir
btrfs-select-super dash         ip           mt            open          stty          wdctl
btrfs-zero-log date         journalctl   mt-gnu       openvt        su            which
btrfsck        dd           kbd_mode     mv            pidof         sync          whiptail
btrfstune      df           kill         nano          ping          systemctl    ypsdomainname
bunzip2        dir          kmod         nc            ping4         systemd      zcat
busybox        dmesg        less         nc.openbsd   ping6         systemd-ask-password zcmp
bzcatt         dnsdomainname lessecho     netcat        plymouth     systemd-escape zdiff
bzcmp          domainname   lessfile     netstat       ps            systemd-hwdb  zegrep
bzdiff         dumpkeys     lesskey      networkctl   pwd           systemd-inhibit zfgrep
bzegrep        echo         lesspipe     nisdomainname rbash         systemd-machine-id-setup zforce
bzexe          ed           ln           ntfs-3g       readlink      systemd-notify zgrep
bzfgrep        egrep        loadkeys     ntfs-3g.probe red            systemd-sysusers zless
bzgrep         false        login        ntfsctl       rm            systemd-tmpfiles zmore
```

The 'cd -' takes you to root immediately.

```
Cupeno
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls /usr/bin
NF
VGAuthService
['
aa-enabled
aa-exec
acpi_listen
add-apt-repository
addpart
apport-bug
apport-cli
apport-collect
apport-unpack
apropos
apt
apt-add-repository
apt-cache
apt-cdrom
apt-config
apt-extracttemplates
apt-ftparchive
apt-get
apt-key
apt-mark
apt-sortpkgs
arch
at
atq
atrm
automat-visualize3
awk
b2sum
base32
base64
basename
bashbug
batch
bc
bootctl
bsd-from
bsd-write
busctl
byobu
byobu-config
byobu-ctrl-a
byobu-disable
byobu-disable-prompt
byobu-enable
byobu-enable-prompt
byobu-export
byobu-janitor
byobu-keybindings
byobu-launch
byobu-launcher
byobu-launcher-install
byobu-launcher-uninstall
byobu-layout
byobu-prompt
byobu-quiet
byobu-reconnect-sockets
byobu-screen
byobu-select-backend
byobu-select-profile
expr
factor
faillog
fallocate
file
find
flock
fmt
fold
free
from
ftp
gawk
geqn
getconf
getent
getfacl
getkeycodes
getopt
gettext
gettext.sh
ginstall-info
git
git-receive-pack
git-shell
git-upload-archive
git-upload-pack
gpasswd
gpg
gpg-agent
gpg-connect-agent
gpg-wks-server
gpg-zip
gpgconf
gpgparsemail
gpgsm
gpgsplit
gpgv
gpic
groff
grog
grops
grotty
groups
growpart
grub-editenv
grub-file
grub-fstest
grub-glue-efi
grub-kbdcomp
grub-menu1st2cfg
grub-mkfont
grub-mkimage
grub-mklayout
grub-mknetdir
grub-mkpasswd-pbkdf2
grub-mkrelpath
grub-mkrescue
grub-mkstandalone
grub-mount
grub-ntldr-img
grub-render-label
md5sum.textutils
mdig
mesg
migrate-pubring-from-classic-gpg
miniterm
mk_modmap
mkfifo
mksquashfs
mlocate
mtr
mtr-packet
namei
nawk
ncal
neqn
netkit-ftp
networkd-dispatcher
newgidmap
newgrp
newuidmap
ngettext
nice
nl
nohup
nproc
nroff
nsenter
nslookup
nstat
nsupdate
ntfsdecrypt
numfmt
od
on_ac_power
openssl
os-prober
pager
partx
passwd
paste
pastebinit
patch
pathchk
pbget
pbput
pbputs
pcimodules
pdb3
pdb3.6
peekfd
perl
perl5.26-x86_64-linux-gnu
perl5.26.1
perlbug
perldoc
perlvp
perlthanks
pftp
pgrep
pic
pico
piconv
showconsolefont
showkey
shred
shuf
skill
slabtop
slogin
snap
snapctl
snapfuse
snice
soelim
sort
sosreport
splain
split
splitfont
ssh
ssh-add
ssh-agent
ssh-argv0
ssh-copy-id
ssh-import-id
ssh-import-id-gh
ssh-import-id-lp
ssh-keygen
ssh-keyscan
stat
stdbuf
strace
strace-log-merge
sudo
sudoedit
sudoreplay
sum
symcryptrun
systemd-analyze
systemd-cat
systemd-cgls
systemd-cgtop
systemd-delta
systemd-detect-virt
systemd-mount
systemd-path
systemd-resolve
systemd-run
systemd-socket-activate
systemd-stdio-bridge
systemd-umount
tabs
tac
tail
taskset
tbl
tee
telnet
telnet.netkit
test
tic
time
timedatectl
timeout
```

```
Cupeno
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls -l bsd-*
ls: cannot access 'bsd-*': No such file or directory
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls -l /usr/bin/bsd-*
-rwxr-xr-x 1 root root 10232 Jan 17 2018 /usr/bin/bsd-from
-rwxr-sr-x 1 root tty 14328 Jan 17 2018 /usr/bin/bsd-write
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls -l /usr/bin/traceroute6*
lrwxrwxrwx 1 root root 29 Sep 12 15:58 /usr/bin/traceroute6 -> /etc/alternatives/traceroute6
-rwsr-xr-x 1 root root 18448 Mar 9 2017 /usr/bin/traceroute6.iputils
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls -l /usr/bin/vmware-user
lrwxrwxrwx 1 root root 24 Aug 1 2018 /usr/bin/vmware-user -> vmware-user-suid-wrapper
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls /sbin
acpi_available      ethtool             iptables-restore    mdmon               parted              switch_root
agetty              fatlabel            iptables-save       mii-tool            partprobe           sysctl
apm_available       fdisk               iptunnel            mkdosfs             pivot_root          tc
apparmor_parser     findfs              iscsi-iname         mke2fs              plipconfig          telinit
badblocks           fixparts            iscsi_discovery     mkfs                plymouthd           tipc
blkdeactivate        fsadm               iscsiadm             mkfs.bfs            poweroff            tune2fs
blkdiscard          fsck                 iscsid               mkfs.cramfs          pvchange             udevadm
blkid                fsck.cramfs         iscsistart           mkfs.ext2            pvck                 unix_chkpwd
blockdev             fsck.ext2            isosize              mkfs.ext3            pvcreate             unix_update
bridge               fsck.ext3            kbdrate              mkfs.ext4            pvdisplay            ureadahead
capsh                fsck.ext4            killall5              mkfs.fat             pvmove              veritysetup
cfdisk               fsck.fat             ldconfig             mkfs.minix           pvremove             vgcfgbackup
cgdisk              fsck.minix            ldconfig.real         mkfs.msdoos          pvresize            vgcfgrestore
chcpu                fsck.msdoos           logsave               mkfs.ntfs            pvs                  vgchange
cryptdisks_start     fsck.vfat            losetup               mkfs.vfat            pvscan              vgck
cryptdisks_stop       fsck.xfs             lsmod                 mkfs.xfs              rarp                 vgconvert
cryptsetup            fsfreeze             lvchange              mkhomedir_helper    raw                  vgcreate
cryptsetup-reencrypt fstab-decode          lvconvert             mkntfs                reboot               vgdisplay
ctrlaltdel           fstrim               lvcreate              mkswap                resize2fs            vgexport
debugfs              gdisk                lvdisplay              modinfo                rmmod                vgextend
depmod               getcap                lvextend              modprobe               route                vgimport
devlink              getpcaps              lvm                   mount.fuse             rtacct               vgimportclone
dhclient              getty                 lvmconf               mount.lowntfs-3g       rtmon                vgmerge
dhclient-script       halt                  lvmconfig              mount.ntfs              runlevel             vgmknodes
dmeventd              hdparm                lvmddiskscan           mount.ntfs-3g           runuser              vgreduce
dmsetup               hwclock               lvmddump                mount.vmhgfs             setcap               vgrename
dmstats               ifconfig              lvmefat                 nameif                  sdfisk               vgs
dosfsck               init                  lvmepoll                ntfsclone               sgdisk               vgscan
dosfslabel            insmod                lvmsar                  ntfscp                   shadowconfig          wipefs
dumpe2fs              integritysetup          lvreduce                ntfslabel                shutdown             slattach
e2fsck                ip                    lvremove                ntfsresize               slattach             start-stop-daemon
e2image              ip6tables              lvrename                ntfsundelete              start-stop-daemon    xfs_repair
e2label              ip6tables-restore      lvs                     on_ac_power              su                    xtables-multi
e2undo               ip6tables-save         lvscan                  pam_extrousers_chkpwd    sulogin              zramctl
ebtables              ipmaddr               lvs                     pam_extrousers_update    swapoff
ebtables-restore      ipmaddr               lvscan                  pam_tally                swapon
ebtables-save          iptables               mdadm                   pam_tally2
```

What you see in /bin, /usr/bin, and /sbin are links and executables, some with the sticky bit (s) set at owner and some set at group.

What you see in /tmp are directories of temp files.

What you see in /boot are the system configuration files to build the running instance of the OS, e.g. boot config files.


```
Cupeno
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls -l /tmp
total 8
drwx----- 3 root root 4096 Feb 10 19:32 systemd-private-60323efd0815480595564c929f9d1c5c-systemd-resolved.service-6UvAK2
drwx----- 3 root root 4096 Feb 10 19:32 systemd-private-60323efd0815480595564c929f9d1c5c-systemd-timesyncd.service-ZxEPZK
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls /boot
System.map-4.15.0-1021-aws config-4.15.0-1021-aws initrd.img-4.15.0-1021-aws vmlinuz-4.15.0-1021-aws
System.map-4.15.0-1031-aws config-4.15.0-1031-aws initrd.img-4.15.0-1031-aws vmlinuz-4.15.0-1031-aws
System.map-4.15.0-1032-aws config-4.15.0-1032-aws initrd.img-4.15.0-1032-aws vmlinuz-4.15.0-1032-aws
abi-4.15.0-1021-aws grub retpoline-4.15.0-1021-aws
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls -ltr /dev
total 0
drwxrwxrwt 2 root root 40 Feb 10 19:32 queue
drwxr-xr-x 2 root root 60 Feb 10 19:32 xen
drwxr-xr-x 2 root root 60 Feb 10 19:32 lightnvm
drwxr-xr-x 2 root root 60 Feb 10 19:32 net
drwxr-xr-x 2 root root 60 Feb 10 19:32 mapper
drwxr-xr-x 2 root root 0 Feb 10 19:32 pts
lrwxrwxrwx 1 root root 15 Feb 10 19:32 stdout -> /proc/self/fd/1
lrwxrwxrwx 1 root root 15 Feb 10 19:32 stdin -> /proc/self/fd/0
lrwxrwxrwx 1 root root 15 Feb 10 19:32 stderr -> /proc/self/fd/2
lrwxrwxrwx 1 root root 13 Feb 10 19:32 fd -> /proc/self/fd
lrwxrwxrwx 1 root root 11 Feb 10 19:32 core -> /proc/kcore
drwxr-xr-x 5 root root 100 Feb 10 19:32 disk
drwxr-xr-x 2 root root 260 Feb 10 19:32 block
drwxrwxrwt 2 root root 40 Feb 10 19:32 shm
lrwxrwxrwx 1 root root 25 Feb 10 19:32 initctl -> /run/systemd/initctl/fifo
lrwxrwxrwx 1 root root 28 Feb 10 19:32 log -> /run/systemd/journal/dev-log
drwxr-xr-x 2 root root 0 Feb 10 19:32 hugepages
crw----- 1 root root 10, 241 Feb 10 19:32 vhost-vsock
crw----- 1 root root 10, 238 Feb 10 19:32 vhost-net
drwxr-xr-x 2 root root 60 Feb 10 19:32 vfi
crw----- 1 root root 10, 203 Feb 10 19:32 cuse
crw-rw---- 1 root dialout 4, 67 Feb 10 19:32 ttyS3
crw-rw---- 1 root dialout 4, 66 Feb 10 19:32 ttyS2
crw-rw---- 1 root dialout 4, 65 Feb 10 19:32 ttyS1
crw----- 1 root root 250, 0 Feb 10 19:32 rtc0
lrwxrwxrwx 1 root root 4 Feb 10 19:32 rtc -> rtc0
drwxr-xr-x 3 root root 140 Feb 10 19:32 input
crw-r--r-- 1 root root 1, 11 Feb 10 19:32 kmsg
crw-rw-rw- 1 root root 1, 7 Feb 10 19:32 full
crw-rw-rw- 1 root root 1, 5 Feb 10 19:32 zero
crw-rw-rw- 1 root root 1, 9 Feb 10 19:32 urandom
crw-rw-rw- 1 root root 1, 8 Feb 10 19:32 random
crw-r----- 1 root kmem 1, 4 Feb 10 19:32 port
crw-rw-rw- 1 root root 1, 3 Feb 10 19:32 null
crw-r----- 1 root kmem 1, 1 Feb 10 19:32 mem
crw----- 1 root root 10, 58 Feb 10 19:32 cpu_dma_latency
drwxr-xr-x 2 root root 2460 Feb 10 19:32 char
crw-rw---- 1 root disk 10, 234 Feb 10 19:32 btrfs-control
crw-r--r-- 1 root root 10, 235 Feb 10 19:32 autofs
crw----- 1 root root 10, 227 Feb 10 19:32 mcelog
crw----- 1 root root 10, 183 Feb 10 19:32 hwrng
crw----- 1 root root 10, 228 Feb 10 19:32 hpet
crw-rw-rw- 1 root root 10, 229 Feb 10 19:32 fuse
crw----- 1 root root 10, 61 Feb 10 19:32 ecryptfs
crw-rw-r-- 1 root root 10, 62 Feb 10 19:32 rfkill
```

Character device files (crw-rw----) and Block devices files (brw-rw----) aren't available to other users unless 'other' permissions are rw, e.g. crw-rw-rw / brw-rw-rw.

```
Cupeno
crw-rw-r-- 1 root root    10,  62 Feb 10 19:32 rfkill
crw----- 1 root root    10,   1 Feb 10 19:32 psaux
crw----- 1 root root    10,  56 Feb 10 19:32 network_throughput
crw----- 1 root root    10,  57 Feb 10 19:32 network_latency
crw----- 1 root root    10,  55 Feb 10 19:32 memory_bandwidth
crw-rw---- 1 root disk   10, 237 Feb 10 19:32 loop-control
brw-rw---- 1 root disk    7,   6 Feb 10 19:32 loop6
brw-rw---- 1 root disk  202,  16 Feb 10 19:32 xvdb
brw-rw---- 1 root disk  202,   0 Feb 10 19:32 xvda
crw----- 1 root root    10,  63 Feb 10 19:32 vga_arbiter
crw----- 1 root root    10, 223 Feb 10 19:32 uinput
crw----- 1 root root    10, 231 Feb 10 19:32 snapshot
brw-rw---- 1 root disk    7,   7 Feb 10 19:32 loop7
crw--w---- 1 root tty     4,   0 Feb 10 19:32 tty0
crw-rw-rw- 1 root tty     5,   0 Feb 10 19:32 tty
crw----- 1 root root  108,   0 Feb 10 19:32 ppp
crw--w---- 1 root tty     4,  16 Feb 10 19:32 tty16
crw--w---- 1 root tty     4,  15 Feb 10 19:32 tty15
crw--w---- 1 root tty     4,  14 Feb 10 19:32 tty14
crw--w---- 1 root tty     4,  13 Feb 10 19:32 tty13
crw--w---- 1 root tty     4,  12 Feb 10 19:32 tty12
crw--w---- 1 root tty     4,  11 Feb 10 19:32 tty11
crw--w---- 1 root tty     4,  10 Feb 10 19:32 tty10
crw--w---- 1 root tty     4,  20 Feb 10 19:32 tty20
crw--w---- 1 root tty     4,   2 Feb 10 19:32 tty2
crw--w---- 1 root tty     4,  19 Feb 10 19:32 tty19
crw--w---- 1 root tty     4,  18 Feb 10 19:32 tty18
crw--w---- 1 root tty     4,  17 Feb 10 19:32 tty17
crw--w---- 1 root tty     4,  29 Feb 10 19:32 tty29
crw--w---- 1 root tty     4,  28 Feb 10 19:32 tty28
crw--w---- 1 root tty     4,  27 Feb 10 19:32 tty27
crw--w---- 1 root tty     4,  26 Feb 10 19:32 tty26
crw--w---- 1 root tty     4,  25 Feb 10 19:32 tty25
crw--w---- 1 root tty     4,  24 Feb 10 19:32 tty24
crw--w---- 1 root tty     4,  23 Feb 10 19:32 tty23
crw--w---- 1 root tty     4,  22 Feb 10 19:32 tty22
crw--w---- 1 root tty     4,  21 Feb 10 19:32 tty21
crw--w---- 1 root tty     4,  37 Feb 10 19:32 tty37
crw--w---- 1 root tty     4,  36 Feb 10 19:32 tty36
crw--w---- 1 root tty     4,  35 Feb 10 19:32 tty35
crw--w---- 1 root tty     4,  34 Feb 10 19:32 tty34
crw--w---- 1 root tty     4,  33 Feb 10 19:32 tty33
crw--w---- 1 root tty     4,  32 Feb 10 19:32 tty32
crw--w---- 1 root tty     4,  31 Feb 10 19:32 tty31
crw--w---- 1 root tty     4,  30 Feb 10 19:32 tty30
crw--w---- 1 root tty     4,   3 Feb 10 19:32 tty3
crw--w---- 1 root tty     4,  40 Feb 10 19:32 tty40
crw--w---- 1 root tty     4,   4 Feb 10 19:32 tty4
crw--w---- 1 root tty     4,  39 Feb 10 19:32 tty39
crw--w---- 1 root tty     4,  38 Feb 10 19:32 tty38
crw--w---- 1 root tty     4,  43 Feb 10 19:32 tty43
crw--w---- 1 root tty     4,  42 Feb 10 19:32 tty42
crw--w---- 1 root tty     4,  41 Feb 10 19:32 tty41
crw--w---- 1 root tty     4,  49 Feb 10 19:32 tty49
crw--w---- 1 root tty     4,  48 Feb 10 19:32 tty48
crw--w---- 1 root tty     4,  46 Feb 10 19:32 tty46
crw--w---- 1 root tty     4,  45 Feb 10 19:32 tty45
crw--w---- 1 root tty     4,  44 Feb 10 19:32 tty44
crw--w---- 1 root tty     4,  53 Feb 10 19:32 tty53
crw--w---- 1 root tty     4,  50 Feb 10 19:32 tty50
crw--w---- 1 root tty     4,   5 Feb 10 19:32 tty5
crw--w---- 1 root tty     4,  56 Feb 10 19:32 tty56
crw--w---- 1 root tty     4,  52 Feb 10 19:32 tty52
crw--w---- 1 root tty     4,  51 Feb 10 19:32 tty51
```



```
Cupeno
crw-rw---- 1 root tty      7, 129 Feb 10 19:32 vcsa1
crw-rw---- 1 root tty      7,   5 Feb 10 19:32 vcs5
crw-rw---- 1 root tty      7,   4 Feb 10 19:32 vcs4
crw-rw---- 1 root tty      7,   3 Feb 10 19:32 vcs3
crw----- 1 root root     5,   3 Feb 10 19:32 ttyprintk
crw--w---- 1 root tty      4,   7 Feb 10 19:32 tty7
crw-rw---- 1 root tty     7, 134 Feb 10 19:32 vcsa6
crw-rw---- 1 root tty     7, 133 Feb 10 19:32 vcsa5
crw-rw---- 1 root tty     7, 132 Feb 10 19:32 vcsa4
crw-rw---- 1 root tty     7, 128 Feb 10 19:32 vcsa
crw-rw---- 1 root tty      7,   6 Feb 10 19:32 vcs6
crw-rw---- 1 root tty     7, 131 Feb 10 19:32 vcsa3
brw-rw---- 1 root disk     7,   0 Feb 10 19:32 loop0
brw-rw---- 1 root disk     7,   1 Feb 10 19:32 loop1
brw-rw---- 1 root disk     7,   2 Feb 10 19:32 loop2
brw-rw---- 1 root disk     7,   3 Feb 10 19:32 loop3
brw-rw---- 1 root disk     7,   4 Feb 10 19:32 loop4
brw-rw---- 1 root disk    202,   1 Feb 10 19:32 xvda1
brw-rw---- 1 root disk     7,   5 Feb 10 19:32 loop5
crw--w---- 1 root tty      4,  64 Feb 10 19:32 ttyS0
crw--w---- 1 root tty      4,   1 Feb 10 19:32 tty1
crw----- 1 root root     5,   1 Feb 10 19:32 console
crw-rw-rw- 1 root tty     5,   2 Feb 12 03:05 ptmx

root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# whatis
whatis what?
root@ip-172-31-22-132:/# whatis whoami
whoami (1) - print effective userid
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# whereis whoami
whoami: /usr/bin/whoami /usr/share/man/man1/whoami.1.gz
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# whoami
root
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# who -r
run-level 5 2019-02-10 19:32
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# who -m
ubuntu pts/0 2019-02-11 17:31 (73.223.62.216)
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# who am i
ubuntu pts/0 2019-02-11 17:31 (73.223.62.216)
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# whoami
root
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls -l /dev/pts
total 0
crw--w---- 1 ubuntu tty 136, 0 Feb 12 03:19 0
c----- 1 root root 5, 2 Feb 10 19:32 ptmx
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
```

```
Cupeno
run-level 5 2019-02-10 19:32
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# who -m
ubuntu pts/0 2019-02-11 17:31 (73.223.62.216)
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# who am i
ubuntu pts/0 2019-02-11 17:31 (73.223.62.216)
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# whoami
root
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls -l /dev/pts
total 0
crw-rw---- 1 ubuntu tty 136, 0 Feb 12 03:19 0
c----- 1 root root 5, 2 Feb 10 19:32 ptmx
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# useradd -u 1001 -g 1000 -p"u4tsujn@0mi" -m -d /home/rachann -c "Rachelle Hanna" -s /bin/bash Hanna
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# tail -2 /etc/passwd
ubuntu:x:1000:1000:Ubuntu:/home/ubuntu:/bin/bash
Hanna:x:1001:1000:Rachelle Hanna:/home/rachann:/bin/bash
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# ls -l /home
total 8
drwxr-xr-x 2 Hanna ubuntu 4096 Feb 12 04:22 rachann
drwxr-xr-x 5 ubuntu ubuntu 4096 Jan 21 20:30 ubuntu
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# cd ~Hanna
root@ip-172-31-22-132:/home/rachann#
root@ip-172-31-22-132:/home/rachann#
root@ip-172-31-22-132:/home/rachann#
root@ip-172-31-22-132:/home/rachann# cd
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# pwd
/home/ubuntu
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# mkdir work
root@ip-172-31-22-132:/# mkdir play
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# rmdir work
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# cp /etc/passwd .
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# mv passwd play
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# echo "hello world" > hello.txt
root@ip-172-31-22-132:/# cp terminal hello.txt
cp: cannot stat 'terminal': No such file or directory
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# cp hello.txt terminal
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# cat terminal
hello world
root@ip-172-31-22-132:/#
root@ip-172-31-22-132:/# echo {con,pre}{sent,fer}{s,ed}
consents consented confers conferred presents presented prefers preferred
```

Copy two files from /etc in one command.

The 'ls -i' command lists out the i-node for each file, -R recursively traverse the directory structure, -F just the files.

Change permission to r--r-- with 'chmod' three different ways; 'chmod 444 <file>', or 'chmod a=r <file>', or 'chmod a-wx <file>'.

```
Cupeno
root@ip-172-31-22-132:~# cp /etc/{passwd,group} .
root@ip-172-31-22-132:~# ls -l passwd group
-rw-r--r-- 1 root root 1618 Feb 12 04:40 group
-rw-r--r-- 1 root root 1618 Feb 12 04:40 passwd
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# ls -li
total 24
256523 -rw-r--r-- 1 root root 1618 Feb 12 04:40 group
256515 -rw-r--r-- 1 root root 12 Feb 12 04:31 hello.txt
256546 -rw-rw-r-- 1 ubuntu ubuntu 115 Jan 21 17:44 mtfile
256521 -rw-r--r-- 1 root root 1618 Feb 12 04:40 passwd
256514 drwxr-xr-x 2 root root 4096 Feb 12 04:26 play
256520 -rw-r--r-- 1 root root 12 Feb 12 04:33 terminal
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# ls -lR /home
/home:
total 8
drwxr-xr-x 2 Hanna ubuntu 4096 Feb 12 04:22 rachann
drwxr-xr-x 6 ubuntu ubuntu 4096 Feb 12 04:40 ubuntu

/home/rachann:
total 0

/home/ubuntu:
total 24
-rw-r--r-- 1 root root 1618 Feb 12 04:40 group
-rw-r--r-- 1 root root 12 Feb 12 04:31 hello.txt
-rw-rw-r-- 1 ubuntu ubuntu 115 Jan 21 17:44 mtfile
-rw-r--r-- 1 root root 1618 Feb 12 04:40 passwd
drwxr-xr-x 2 root root 4096 Feb 12 04:26 play
-rw-r--r-- 1 root root 12 Feb 12 04:33 terminal

/home/ubuntu/play:
total 4
-rw-r--r-- 1 root root 1618 Feb 12 04:26 passwd
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# ls -F
group hello.txt mtfile passwd play/ terminal
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# ls -ld /home
drwxr-xr-x 4 root root 4096 Feb 12 04:22 /home
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# ls -i /home/rachann/
root@ip-172-31-22-132:~# ls -i
256523 group 256515 hello.txt 256546 mtfile 256521 passwd 256514 play 256520 terminal
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# ls -li
256523 group
256515 hello.txt
256546 mtfile
256521 passwd
256514 play
256520 terminal
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# ls -l play
total 4
-rw-r--r-- 1 root root 1618 Feb 12 04:26 passwd
root@ip-172-31-22-132:~# chmod 444 mtfile
root@ip-172-31-22-132:~# ls -l mtfile
-r--r--r-- 1 ubuntu ubuntu 115 Jan 21 17:44 mtfile
root@ip-172-31-22-132:~#
```



```
Cupeno
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# touch newfile
root@ip-172-31-22-132:~# ls -l newfile
-rw-r--r-- 1 root root 0 Feb 12 05:03 newfile
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# chmod u-w newfile
root@ip-172-31-22-132:~# ls -l newfile
-r--r--r-- 1 root root 0 Feb 12 05:03 newfile
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# touch another1
root@ip-172-31-22-132:~# chmod 777 another1
root@ip-172-31-22-132:~# ls -l another1
-rwxrwxrwx 1 root root 0 Feb 12 05:04 another1
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# chmod a=r another1
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# ls -l another1
-r--r--r-- 1 root root 0 Feb 12 05:04 another1
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# chmod 777 another1
root@ip-172-31-22-132:~# ls -l another1
-rwxrwxrwx 1 root root 0 Feb 12 05:04 another1
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# chmod ugo-wx another1
root@ip-172-31-22-132:~# ls -l another1
-r--r--r-- 1 root root 0 Feb 12 05:04 another1
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# cd /home
root@ip-172-31-22-132:/home#
root@ip-172-31-22-132:/home# ls -l ubuntu/
total 24
-r--r--r-- 1 root root 0 Feb 12 05:04 another1
-rw-r--r-- 1 root root 1618 Feb 12 04:40 group
-rw-r--r-- 1 root root 12 Feb 12 04:31 hello.txt
-rw-r--r-- 1 ubuntu ubuntu 115 Jan 21 17:44 mtfile
-r--r--r-- 1 root root 0 Feb 12 05:03 newfile
-rw-r--r-- 1 root root 1618 Feb 12 04:40 passwd
drwxr-xr-x 2 root root 4096 Feb 12 04:26 play
-rw-r--r-- 1 root root 12 Feb 12 04:33 terminal
root@ip-172-31-22-132:/home#
root@ip-172-31-22-132:/home# ls -ld ubuntu/
drwxr-xr-x 6 ubuntu ubuntu 4096 Feb 12 05:04 ubuntu/
root@ip-172-31-22-132:/home#
root@ip-172-31-22-132:/home# chmod go-rx ubuntu
root@ip-172-31-22-132:/home# ls -ld ubuntu/
drwx----- 6 ubuntu ubuntu 4096 Feb 12 05:04 ubuntu/
root@ip-172-31-22-132:/home#
root@ip-172-31-22-132:/home# su - Hanna
Hanna@ip-172-31-22-132:~$
Hanna@ip-172-31-22-132:~$ pwd
/home/rachann
Hanna@ip-172-31-22-132:~$ cd /home
Hanna@ip-172-31-22-132:/home$
Hanna@ip-172-31-22-132:/home$ cd ubuntu
-su: cd: ubuntu: Permission denied
Hanna@ip-172-31-22-132:/home$ logout
root@ip-172-31-22-132:/home#
root@ip-172-31-22-132:/home# chmod go+rx ubuntu
root@ip-172-31-22-132:/home# ls -ld ubuntu
drwxr-xr-x 6 ubuntu ubuntu 4096 Feb 12 05:04 ubuntu
root@ip-172-31-22-132:/home#
```

Next, run 'umask 000' before creating a file called 'world.txt'

```
Cupeno
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# umask 000
root@ip-172-31-22-132:~# touch world.txt
root@ip-172-31-22-132:~# ls -l world.txt
-rw-rw-rw- 1 root root 0 Feb 12 05:22 world.txt
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# echo "hello world" >> world.txt
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# umask 022
root@ip-172-31-22-132:~# tuch world2.txt

Command 'tuch' not found, did you mean:

  command 'touch' from deb coreutils
  command 'tucd' from deb tcm

Try: apt install <deb name>

root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# touch world2.txt
root@ip-172-31-22-132:~# ls -l world2.txt
-rw-r--r-- 1 root root 0 Feb 12 05:23 world2.txt
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# find /home -name "*" -ls
1619      4 drwxr-xr-x  4 root   root    4096 Feb 12 04:22 /home
256269    4 drwxr-xr-x  2 Hanna  ubuntu 4096 Feb 12 05:09 /home/rachann
256270    4 -rw-r--r--  1 Hanna  ubuntu 807 Apr  4 2018 /home/rachann/.profile
256526    4 -rw-----  1 Hanna  ubuntu 23 Feb 12 05:09 /home/rachann/.bash_history
256274    4 -rw-r--r--  1 Hanna  ubuntu 220 Apr  4 2018 /home/rachann/.bash_logout
256275    4 -rw-r--r--  1 Hanna  ubuntu 3771 Apr  4 2018 /home/rachann/.bashrc
256075    4 drwxr-xr-x  6 ubuntu  ubuntu 4096 Feb 12 05:23 /home/ubuntu
256076    4 -rw-r--r--  1 ubuntu  ubuntu 807 Apr  4 2018 /home/ubuntu/.profile
256547    4 -rw-----  1 root    root    57 Feb  6 01:31 /home/ubuntu/.bash_history
256521    4 -rw-r--r--  1 root    root   1618 Feb 12 04:40 /home/ubuntu/passwd
256525    0 -r--r--r--  1 root    root      0 Feb 12 05:04 /home/ubuntu/another1
285134    4 -rw-rw-rw-  1 root    root    12 Feb 12 05:22 /home/ubuntu/world.txt
256524    0 -r--r--r--  1 root    root      0 Feb 12 05:03 /home/ubuntu/newfile
256077    4 -rw-r--r--  1 ubuntu  ubuntu 220 Apr  4 2018 /home/ubuntu/.bash_logout
285141    0 -rw-r--r--  1 root    root      0 Feb 12 05:23 /home/ubuntu/world2.txt
256092    4 drwx-----  3 ubuntu  ubuntu 4096 Jan 20 02:45 /home/ubuntu/.gnupg
256093    4 drwx-----  2 ubuntu  ubuntu 4096 Jan 20 02:45 /home/ubuntu/.gnupg/private-keys-v1.d
256514    4 drwxr-xr-x  2 root    root    4096 Feb 12 04:26 /home/ubuntu/play
256463    4 -rw-r--r--  1 root    root   1618 Feb 12 04:26 /home/ubuntu/play/passwd
256584    4 -rw-----  1 ubuntu  ubuntu 138 Jan 21 20:30 /home/ubuntu/.python_history
256451    0 -rw-r--r--  1 ubuntu  ubuntu      0 Jan 20 22:26 /home/ubuntu/.sudo_as_admin_successful
256095    4 drwx-----  2 ubuntu  ubuntu 4096 Jan 20 02:45 /home/ubuntu/.cache
256213    0 -rw-r--r--  1 ubuntu  ubuntu      0 Jan 20 02:45 /home/ubuntu/.cache/motd.legal-displayed
256515    4 -rw-r--r--  1 root    root    12 Feb 12 04:31 /home/ubuntu/hello.txt
256080    4 drwx-----  2 ubuntu  ubuntu 4096 Jan 20 02:23 /home/ubuntu/.ssh
256081    4 -rw-----  1 ubuntu  ubuntu 389 Jan 20 02:23 /home/ubuntu/.ssh/authorized_keys
256520    4 -rw-r--r--  1 root    root    12 Feb 12 04:33 /home/ubuntu/terminal
256523    4 -rw-r--r--  1 root    root   1618 Feb 12 04:40 /home/ubuntu/group
256546    4 -rw-r--r--  1 ubuntu  ubuntu 115 Jan 21 17:44 /home/ubuntu/mtfile
256078    4 -rw-r--r--  1 ubuntu  ubuntu 3771 Apr  4 2018 /home/ubuntu/.bashrc
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# |
```

And finally:

```
Cupeno
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# find /home -name "*" -ls
 1619      4 drwxr-xr-x  4 root    root      4096 Feb 12 04:22 /home
256269     4 drwxr-xr-x  2 Hanna   ubuntu   4096 Feb 12 05:09 /home/rachann
256270     4 -rw-r--r--   1 Hanna   ubuntu   807 Apr  4 2018 /home/rachann/.profile
256526     4 -rw-----   1 Hanna   ubuntu    23 Feb 12 05:09 /home/rachann/.bash_history
256274     4 -rw-r--r--   1 Hanna   ubuntu   220 Apr  4 2018 /home/rachann/.bash_logout
256275     4 -rw-r--r--   1 Hanna   ubuntu  3771 Apr  4 2018 /home/rachann/.bashrc
256075     4 drwxr-xr-x  6 ubuntu   ubuntu   4096 Feb 12 05:23 /home/ubuntu
256076     4 -rw-r--r--   1 ubuntu   ubuntu   807 Apr  4 2018 /home/ubuntu/.profile
256547     4 -rw-----   1 root     root      57 Feb  6 01:31 /home/ubuntu/.bash_history
256521     4 -rw-r--r--   1 root     root   1618 Feb 12 04:40 /home/ubuntu/passwd
256525     0 -r--r--r--   1 root     root      0 Feb 12 05:04 /home/ubuntu/another1
285134     4 -rw-rw-rw-   1 root     root     12 Feb 12 05:22 /home/ubuntu/world.txt
256524     0 -r--r--r--   1 root     root      0 Feb 12 05:03 /home/ubuntu/newfile
256077     4 -rw-r--r--   1 ubuntu   ubuntu   220 Apr  4 2018 /home/ubuntu/.bash_logout
285141     0 -rw-r--r--   1 root     root      0 Feb 12 05:23 /home/ubuntu/world2.txt
256092     4 drwx-----   3 ubuntu   ubuntu   4096 Jan 20 02:45 /home/ubuntu/.gnupg
256093     4 drwx-----   2 ubuntu   ubuntu   4096 Jan 20 02:45 /home/ubuntu/.gnupg/private-keys-v1.d
256514     4 drwxr-xr-x  2 root     root     4096 Feb 12 04:26 /home/ubuntu/play
256463     4 -rw-r--r--   1 root     root   1618 Feb 12 04:26 /home/ubuntu/play/passwd
256584     4 -rw-----   1 ubuntu   ubuntu   138 Jan 21 20:30 /home/ubuntu/.python_history
256451     0 -rw-r--r--   1 ubuntu   ubuntu      0 Jan 20 22:26 /home/ubuntu/.sudo_as_admin_successful
256095     4 drwx-----   2 ubuntu   ubuntu   4096 Jan 20 02:45 /home/ubuntu/.cache
256213     0 -rw-r--r--   1 ubuntu   ubuntu      0 Jan 20 02:45 /home/ubuntu/.cache/motd.legal-displayed
256515     4 -rw-r--r--   1 root     root     12 Feb 12 04:31 /home/ubuntu/hello.txt
256080     4 drwx-----   2 ubuntu   ubuntu   4096 Jan 20 02:23 /home/ubuntu/.ssh
256081     4 -rw-----   1 ubuntu   ubuntu   389 Jan 20 02:23 /home/ubuntu/.ssh/authorized_keys
256520     4 -rw-r--r--   1 root     root     12 Feb 12 04:33 /home/ubuntu/terminal
256523     4 -rw-r--r--   1 root     root   1618 Feb 12 04:40 /home/ubuntu/group
256546     4 -rw-r--r--   1 ubuntu   ubuntu   115 Jan 21 17:44 /home/ubuntu/mtfile
256078     4 -rw-r--r--   1 ubuntu   ubuntu  3771 Apr  4 2018 /home/ubuntu/.bashrc
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# find /home -name "*" -executable
/home
/home/rachann
/home/ubuntu
/home/ubuntu/.gnupg
/home/ubuntu/.gnupg/private-keys-v1.d
/home/ubuntu/play
/home/ubuntu/.cache
/home/ubuntu/.ssh
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# find /home -name "*" -empty
/home/ubuntu/another1
/home/ubuntu/newfile
/home/ubuntu/world2.txt
/home/ubuntu/.gnupg/private-keys-v1.d
/home/ubuntu/.sudo_as_admin_successful
/home/ubuntu/.cache/motd.legal-displayed
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# grep ubuntu /etc/passwd
ubuntu:x:1000:1000:Ubuntu:/home/ubuntu:/bin/bash
root@ip-172-31-22-132:~#
root@ip-172-31-22-132:~# grep -lws hello `find /home/ubuntu/ |sort `
/home/ubuntu/hello.txt
/home/ubuntu/terminal
/home/ubuntu/world.txt
root@ip-172-31-22-132:~#
```