practice

April 24, 2020

```
[1]: pwd
```

```
/home/jupyter-kkenzh
```

```
[2]: cd /
```

```
[3]: pwd
```

```
/
```

```
[4]: ls
```

```
bin     etc             lib         mkdir  root  srv       usr
boot    home            lib64       mnt    run   swap.img  var
cdrom   initrd.img      lost+found  opt    sbin  sys       vmlinuz
dev     initrd.img.old  media       proc   snap  tmp       vmlinuz.old
```

```
[5]: cd bin
```

```
[6]: ls
```

```
bash              egrep         nc.openbsd     ss
btrfs             false         netcat         static-sh
btrfsck           fgconsole     netstat        stty
btrfs-debug-tree  fgrep         networkctl     su
btrfs-find-root   findmnt       nisdomainname  sync
btrfs-image       fsck.btrfs    ntfs-3g        systemctl
btrfs-map-logical fuser         ntfs-3g.probe  systemd
btrfs-select-super fusermount   ntfscat        systemd-ask-password
btrfstune         getfacl       ntfscluster    systemd-escape
btrfs-zero-log    grep          ntfscmp        systemd-hwdb
bunzip2           gunzip        ntfsfallocate  systemd-inhibit
busybox           gzexe         ntfsfix        systemd-machine-id-setup
bzcat             gzip          ntfsinfo       systemd-notify
bzcmp             hostname      ntfsls         systemd-sysusers
bzdiff            ip            ntfsmove       systemd-tmpfiles
bzegrep           journalctl    ntfsrecover    systemd-tty-ask-password-agent
bzexe             kbd_mode      ntfssecaudit   tar
```

```
bzfgrep            kill            ntfstruncate    tempfile
bzgrep             kmod            ntfsusermap     touch
bzip2              less            ntfswipe        true
bzip2recover       lessecho        open            udevadm
bzless             lessfile        openvt          ulockmgr_server
bzmore             lesskey         pidof           umount
cat                lesspipe        ping            uname
chacl              ln              ping4           uncompress
chgrp              loadkeys        ping6           unicode_start
chmod              login           plymouth        vdir
chown              loginctl        ps              wdctl
chvt               lowntfs-3g      pwd             which
cp                 ls              rbash           whiptail
cpio               lsblk           readlink        ypdomainname
dash               lsmod           red             zcat
date               mkdir           rm              zcmp
dd                 mkfs.btrfs      rmdir           zdiff
df                 mknod           rnano           zegrep
dir                mktemp          run-parts       zfgrep
dmesg              more            rzsh            zforce
dnsdomainname      mount           sed             zgrep
domainname         mountpoint      setfacl         zless
dumpkeys           mt              setfont         zmore
echo               mt-gnu          setupcon        znew
ed                 mv              sh              zsh
efibootdump        nano            sh.distrib      zsh5
efibootmgr         nc              sleep
```

[ ]: `cd ..`

[ ]: `pwd`

[1]: `cd /`

[2]: `pwd`

```
/
```

[3]: `ls`

```
bin     etc             lib         mkdir   root   srv        usr
boot    home            lib64       mnt     run    swap.img   var
cdrom   initrd.img      lost+found  opt     sbin   sys        vmlinuz
dev     initrd.img.old  media       proc    snap   tmp        vmlinuz.old
```

[4]: `cd boot`

[5]: `ls`

```
config-4.15.0-88-generic       initrd.img-4.15.0-91-generic
config-4.15.0-91-generic       System.map-4.15.0-88-generic
efi                            System.map-4.15.0-91-generic
grub                           vmlinuz-4.15.0-88-generic
initrd.img-4.15.0-88-generic   vmlinuz-4.15.0-91-generic
```

[7]: `cd ..`

[8]: `cd cdrom`

[9]: `ls`

[10]: `cd /`

[12]: `cd cdrom`

[13]: `ls`

[14]: `cd ..`

[15]: `cd dev`

[16]: `ls`

```
autofs              kmsg                sda1        tty3    tty6       ttyS30
block               kvm                 sda2        tty30   tty60      ttyS31
bsg                 lightnvm            sg0         tty31   tty61      ttyS4
btrfs-control       log                 shm         tty32   tty62      ttyS5
bus                 loop0               snapshot    tty33   tty63      ttyS6
char                loop1               snd         tty34   tty7       ttyS7
console             loop2               stderr      tty35   tty8       ttyS8
core                loop3               stdin       tty36   tty9       ttyS9
cpu                 loop4               stdout      tty37   ttyprintk  uhid
cpu_dma_latency     loop5               tty         tty38   ttyS0      uinput
cuse                loop6               tty0        tty39   ttyS1      urandom
disk                loop7               tty1        tty4    ttyS10     usb
dri                 loop-control        tty10       tty40   ttyS11     userio
ecryptfs            mapper              tty11       tty41   ttyS12     vcs
fb0                 mcelog              tty12       tty42   ttyS13     vcs1
fd                  mei0                tty13       tty43   ttyS14     vcs2
full                mem                 tty14       tty44   ttyS15     vcs3
fuse                memory_bandwidth    tty15       tty45   ttyS16     vcs4
hidraw0             mqueue              tty16       tty46   ttyS17     vcs5
hidraw1             net                 tty17       tty47   ttyS18     vcs6
hpet                network_latency     tty18       tty48   ttyS19     vcsa
hugepages           network_throughput  tty19       tty49   ttyS2      vcsa1
hwrng               null                tty2        tty5    ttyS20     vcsa2
i2c-0               port                tty20       tty50   ttyS21     vcsa3
```

```
i2c-1          ppp              tty21      tty51  ttyS22    vcsa4
i2c-2          psaux            tty22      tty52  ttyS23    vcsa5
i2c-3          ptmx             tty23      tty53  ttyS24    vcsa6
i2c-4          pts              tty24      tty54  ttyS25    vfio
i2c-5          random           tty25      tty55  ttyS26    vga_arbiter
i2c-6          rfkill           tty26      tty56  ttyS27    vhci
i2c-7          rtc              tty27      tty57  ttyS28    vhost-net
initctl        rtc0             tty28      tty58  ttyS29    vhost-vsock
input          sda              tty29      tty59  ttyS3     zero
```

[17]: `cd ..`

[18]: `cd etc`

[19]: `ls`

```
acpi                      inputrc            protocols
adduser.conf              iproute2           python
alternatives              iscsi              python2.7
apache2                   issue              python3
apm                       issue.net          python3.6
apparmor                  java-11-openjdk    python3.8
apparmor.d                kernel             rc0.d
apport                    kernel-img.conf    rc1.d
apt                       landscape          rc2.d
at.deny                   ldap               rc3.d
bash.bashrc               ld.so.cache        rc4.d
bash_completion           ld.so.conf         rc5.d
bash_completion.d         ld.so.conf.d       rc6.d
bindresvport.blacklist    legal              rc.local
binfmt.d                  libaudit.conf      rcS.d
byobu                     libnl-3            resolv.conf
ca-certificates           libpaper.d         rmt
ca-certificates.conf      lighttpd           rpc
calendar                  locale.alias       rsyslog.conf
cloud                     locale.gen         rsyslog.d
console-setup             localtime          screenrc
cron.d                    logcheck           securetty
cron.daily                login.defs         security
cron.hourly               logrotate.conf     selinux
cron.monthly              logrotate.d        sensors3.conf
crontab                   lsb-release        sensors.d
cron.weekly               ltrace.conf        services
cryptsetup-initramfs      lvm                shadow
crypttab                  machine-id         shadow-
dbus-1                    magic              shells
debconf.conf              magic.mime         skel
debian_version            mailcap            sos.conf
```

```
default                 mailcap.order           ssh
deluser.conf            manpath.config          ssl
depmod.d                mdadm                   subgid
dhcp                    mime.types              subgid-
dnsmasq.d               mke2fs.conf             subuid
dnsmasq.d-available     modprobe.d              subuid-
dpkg                    modules                 sudoers
environment             modules-load.d          sudoers.d
ethertypes              mtab                    supervisord.conf
fonts                   mysql                   sysctl.conf
fstab                   nanorc                  sysctl.d
fuse.conf               netplan                 systemd
gai.conf                network                 terminfo
ghostscript             networkd-dispatcher     texmf
glvnd                   NetworkManager          thermald
groff                   networks                timezone
group                   newt                    tmpfiles.d
group-                  nsswitch.conf           ucf.conf
grub.d                  octave.conf             udev
gshadow                 opt                     ufw
gshadow-                os-release              updatedb.conf
gss                     overlayroot.conf        update-manager
gtk-2.0                 pam.conf                update-motd.d
gtk-3.0                 pam.d                   update-notifier
hdparm.conf             papersize               vim
host.conf               passwd                  vmware-tools
hostname                passwd-                 vtrgb
hosts                   perl                    wgetrc
hosts.allow             pm                      X11
hosts.deny              polkit-1                xdg
ImageMagick-6           pollinate               zsh
init                    popularity-contest.conf zsh_command_not_found
init.d                  profile
initramfs-tools         profile.d
```

[20]: `cd ..`

[21]: `cd home`

[22]: `ls`

```
azat                    jupyter-azat            jupyter-nurlaura
jupyter-admin           jupyter-cubefiction     jupyter-nurlaura2
jupyter-aiana178        jupyter-danenok         jupyter-official-nanakai
jupyter-aigerimunisat   jupyter-darganius       jupyter-orissim
jupyter-aizadait        jupyter-ekdana          jupyter-tsagynysh
jupyter-amayakof        jupyter-inkar601        jupyter-unisat
jupyter-amirkhan        jupyter-kkenzh          jupyter-yeldana
```

```
jupyter-arayka          jupyter-nazymungarova   jupyter-zhandos
jupyter-aruzhan149      jupyter-nuray.serkali   jupyter-zhanelbaltabay
jupyter-aselleon        jupyter-nurike          jupyter-zhannaspace
```

[2]: `cd /`

[3]: `cd dev`

[4]: `pwd`

```
/dev
```

[5]: `ls`

```
autofs              kmsg                sda1        tty3    tty6        ttyS30
block               kvm                 sda2        tty30   tty60       ttyS31
bsg                 lightnvm            sg0         tty31   tty61       ttyS4
btrfs-control       log                 shm         tty32   tty62       ttyS5
bus                 loop0               snapshot    tty33   tty63       ttyS6
char                loop1               snd         tty34   tty7        ttyS7
console             loop2               stderr      tty35   tty8        ttyS8
core                loop3               stdin       tty36   tty9        ttyS9
cpu                 loop4               stdout      tty37   ttyprintk   uhid
cpu_dma_latency     loop5               tty         tty38   ttyS0       uinput
cuse                loop6               tty0        tty39   ttyS1       urandom
disk                loop7               tty1        tty4    ttyS10      usb
dri                 loop-control        tty10       tty40   ttyS11      userio
ecryptfs            mapper              tty11       tty41   ttyS12      vcs
fb0                 mcelog              tty12       tty42   ttyS13      vcs1
fd                  mei0                tty13       tty43   ttyS14      vcs2
full                mem                 tty14       tty44   ttyS15      vcs3
fuse                memory_bandwidth    tty15       tty45   ttyS16      vcs4
hidraw0             mqueue              tty16       tty46   ttyS17      vcs5
hidraw1             net                 tty17       tty47   ttyS18      vcs6
hpet                network_latency     tty18       tty48   ttyS19      vcsa
hugepages           network_throughput  tty19       tty49   ttyS2       vcsa1
hwrng               null                tty2        tty5    ttyS20      vcsa2
i2c-0               port                tty20       tty50   ttyS21      vcsa3
i2c-1               ppp                 tty21       tty51   ttyS22      vcsa4
i2c-2               psaux               tty22       tty52   ttyS23      vcsa5
i2c-3               ptmx                tty23       tty53   ttyS24      vcsa6
i2c-4               pts                 tty24       tty54   ttyS25      vfio
i2c-5               random              tty25       tty55   ttyS26      vga_arbiter
i2c-6               rfkill              tty26       tty56   ttyS27      vhci
i2c-7               rtc                 tty27       tty57   ttyS28      vhost-net
initctl             rtc0                tty28       tty58   ttyS29      vhost-vsock
input               sda                 tty29       tty59   ttyS3       zero
```

```
[6]: file sda
```

sda: block special (8/0)

```
[7]: file net
```

net: directory

```
[8]: file null
```

null: character special (1/3)

```
[9]: file input
```

input: directory

```
[10]: file random
```

random: character special (1/8)

```
[11]: file cpu
```

cpu: directory

```
[12]: cd /
```

```
[13]: ls
```

```
bin     etc             lib         mkdir   root    srv         usr
boot    home            lib64       mnt     run     swap.img    var
cdrom   initrd.img      lost+found  opt     sbin    sys         vmlinuz
dev     initrd.img.old  media       proc    snap    tmp         vmlinuz.old
```

```
[14]: cd etc
```

```
[15]: ls
```

```
acpi                    inputrc                 protocols
adduser.conf            iproute2                python
alternatives            iscsi                   python2.7
apache2                 issue                   python3
apm                     issue.net               python3.6
apparmor                java-11-openjdk         python3.8
apparmor.d              kernel                  rc0.d
apport                  kernel-img.conf         rc1.d
apt                     landscape               rc2.d
at.deny                 ldap                    rc3.d
bash.bashrc             ld.so.cache             rc4.d
bash_completion         ld.so.conf              rc5.d
```

bash_completion.d	ld.so.conf.d	rc6.d
bindresvport.blacklist	legal	rc.local
binfmt.d	libaudit.conf	rcS.d
byobu	libnl-3	resolv.conf
ca-certificates	libpaper.d	rmt
ca-certificates.conf	lighttpd	rpc
calendar	locale.alias	rsyslog.conf
cloud	locale.gen	rsyslog.d
console-setup	localtime	screenrc
cron.d	logcheck	securetty
cron.daily	login.defs	security
cron.hourly	logrotate.conf	selinux
cron.monthly	logrotate.d	sensors3.conf
crontab	lsb-release	sensors.d
cron.weekly	ltrace.conf	services
cryptsetup-initramfs	lvm	shadow
crypttab	machine-id	shadow-
dbus-1	magic	shells
debconf.conf	magic.mime	skel
debian_version	mailcap	sos.conf
default	mailcap.order	ssh
deluser.conf	manpath.config	ssl
depmod.d	mdadm	subgid
dhcp	mime.types	subgid-
dnsmasq.d	mke2fs.conf	subuid
dnsmasq.d-available	modprobe.d	subuid-
dpkg	modules	sudoers
environment	modules-load.d	sudoers.d
ethertypes	mtab	supervisord.conf
fonts	mysql	sysctl.conf
fstab	nanorc	sysctl.d
fuse.conf	netplan	systemd
gai.conf	network	terminfo
ghostscript	networkd-dispatcher	texmf
glvnd	NetworkManager	thermald
groff	networks	timezone
group	newt	tmpfiles.d
group-	nsswitch.conf	ucf.conf
grub.d	octave.conf	udev
gshadow	opt	ufw
gshadow-	os-release	updatedb.conf
gss	overlayroot.conf	update-manager
gtk-2.0	pam.conf	update-motd.d
gtk-3.0	pam.d	update-notifier
hdparm.conf	papersize	vim
host.conf	passwd	vmware-tools
hostname	passwd-	vtrgb
hosts	perl	wgetrc

```
hosts.allow              pm                       X11
hosts.deny               polkit-1                 xdg
ImageMagick-6            pollinate                zsh
init                     popularity-contest.conf  zsh_command_not_found
init.d                   profile
initramfs-tools          profile.d
```

[16]: `cd hosts`

```
bash: cd: hosts: Not a directory
```

[17]: `cd ..`

[18]: `pwd`

```
/
```

[19]: `ls`

```
bin     etc                lib          mkdir  root   srv        usr
boot    home               lib64        mnt    run    swap.img   var
cdrom   initrd.img         lost+found   opt    sbin   sys        vmlinuz
dev     initrd.img.old     media        proc   snap   tmp        vmlinuz.old
```

[20]: `cd media`

[21]: `ls`

[22]: `cd ..`

[23]: `ls lib`

```
apparmor        init                                  netplan
console-setup   klibc-wBFLvVtxy4xJqEadIBJMa78iJz8.so   open-iscsi
cpp             libhandle.so.1                        recovery-mode
crda            libhandle.so.1.0.3                     systemd
cryptsetup      lsb                                   terminfo
ebtables        modprobe.d                            udev
firmware        modules                               ufw
hdparm          modules-load.d                        x86_64-linux-gnu
```

[24]: `file cpp`

```
cpp: cannot open `cpp' (No such file or directory)
```

[25]: `cd lib`

```
[26]: ls
```

```
apparmor        init                                    netplan
console-setup   klibc-wBFLvVtxy4xJqEadIBJMa78iJz8.so     open-iscsi
cpp             libhandle.so.1                           recovery-mode
crda            libhandle.so.1.0.3                       systemd
cryptsetup      lsb                                      terminfo
ebtables        modprobe.d                              udev
firmware        modules                                 ufw
hdparm          modules-load.d                          x86_64-linux-gnu
```

```
[27]: file cpp
```

```
cpp: symbolic link to /etc/alternatives/cpp
```

```
[28]: cd ..
```

```
[29]: cd proc
```

```
[30]: pwd
```

```
/proc
```

```
[31]: ls
```

```
1       18      25393   268     438     62      asound       misc
10      19      254     26840   44      63      buddyinfo    modules
1009    2       255     26900   45      6315    bus          mounts
1021    20      257     26912   457     64      cgroups      mtrr
1051    21      25815   26988   46      65      cmdline      net
1053    2163    25892   27      461     66      consoles     pagetypeinfo
1070    22      259     27098   48      67      cpuinfo      partitions
1075    23372   25909   271     480     68      crypto       sched_debug
1087    24      26      27186   482     69      devices      schedstat
1088    24645   26240   27198   483     7       diskstats    scsi
1093    24677   26253   27216   484     7258    dma          self
11      24692   26276   27228   485     76      driver       slabinfo
1149    247     26288   27307   487     77      execdomains  softirqs
1157    24765   26315   28      488     778     fb           stat
1164    24768   26327   30      49      78      filesystems  swaps
11739   24782   26341   31      496     782     fs           sys
1179    248     26365   32      4977    79      interrupts   sysrq-trigger
12      24803   26437   32229   499     791     iomem        sysvipc
1249    24825   26485   33      50      8       ioports      thread-self
1250    24862   265     337     500     80      irq          timer_list
127     24944   26525   34      51      814     kallsyms     tty
128     24956   26548   36      52      83      kcore        uptime
13      24976   26571   37      526     8383    keys         version
```

```
132     25      26623   38      536     84      key-users    version_signature
1320    25049   26635   385     54      85      kmsg         vmallocinfo
14      25052   26658   386     549     8836    kpagecgroup  vmstat
141     25057   26670   388     55      889     kpagecount   zoneinfo
15      25067   26713   39      56      9       kpageflags
1526    25092   26718   4       57      909     loadavg
158     25111   26732   40      58      9418    locks
16      252     26752   42      6       996     mdstat
17144   253     26780   43      61      acpi    meminfo
```

[32]: `cd ..`

[34]: `cd /`

[36]: `cd tmp`

[37]: `ls`

```
npm-10827-0e564a4c
npm-16887-8c782a69
npm-1734-4343c47f
npm-22290-49e0f6ff
npm-23142-d27f6bba
npm-23375-6bb977da
npm-23794-403d9440
npm-25556-bcb1e08b
npm-26296-4ea6a34d
npm-26960-6b0c7d95
npm-27460-f5da2395
npm-7544-12d35dae
npm-8050-06c19f33
npm-8322-2a3b4233
npm-9277-386698b9
npm-9736-137906aa
systemd-private-bde4209a9cf34ce29a03310bf98c2445-jupyterhub.service-BlGHgU
systemd-private-bde4209a9cf34ce29a03310bf98c2445-systemd-resolved.service-bxqXyY
systemd-private-bde4209a9cf34ce29a03310bf98c2445-systemd-timesyncd.service-
Vg7n7D
systemd-private-bde4209a9cf34ce29a03310bf98c2445-traefik.service-x45iZK
```

[38]: `cd ..`

[39]: `ls`

```
bin     etc             lib         mkdir   root    srv         usr
boot    home            lib64       mnt     run     swap.img    var
cdrom   initrd.img      lost+found  opt     sbin    sys         vmlinuz
dev     initrd.img.old  media       proc    snap    tmp         vmlinuz.old
```

```
[40]:  ls *.txt
```

ls: cannot access '*.txt': No such file or directory

```
[41]:  cd /
```

```
[45]:  cd home
```

```
[46]:  ls
```

azat	jupyter-cubefiction	jupyter-official-nanakai
jupyter-admin	jupyter-danenok	jupyter-orissim
jupyter-aiana178	jupyter-darganius	jupyter-tsagynysh
jupyter-aigerimunisat	jupyter-ekdana	jupyter-unisat
jupyter-aizadait	jupyter-inkar601	jupyter-unisatkz
jupyter-amayakof	jupyter-kkenzh	jupyter-yeldana
jupyter-amirkhan	jupyter-nazymungarova	jupyter-zhandos
jupyter-arayka	jupyter-nuray.serkali	jupyter-zhanelbaltabay
jupyter-aruzhan149	jupyter-nurike	jupyter-zhannaspace
jupyter-aselleon	jupyter-nurlaura	
jupyter-azat	jupyter-nurlaura2	

```
[47]:  cd jupyter-kkenzh
```

```
[48]:  ls
```

Aruzhan	Kenzh.ipynb	lifeisgood	octave-workspace	untitled.dio
hw.ipynb	lessoninfo.ipynb	Loop	shared	

```
[49]:  touch 1.png
```

```
[50]:  touch 3.png
```

```
[51]:  touch 2.jpg
```

```
[52]:  ls *.[pn][jp]g
```

ls: cannot access '*.[pn][jp]g': No such file or directory

```
[53]:  ls
```

1.png	3.png	hw.ipynb	lessoninfo.ipynb	Loop	shared
2.jpg	Aruzhan	Kenzh.ipynb	lifeisgood	octave-workspace	untitled.dio

```
[54]:  ls ?.[pn][jp]g
```

```
ls: cannot access '?.[pn][jp]g': No such file or directory
```

[ ]: `cd /|`

[56]: `ls /home/jupyter-a*`

```
ls: cannot open directory '/home/jupyter-admin': Permission denied
ls: cannot open directory '/home/jupyter-aiana178': Permission denied
ls: cannot open directory '/home/jupyter-aigerimunisat': Permission denied
ls: cannot open directory '/home/jupyter-aizadait': Permission denied
ls: cannot open directory '/home/jupyter-amayakof': Permission denied
ls: cannot open directory '/home/jupyter-amirkhan': Permission denied
ls: cannot open directory '/home/jupyter-arayka': Permission denied
ls: cannot open directory '/home/jupyter-aruzhan149': Permission denied
ls: cannot open directory '/home/jupyter-aselleon': Permission denied
ls: cannot open directory '/home/jupyter-azat': Permission denied
```

[57]: `ls /home/jupyter-k*`

```
1.png   3.png     hw.ipynb      lessoninfo.ipynb   Loop              shared
2.jpg   Aruzhan   Kenzh.ipynb   lifeisgood         octave-workspace  untitled.dio
```

[58]: `cd /`

[59]: `cd home`

[60]: `pwd`

```
/home
```

[61]: `ls`

```
azat                    jupyter-cubefiction    jupyter-official-nanakai
jupyter-admin           jupyter-danenok        jupyter-orissim
jupyter-aiana178        jupyter-darganius      jupyter-tsagynysh
jupyter-aigerimunisat   jupyter-ekdana         jupyter-unisat
jupyter-aizadait        jupyter-inkar601       jupyter-unisatkz
jupyter-amayakof        jupyter-kkenzh         jupyter-yeldana
jupyter-amirkhan        jupyter-nazymungarova  jupyter-zhandos
jupyter-arayka          jupyter-nuray.serkali  jupyter-zhanelbaltabay
jupyter-aruzhan149      jupyter-nurike         jupyter-zhannaspace
jupyter-aselleon        jupyter-nurlaura
jupyter-azat            jupyter-nurlaura2
```

[62]: `cd jupyter-kkenzh`

```
[63]: ls
```

```
1.png   3.png     hw.ipynb     lessoninfo.ipynb   Loop            shared
2.jpg   Aruzhan   Kenzh.ipynb  lifeisgood         octave-workspace  untitled.dio
```

```
[64]: ls *.png
```

```
1.png   3.png
```

```
[65]: ls /home/*unisatkz/Cola
```

```
ls: cannot access '/home/*unisatkz/Cola': No such file or directory
```

```
[66]: pwd
```

```
/home/jupyter-kkenzh
```

```
[67]: ls *.[jppn]g
```

```
ls: cannot access '*.[jppn]g': No such file or directory
```

```
[68]: ls *.[jp][pn]g
```

```
1.png   2.jpg   3.png
```

```
[69]: pwd
```

```
/home/jupyter-kkenzh
```

```
[70]: cd /home
```

```
[71]: ls -l
```

```
total 124
drwxr-xr-x 12 azat                  azat             4096 Mar 18
01:23 azat
drwxr-x---  8 jupyter-admin         jupyter-admin    4096 Mar 21
17:42 jupyter-admin
drwxr-x---  8 jupyter-aiana178      jupyter-aiana178 4096 Apr  2
18:08 jupyter-aiana178
drwxr-x--- 10 jupyter-aigerimunisat jupyter-aigerimunisat 4096 Apr  2
16:51 jupyter-aigerimunisat
drwxr-x---  8 jupyter-aizadait      jupyter-aizadait 4096 Mar 28
01:17 jupyter-aizadait
drwxr-x--- 10 jupyter-amayakof      jupyter-amayakof 4096 Mar 31
23:59 jupyter-amayakof
```

```
drwxr-x---   7 jupyter-amirkhan          jupyter-amirkhan           4096 Mar 21
13:40 jupyter-amirkhan
drwxr-x---   4 jupyter-arayka            jupyter-arayka             4096 Mar 18
17:22 jupyter-arayka
drwxr-x---   8 jupyter-aruzhan149        jupyter-aruzhan149         4096 Mar 29
17:21 jupyter-aruzhan149
drwxr-x---   7 jupyter-aselleon          jupyter-aselleon           4096 Mar 23
19:08 jupyter-aselleon
drwxr-x---  12 jupyter-azat              jupyter-azat               4096 Mar 23
22:20 jupyter-azat
drwxr-x---  11 jupyter-cubefiction       jupyter-cubefiction        4096 Apr  2
17:47 jupyter-cubefiction
drwxr-x---   9 jupyter-danenok           jupyter-danenok            4096 Mar 28
14:09 jupyter-danenok
drwxr-x---   7 jupyter-darganius         jupyter-darganius          4096 Mar 23
12:19 jupyter-darganius
drwxr-x---   8 jupyter-ekdana            jupyter-ekdana             4096 Mar 28
12:22 jupyter-ekdana
drwxr-x---  10 jupyter-inkar601          jupyter-inkar601           4096 Mar 28
14:09 jupyter-inkar601
drwxr-x---  10 jupyter-kkenzh            jupyter-kkenzh             4096 Apr  2
18:12 jupyter-kkenzh
drwxr-x---   7 jupyter-nazymungarova     jupyter-nazymungarova      4096 Mar 21
14:26 jupyter-nazymungarova
drwxr-x---   7 jupyter-nuray.serkali     jupyter-nuray.serkali      4096 Mar 19
17:09 jupyter-nuray.serkali
drwxr-x---   7 jupyter-nurike            jupyter-nurike             4096 Mar 24
04:56 jupyter-nurike
drwxr-x---   8 jupyter-nurlaura          jupyter-nurlaura           4096 Mar 28
00:09 jupyter-nurlaura
drwxr-x---   8 jupyter-nurlaura2         jupyter-nurlaura2          4096 Apr  2
01:29 jupyter-nurlaura2
drwxr-x---   9 jupyter-official-nanakai jupyter-official-nanakai 4096 Apr  1
02:05 jupyter-official-nanakai
drwxr-x---   8 jupyter-orissim           jupyter-orissim            4096 Apr  1
17:01 jupyter-orissim
drwxr-x---   8 jupyter-tsagynysh         jupyter-tsagynysh          4096 Apr  1
17:39 jupyter-tsagynysh
drwxr-x---  15 jupyter-unisat            jupyter-unisat             4096 Apr  2
17:10 jupyter-unisat
drwxr-x---  10 jupyter-unisatkz          jupyter-unisatkz           4096 Apr  2
18:12 jupyter-unisatkz
drwxr-x---   4 jupyter-yeldana           jupyter-yeldana            4096 Mar 23
16:17 jupyter-yeldana
drwxr-x---   5 jupyter-zhandos           jupyter-zhandos            4096 Mar 23
12:19 jupyter-zhandos
drwxr-x---   8 jupyter-zhanelbaltabay    jupyter-zhanelbaltabay     4096 Apr  2
14:23 jupyter-zhanelbaltabay
```

```
drwxr-x--- 9 jupyter-zhannaspace      jupyter-zhannaspace      4096 Apr  2
04:01 jupyter-zhannaspace
```

[73]: `pwd`

```
/home
```

[74]: `cd`

[75]: `pwd`

```
/home/jupyter-kkenzh
```

[76]: `ls -l 1.png`

```
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  2 18:04 1.png
```

[78]:
```
chmod 1.png
#change mod bits
#chmod [permission] path
```

```
chmod: missing operand after '1.png'
Try 'chmod --help' for more information.
```

[80]: `ls -l 1.txt`

```
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  2 18:04 1.txt
```

[81]:
```
chmod u+w 1.txt
#u = user
```

[82]: `ls -l 1.txt`

```
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  2 18:04 1.txt
```

[83]: `chmod u-w 1.txt`

[84]: `ls -l 1.txt`

```
-r--r--r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  2 18:04 1.txt
```

[86]: `chmod u+w+x 1.txt`

[87]: `ls -l 1.txt`

```
-rwxr--r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  2 18:04 1.txt
```

```
[88]: chmod u-x 1.txt
```

```
[89]: ls -l 1.txt
```

```
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  2 18:04 1.txt
```

```
[90]: chmod g-r 1.txt
      #g = group
```

```
[91]: ls -l 1.txt
```

```
-rw----r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  2 18:04 1.txt
```

```
[92]: chmod g+w 1.txt
```

```
[93]: ls -l 1.txt
```

```
-rw--w-r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  2 18:04 1.txt
```

```
[94]: chmod o+w 1.txt
      #o = others
```

```
[95]: ls -l 1.txt
```

```
-rw--w-rw- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  2 18:04 1.txt
```

```
[97]: chmod o-w 1.txt
```

```
[98]: ls -l 1.txt
```

```
-rw--w-r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  2 18:04 1.txt
```

```
[99]: chmod u-rw 1.txt
```

```
[100]: ls -l 1.txt
```

```
-----w-r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  2 18:04 1.txt
```

```
[101]: chmod u+wr 1.txt
```

```
[102]: ls -l 1.txt
```

```
-rw--w-r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  2 18:04 1.txt
```

```
[103]: chmod u+wr g+wr o+wr 1.txt #cannot write like that
```

```
chmod: cannot access 'g+wr': No such file or directory
chmod: cannot access 'o+wr': No such file or directory
```

```
[104]: cd
```

```
[108]: ls -f
```

```
.profile   .lesshst            Loop             3.png              1.txt
shared     .ipynb_checkpoints  ..               lessoninfo.ipynb   2.jpg
hw.ipynb   .octave_hist        octave-workspace .bash_history      .cache
.ipython   .jupyter            .bash_logout     lifeisgood         Kenzh.ipynb
.local     .bashrc             untitled.dio     .                  Aruzhan
```

```
[109]: file .local
```

```
.local: directory
```

```
[110]: file untitled.dio
```

```
untitled.dio: ASCII text, with very long lines, with no line terminators
```

```
[112]: file Kenzh.ipynb
```

```
Kenzh.ipynb: UTF-8 Unicode text, with very long lines
```

```
[113]: cd Kenzh.ipynb
```

```
bash: cd: Kenzh.ipynb: Not a directory
```

```
[114]: cd
```

```
[115]: ls -l
```

```
total 208
-rw--w-r-- 1 jupyter-kkenzh jupyter-kkenzh      0 Apr  2 18:04 1.txt
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh      0 Apr  2 18:04 2.jpg
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh      0 Apr  2 18:04 3.png
drwxr-xr-x 4 jupyter-kkenzh jupyter-kkenzh   4096 Mar 28 01:27 Aruzhan
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh  60209 Apr  2 18:37 hw.ipynb
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh 110963 Mar 28 13:58 Kenzh.ipynb
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh   1459 Apr  2 18:08 lessoninfo.ipynb
drwxr-xr-x 4 jupyter-kkenzh jupyter-kkenzh   4096 Mar 21 13:57 lifeisgood
drwxr-xr-x 2 jupyter-kkenzh jupyter-kkenzh   4096 Mar 28 13:05 Loop
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh     54 Mar 19 19:19 octave-workspace
lrwxrwxrwx 1 jupyter-kkenzh jupyter-kkenzh     16 Mar 10 11:57 shared ->
/srv/data/shared
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh  15496 Apr  2 17:25 untitled.dio
```

```
[116]: ls -a
```

```
.        Aruzhan         hw.ipynb           .lesshst            .octave_hist
..       .bash_history   .ipynb_checkpoints lessoninfo.ipynb    octave-workspace
1.txt    .bash_logout    .ipython           lifeisgood          .profile
2.jpg    .bashrc         .jupyter           .local              shared
3.png    .cache          Kenzh.ipynb        Loop                untitled.dio
```

```
[117]: ls -f
```

```
.profile   .lesshst              Loop              3.png               1.txt
shared     .ipynb_checkpoints    ..                lessoninfo.ipynb    2.jpg
hw.ipynb   .octave_hist          octave-workspace  .bash_history       .cache
.ipython   .jupyter              .bash_logout      lifeisgood          Kenzh.ipynb
.local     .bashrc               untitled.dio      .                   Aruzhan
```

```
[2]: touch luck.png
```

```
[4]: ls -l luck.png
```

```
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  4 12:38 luck.png
```

```
[5]: chmod 267 luck.png
```

```
[6]: ls -l luck.png
```

```
--w-rw-rwx 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  4 12:38 luck.png
```

```
[7]: chmod 777 luck.png
```

```
[8]: ls -l luck.png
```

```
-rwxrwxrwx 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  4 12:38 luck.png
```

```
[9]: chmod 600 luck.png
```

```
[10]: ls -l luck.png
```

```
-rw------- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  4 12:38 luck.png
```

```
[11]: chmod 644 luck.png
```

```
[12]: ls -l luck.png
```

```
-rw-r--r-- 1 jupyter-kkenzh jupyter-kkenzh 0 Apr  4 12:38 luck.png
```

```
[13]: cd
```

```
[14]: mkdir permis
```

```
[15]: file permis
```

permis: directory

```
[16]: ls -l permis
      # 1 - read, 2 - write, 4 - execute
```

total 0

```
[18]: ls -ld permis
```

drwxr-xr-x 2 jupyter-kkenzh jupyter-kkenzh 4096 Apr 4 13:21 permis

```
[19]: chmod 700 permis
```

```
[20]: ls -ld permis
```

drwx------ 2 jupyter-kkenzh jupyter-kkenzh 4096 Apr 4 13:21 permis

```
[21]: chmod 600 permis
```

```
[22]: ls -ld permis
```

drw------- 2 jupyter-kkenzh jupyter-kkenzh 4096 Apr 4 13:21 permis

```
[23]: ls -l permis
```

total 0

```
[24]: cd permis
```

bash: cd: permis: Permission denied

```
[25]: pwd
```

/home/jupyter-kkenzh

```
[27]: chmod 700 permis
```

```
[28]: ls -ld permis
```

drwx------ 2 jupyter-kkenzh jupyter-kkenzh 4096 Apr 4 13:21 permis

```
[29]: cd permis
```

```
[30]: pwd
```

/home/jupyter-kkenzh/permis

```
[32]: cd
```

```
[33]: chmod 500 permis
```

```
[34]: ls -ld permis
```

dr-x------ 2 jupyter-kkenzh jupyter-kkenzh 4096 Apr 4 13:21 permis

```
[35]: cd permis
```

```
[36]: pwd
```

/home/jupyter-kkenzh/permis

```
[37]: touch 1.jpg
```

touch: cannot touch '1.jpg': Permission denied

```
[38]: cd ..
```

```
[39]: chmod 500 permis
```

```
[40]: ls -ld permis
```

dr-x------ 2 jupyter-kkenzh jupyter-kkenzh 4096 Apr 4 13:21 permis

```
[41]: ls -l permis
```

total 0

```
[42]: cd permis
```

```
[43]: touch 2.png
```

touch: cannot touch '2.png': Permission denied

```
[44]: cd ..
```

```
[46]: chmod 700 permis
```

```
[47]: ls -ld permis
```

```
drwx------ 2 jupyter-kkenzh jupyter-kkenzh 4096 Apr  4 13:21 permis
```

[48]: `touch 1.txt`

[51]: `file 1.txt`

```
1.txt: ASCII text
```

[53]: `head 1.txt`

```
here is the head of the textfile
(it shows first 10 lines)
```

[55]:
```
head -2  1.txt
# -2 means the command shows first 2 lines
```

```
here is the head of the textfile
(it shows first 10 lines)
```

[58]:
```
tail 1.txt
#also can use numbers
#command above shows last 10 lines by default
```

```
azat
aruzhan
zhanna
unisat
```

[59]: `tail -4 1.txt`

```
azat
aruzhan
zhanna
unisat
```

[60]: `cd`

[61]: `touch a.txt`

[62]:
```
cat a.txt
#cathedral
#shows all the content
```

```
dogs cats
dragons 1.2
lololo
new era

cinema is closed
```

[63]:
```
#sort [-option] [path]
#sorts the data in alphabetical way
```

[64]:
```
cat a.txt
```

```
dogs cats
dragons 1.2
lololo
new era

cinema is closed
```

[65]:
```
sort a.txt
```

```
cinema is closed
dogs cats
dragons 1.2
lololo
new era
```

[66]:
```
man sort
```

```
SORT(1)                          User Commands                          SORT(1)

NAME
       sort - sort lines of text files

SYNOPSIS
       sort [OPTION]… [FILE]…
       sort [OPTION]… --files0-from=F

DESCRIPTION
       Write sorted concatenation of all FILE(s) to standard output.

       With no FILE, or when FILE is -, read standard input.

       Mandatory  arguments  to  long  options are mandatory for short options
       too.  Ordering options:

       -b, --ignore-leading-blanks
```

```
              ignore leading blanks

-d, --dictionary-order
        consider only blanks and alphanumeric characters

-f, --ignore-case
        fold lower case to upper case characters

-g, --general-numeric-sort
        compare according to general numerical value

-i, --ignore-nonprinting
        consider only printable characters

-M, --month-sort
        compare (unknown) < 'JAN' < … < 'DEC'

-h, --human-numeric-sort
        compare human readable numbers (e.g., 2K 1G)

-n, --numeric-sort
        compare according to string numerical value

-R, --random-sort
        shuffle, but group identical keys.  See shuf(1)

--random-source=FILE
        get random bytes from FILE

-r, --reverse
        reverse the result of comparisons

--sort=WORD
        sort according to WORD: general-numeric  -g,  human-numeric  -h,
        month -M, numeric -n, random -R, version -V

-V, --version-sort
        natural sort of (version) numbers within text

Other options:

--batch-size=NMERGE
        merge at most NMERGE inputs at once; for more use temp files

-c, --check, --check=diagnose-first
        check for sorted input; do not sort

-C, --check=quiet, --check=silent
```

```
        like -c, but do not report first bad line

--compress-program=PROG
        compress temporaries with PROG; decompress them with PROG -d

--debug
        annotate the part of the line used to sort, and warn about ques-
        tionable usage to stderr

--files0-from=F
        read input from the files specified by NUL-terminated  names  in
        file F; If F is - then read names from standard input

-k, --key=KEYDEF
        sort via a key; KEYDEF gives location and type

-m, --merge
        merge already sorted files; do not sort

-o, --output=FILE
        write result to FILE instead of standard output

-s, --stable
        stabilize sort by disabling last-resort comparison

-S, --buffer-size=SIZE
        use SIZE for main memory buffer

-t, --field-separator=SEP
        use SEP instead of non-blank to blank transition

-T, --temporary-directory=DIR
        use  DIR  for temporaries, not $TMPDIR or /tmp; multiple options
        specify multiple directories

--parallel=N
        change the number of sorts run concurrently to N

-u, --unique
        with -c, check for strict ordering; without -c, output only  the
        first of an equal run

-z, --zero-terminated
        line delimiter is NUL, not newline

--help display this help and exit

--version
```

```
       output version information and exit

KEYDEF  is F[.C][OPTS][,F[.C][OPTS]] for start and stop position, where
F is a field number and C a character position in the field;  both  are
origin 1, and the stop position defaults to the line's end.  If neither
-t nor -b is in effect, characters in a  field  are  counted  from  the
beginning of the preceding whitespace.  OPTS is one or more single-let-
ter ordering options  [bdfgiMhnRrV],  which  override  global  ordering
options  for  that key.  If no key is given, use the entire line as the
key.  Use --debug to diagnose incorrect key usage.

SIZE may be followed by the following multiplicative suffixes: % 1%  of
memory, b 1, K 1024 (default), and so on for M, G, T, P, E, Z, Y.

*** WARNING *** The locale specified by the environment affects sort
order.  Set LC_ALL=C to get the traditional sort order that uses native
byte values.
```

AUTHOR
        Written by Mike Haertel and Paul Eggert.

REPORTING BUGS
        GNU coreutils online help: <http://www.gnu.org/software/coreutils/>
        Report sort translation bugs to <http://translationproject.org/team/>

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        GPL version 3 or later <http://gnu.org/licenses/gpl.html>.
        This is free software: you are free to change and redistribute it.
        There is NO WARRANTY, to the extent permitted by law.

SEE ALSO
        shuf(1), uniq(1)

        Full documentation at: <http://www.gnu.org/software/coreutils/sort>
        or available locally via: info '(coreutils) sort invocation'

GNU coreutils 8.28   January 2018   SORT(1)

[67]: # nl -- number line

[68]: nl a.txt

     1 dogs cats
     2 dragons 1.2
     3 lololo
     4 new era
```

```
    5  cinema is closed
```

[69]: `nl -s '. ' -w 10 a.txt`

```
        1. dogs cats
        2. dragons 1.2
        3. lololo
        4. new era

        5. cinema is closed
```

[70]: `# nl -s (means separater) -w (width)`

[71]: `nl -s '*.  ' -w 2 a.txt`

```
 1*.  dogs cats
 2*.  dragons 1.2
 3*.  lololo
 4*.  new era

 5*.  cinema is closed
```

[72]: `# wc -- word count`
`#wc [-option][path]`

[73]: `wc a.txt`
`#5 (actually 6, but linux starts with 0) - lines; 10 - words, 57 - characters`

```
 5 10 57 a.txt
```

[74]: `wc -l a.txt`

```
 5 a.txt
```

[75]: `wc -w a.txt`

```
 10 a.txt
```

[76]: `wc -m a.txt`

```
 57 a.txt
```

[77]: `# cut  [-options][path]`
`#field == column`

[79]: `cut -f 1 -d ' ' a.txt`
`#deliminator - where to divide`

```
dogs
dragons
lololo
new

cinema
```

[80]: `cut -f 1,2 -d ' ' a.txt`

```
dogs cats
dragons 1.2
lololo
new era

cinema is
```

[81]: *#uniq - unique*

[82]: `cat a.txt`

```
dogs cats 2
dragons 1.2
lololo
new era 4
cinema new cats
dogs
cinema is closed
```

[83]: `uniq a.txt`

```
dogs cats 2
dragons 1.2
lololo
new era 4
cinema new cats
dogs
cinema is closed
```

[84]: `cat a.txt`

```
dogs cats 2
dragons 1.2
lololo
new era 4
cinema new cats
dogs
cinema is closed
```

```
[86]: #cat -- tac (gives data in reversed way)
```

```
[87]: tac a.txt
```

```
cinema is closed dogs
cinema new cats
new era 4
lololo
dragons 1.2
dogs cats 2
```

```
[1]: # shotcut to change to text mode:
     #first ESC then m
```

```
[2]: cd
```

```
[5]: touch mysampledata.txt
```

```
[6]: cat mysampledata.txt
```

```
Fred apples 20
Susy oranges 5
Susy oranges 5
Susy oranges 5
Mark watermellons 12
Robert pears 4
Terry oranges 9
Lisa peaches 7
Susy oranges 12
Mark grapes 39
Mark grapes 39
Anne mangoes 7
Greg pineapples 3
Oliver rockmellons 2
Betty limes 14
```

```
[7]: # egrep [command line options] <pattern> [path] - search for some keywords,␣
     ↪pattern can be a picture = any data
```

```
[8]: man egrep
```

```
GREP(1)                        User Commands                        GREP(1)


NAME
       grep, egrep, fgrep, rgrep - print lines matching a pattern

SYNOPSIS
       grep [OPTIONS] PATTERN [FILE…]
```

```
       grep [OPTIONS] -e PATTERN … [FILE…]
       grep [OPTIONS] -f FILE … [FILE…]


DESCRIPTION
       grep  searches  for  PATTERN  in  each  FILE.  A FILE of "-" stands for
       standard input.  If no FILE is given, recursive  searches  examine  the
       working  directory,  and nonrecursive searches read standard input.  By
       default, grep prints the matching lines.

       In addition, the variant programs egrep, fgrep and rgrep are  the  same
       as  grep -E,  grep -F,  and  grep -r, respectively.  These variants are
       deprecated, but are provided for backward compatibility.


OPTIONS
   Generic Program Information
       --help Output a usage message and exit.

       -V, --version
              Output the version number of grep and exit.


   Matcher Selection
       -E, --extended-regexp
              Interpret PATTERN as an extended regular  expression  (ERE,  see
              below).

       -F, --fixed-strings
              Interpret PATTERN as a list of fixed strings (instead of regular
              expressions), separated by newlines,  any  of  which  is  to  be
              matched.

       -G, --basic-regexp
              Interpret  PATTERN  as  a  basic  regular  expression (BRE, see
              below).  This is the default.

       -P, --perl-regexp
              Interpret the pattern as a  Perl-compatible  regular  expression
              (PCRE).   This  is  experimental  and  grep -P  may  warn  of
              unimplemented features.


   Matching Control
       -e PATTERN, --regexp=PATTERN
              Use PATTERN as the pattern. If this  option  is  used  multiple
              times or is combined with the -f (--file) option, search for all
              patterns given.  This option can be used to  protect  a  pattern
              beginning with "-".

       -f FILE, --file=FILE
              Obtain patterns from FILE, one per line.  If this option is used
```

multiple times or is combined with the -e (--regexp) option,
search for all patterns given. The empty file contains zero
patterns, and therefore matches nothing.

-i, --ignore-case
       Ignore case distinctions, so that characters that differ only in
       case match each other.

-v, --invert-match
       Invert the sense of matching, to select non-matching lines.

-w, --word-regexp
       Select only those lines containing matches that form whole
       words. The test is that the matching substring must either be
       at the beginning of the line, or preceded by a non-word
       constituent character. Similarly, it must be either at the end
       of the line or followed by a non-word constituent character.
       Word-constituent characters are letters, digits, and the
       underscore. This option has no effect if -x is also specified.

-x, --line-regexp
       Select only those matches that exactly match the whole line.
       For a regular expression pattern, this is like parenthesizing
       the pattern and then surrounding it with ^ and $.

-y   Obsolete synonym for -i.

General Output Control
   -c, --count
       Suppress normal output; instead print a count of matching lines
       for each input file. With the -v, --invert-match option (see
       below), count non-matching lines.

   --color[=WHEN], --colour[=WHEN]
       Surround the matched (non-empty) strings, matching lines,
       context lines, file names, line numbers, byte offsets, and
       separators (for fields and groups of context lines) with escape
       sequences to display them in color on the terminal. The colors
       are defined by the environment variable GREP_COLORS. The
       deprecated environment variable GREP_COLOR is still supported,
       but its setting does not have priority. WHEN is never, always,
       or auto.

   -L, --files-without-match
       Suppress normal output; instead print the name of each input
       file from which no output would normally have been printed. The
       scanning will stop on the first match.

```
-l, --files-with-matches
        Suppress normal output; instead print the  name  of  each  input
        file  from  which  output would normally have been printed.  The
        scanning will stop on the first match.

-m NUM, --max-count=NUM
        Stop reading a file after NUM matching lines.  If the  input  is
        standard  input  from a regular file, and NUM matching lines are
        output, grep ensures that the standard input  is  positioned  to
        just  after the last matching line before exiting, regardless of
        the presence of trailing context lines.  This enables a  calling
        process  to resume a search.  When grep stops after NUM matching
        lines, it outputs any trailing context lines.  When  the  -c  or
        --count  option  is  also  used, grep does  not output a count
        greater than NUM.  When the -v or --invert-match option is  also
        used, grep stops after outputting NUM non-matching lines.

-o, --only-matching
        Print  only  the  matched  (non-empty) parts of a matching line,
        with each such part on a separate output line.

-q, --quiet, --silent
        Quiet;  do  not  write  anything  to  standard   output.    Exit
        immediately  with  zero status if any match is found, even if an
        error was detected.  Also see the -s or --no-messages option.

-s, --no-messages
        Suppress error messages about nonexistent or unreadable files.

Output Line Prefix Control
    -b, --byte-offset
        Print the 0-based byte offset within the input file before  each
        line of output.  If -o (--only-matching) is specified, print the
        offset of the matching part itself.

    -H, --with-filename
        Print the file name for each match.  This is  the  default  when
        there is more than one file to search.

    -h, --no-filename
        Suppress  the  prefixing  of  file names on output.  This is the
        default when there is only one file (or only standard input)  to
        search.

    --label=LABEL
        Display  input  actually  coming  from  standard  input as input
        coming  from  file  LABEL.   This  is  especially  useful   when
        implementing  tools  like  zgrep,  e.g.,  gzip -cd foo.gz | grep
```

```
                --label=foo -H something.  See also the -H option.

       -n, --line-number
                Prefix each line of output with the 1-based line  number  within
                its input file.

       -T, --initial-tab
                Make  sure  that the first character of actual line content lies
                on a tab stop, so that the alignment of tabs looks normal.  This
                is  useful  with  options that prefix their output to the actual
                content: -H,-n, and -b.  In order  to  improve  the  probability
                that lines from a single file will all start at the same column,
                this also causes the line number and byte offset (if present) to
                be printed in a minimum size field width.

       -u, --unix-byte-offsets
                Report  Unix-style  byte  offsets.   This  switch causes grep to
                report byte offsets as if the file were a Unix-style text  file,
                i.e.,  with  CR  characters  stripped  off.   This  will produce
                results identical to running  grep  on  a  Unix  machine.   This
                option  has  no  effect unless -b option is also used; it has no
                effect on platforms other than MS-DOS and MS-Windows.

       -Z, --null
                Output a zero byte (the ASCII  NUL  character)  instead  of  the
                character  that normally follows a file name.  For example, grep
                -lZ outputs a zero byte after each  file  name  instead  of  the
                usual  newline.   This option makes the output unambiguous, even
                in the presence of file names containing unusual characters like
                newlines.   This  option  can  be  used  with commands like find
                -print0, perl -0, sort -z, and xargs  -0  to  process  arbitrary
                file names, even those that contain newline characters.

   Context Line Control
       -A NUM, --after-context=NUM
                Print  NUM  lines  of  trailing  context  after  matching lines.
                Places  a  line  containing  a  group  separator  (--)   between
                contiguous  groups  of  matches.  With the -o or --only-matching
                option, this has no effect and a warning is given.

       -B NUM, --before-context=NUM
                Print NUM  lines  of  leading  context  before  matching  lines.
                Places   a  line  containing  a  group  separator  (--)  between
                contiguous groups of matches.  With the  -o  or  --only-matching
                option, this has no effect and a warning is given.

       -C NUM, -NUM, --context=NUM
                Print  NUM  lines of output context.  Places a line containing a
```

group separator (--) between contiguous groups of matches. With
the -o or --only-matching option, this has no effect and a
warning is given.

File and Directory Selection
    -a, --text
            Process a binary file as if it were text; this is equivalent to
            the --binary-files=text option.

    --binary-files=TYPE
            If a file's data or metadata indicate that the file contains
            binary data, assume that the file is of type TYPE.   Non-text
            bytes indicate binary data; these are either output bytes that
            are improperly encoded for the current locale, or null input
            bytes when the -z option is not given.

            By default, TYPE is binary, and when grep discovers that a file
            is binary it suppresses any further output, and instead outputs
            either a one-line message saying that a binary file matches, or
            no message if there is no match.

            If TYPE is without-match, when grep discovers that a file is
            binary it assumes that the rest of the file does not match; this
            is equivalent to the -I option.

            If TYPE is text, grep processes a binary file as if it were
            text; this is equivalent to the -a option.

            When type is binary, grep may treat non-text bytes as line
            terminators even without the -z option.   This means choosing
            binary versus text can affect whether a pattern matches a file.
            For example, when type is binary the pattern q$ might match q
            immediately followed by a null byte, even though this is not
            matched when type is text. Conversely, when type is binary the
            pattern . (period) might not match a null byte.

            Warning: The -a option might output binary garbage, which can
            have nasty side effects if the output is a terminal and if the
            terminal driver interprets some of it as commands. On the other
            hand, when reading files whose text encodings are unknown, it
            can be helpful to use -a or to set LC_ALL='C' in the
            environment, in order to find more matches even if the matches
            are unsafe for direct display.

    -D ACTION, --devices=ACTION
            If an input file is a device, FIFO or socket, use ACTION to
            process it. By default, ACTION is read, which means that
            devices are read just as if they were ordinary files. If ACTION

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is skip, devices are silently skipped.

-d ACTION, --directories=ACTION
        If an input file is a directory, use ACTION to process it.   By
        default, ACTION is read, i.e., read directories just as if they
        were ordinary files.   If ACTION is skip,   silently   skip
        directories.   If ACTION is recurse, read all files under each
        directory, recursively, following symbolic links only if they
        are on the command line. This is equivalent to the -r option.

--exclude=GLOB
        Skip any command-line file with a name suffix that matches the
        pattern GLOB, using wildcard matching; a name suffix is either
        the whole name, or any suffix starting after a / and before a
        +non-/. When searching recursively, skip any subfile whose base
        name matches GLOB; the base name is the part after the last /.
        A pattern can use *, ?, and […] as wildcards, and \ to quote
        a wildcard or backslash character literally.

--exclude-from=FILE
        Skip files whose base name matches any of the file-name globs
        read from FILE (using wildcard matching as described under
        --exclude).

--exclude-dir=GLOB
        Skip any command-line directory with a name suffix that matches
        the pattern GLOB.   When searching recursively,   skip   any
        subdirectory whose base name matches GLOB. Ignore any redundant
        trailing slashes in GLOB.

-I   Process a binary file as if it did not contain matching data;
        this is equivalent to the --binary-files=without-match option.

--include=GLOB
        Search only files whose base name matches GLOB (using wildcard
        matching as described under --exclude).

-r, --recursive
        Read all files under each directory, recursively, following
        symbolic links only if they are on the command line. Note that
        if no file operand is given, grep searches the working
        directory. This is equivalent to the -d recurse option.

-R, --dereference-recursive
        Read all files under each directory, recursively. Follow all
        symbolic links, unlike -r.

Other Options

--line-buffered
> Use line buffering on output.   This can cause a performance penalty.

-U, --binary
> Treat the file(s) as binary. By default, under MS-DOS and MS-Windows, grep guesses whether a file is text or binary as described for the --binary-files option. If grep decides the file is a text file, it strips the CR characters from the original file contents (to make regular expressions with ^ and $ work correctly).   Specifying -U overrules this guesswork, causing all files to be read and passed to the matching mechanism verbatim; if the file is a text file with CR/LF pairs at   the   end of each line, this will cause some regular expressions to fail. This option has no effect on platforms other than MS-DOS and MS-Windows.

-z, --null-data
> Treat input and output data as sequences of lines, each terminated by a zero byte (the ASCII NUL character) instead of a newline.   Like the -Z or --null option, this option can be used with commands like sort -z to process arbitrary file names.

REGULAR EXPRESSIONS

A regular expression is a pattern that describes a set of strings. Regular   expressions   are   constructed   analogously to arithmetic expressions, by using various operators to combine smaller expressions.

grep understands three different versions of regular expression syntax: "basic" (BRE), "extended" (ERE) and "perl" (PCRE). In GNU grep there is no difference in available functionality between basic and extended syntaxes.   In other implementations, basic regular expressions are less powerful.   The following description applies to extended regular expressions; differences for basic regular expressions are summarized afterwards.   Perl-compatible regular expressions give   additional functionality,   and are documented in pcresyntax(3) and pcrepattern(3), but work only if PCRE is available in the system.

The fundamental building blocks are the regular expressions that match a single character. Most characters, including all letters and digits, are regular expressions that match themselves. Any meta-character with special meaning may be quoted by preceding it with a backslash.

The period . matches any single character.

Character Classes and Bracket Expressions

A bracket expression is a list of characters enclosed by [and]. It matches any single character in that list; if the first character of

the list is the caret ^ then it matches any character not in the list.
For example, the regular expression [0123456789] matches any single
digit.

Within a bracket expression, a range expression consists of two
characters separated by a hyphen. It matches any single character that
sorts between the two characters, inclusive, using the locale's
collating sequence and character set. For example, in the default C
locale, [a-d] is equivalent to [abcd]. Many locales sort characters in
dictionary order, and in these locales [a-d] is typically not
equivalent to [abcd]; it might be equivalent to [aBbCcDd], for example.
To obtain the traditional interpretation of bracket expressions, you
can use the C locale by setting the LC_ALL environment variable to the
value C.

Finally, certain named classes of characters are predefined within
bracket expressions, as follows. Their names are self explanatory, and
they are [:alnum:], [:alpha:], [:cntrl:], [:digit:], [:graph:],
[:lower:], [:print:], [:punct:], [:space:], [:upper:], and [:xdigit:].
For example, [[:alnum:]] means the character class of numbers and
letters in the current locale. In the C locale and ASCII character set
encoding, this is the same as [0-9A-Za-z]. (Note that the brackets in
these class names are part of the symbolic names, and must be included
in addition to the brackets delimiting the bracket expression.) Most
meta-characters lose their special meaning inside bracket expressions.
To include a literal] place it first in the list. Similarly, to
include a literal ^ place it anywhere but first. Finally, to include a
literal - place it last.

Anchoring
    The caret ^ and the dollar sign $ are meta-characters that respectively
    match the empty string at the beginning and end of a line.

The Backslash Character and Special Expressions
    The symbols \< and \> respectively match the empty string at the
    beginning and end of a word. The symbol \b matches the empty string at
    the edge of a word, and \B matches the empty string provided it's not
    at the edge of a word. The symbol \w is a synonym for [_[:alnum:]] and
    \W is a synonym for [^_[:alnum:]].

Repetition
    A regular expression may be followed by one of several repetition
    operators:
    ?   The preceding item is optional and matched at most once.
    *   The preceding item will be matched zero or more times.
    +   The preceding item will be matched one or more times.
    {n}   The preceding item is matched exactly n times.
    {n,}   The preceding item is matched n or more times.

{,m}   The preceding item is matched at most m times. This is a GNU
       extension.
{n,m} The preceding item is matched at least n times, but not more
       than m times.

Concatenation
     Two regular expressions may be concatenated; the resulting regular
     expression matches any string formed by concatenating two substrings
     that respectively match the concatenated expressions.

Alternation
     Two regular expressions may be joined by the infix operator |; the
     resulting regular expression matches any string matching either
     alternate expression.

Precedence
     Repetition takes precedence over concatenation, which in turn takes
     precedence over alternation.   A whole expression may be enclosed in
     parentheses to override these precedence rules and form a
     subexpression.

Back References and Subexpressions
     The back-reference \n, where n is a single digit, matches the substring
     previously matched by the nth parenthesized subexpression of the
     regular expression.

Basic vs Extended Regular Expressions
     In basic regular expressions the meta-characters ?, +, {, |, (, and)
     lose their special meaning; instead use the backslashed versions \?,
     \+, \{, \|, \(, and \).

ENVIRONMENT VARIABLES
     The behavior of grep is affected by the following environment
     variables.

     The locale for category LC_foo is specified by examining the three
     environment variables LC_ALL, LC_foo, LANG, in that order. The first
     of these variables that is set specifies the locale. For example, if
     LC_ALL is not set, but LC_MESSAGES is set to pt_BR, then the Brazilian
     Portuguese locale is used for the LC_MESSAGES category. The C locale
     is used if none of these environment variables are set, if the locale
     catalog is not installed, or if grep was not compiled with national
     language support (NLS). The shell command locale -a lists locales that
     are currently available.

     GREP_OPTIONS
          This variable specifies default options to be placed in front of
          any explicit options.   As this causes problems when writing

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portable scripts, this feature will be removed in a future release of grep, and grep warns if it is used. Please use an alias or script instead.

GREP_COLOR
This variable specifies the color used to highlight matched (non-empty) text. It is deprecated in favor of GREP_COLORS, but still supported. The mt, ms, and mc capabilities of GREP_COLORS have priority over it. It can only specify the color used to highlight the matching non-empty text in any matching line (a selected line when the -v command-line option is omitted, or a context line when -v is specified). The default is 01;31, which means a bold red foreground text on the terminal's default background.

GREP_COLORS
Specifies the colors and other attributes used to highlight various parts of the output. Its value is a colon-separated list of capabilities that defaults to ms=01;31:mc=01;31:sl=:cx=:fn=35:ln=32:bn=32:se=36 with the rv and ne boolean capabilities omitted (i.e., false). Supported capabilities are as follows.

sl=   SGR substring for whole selected lines (i.e., matching lines when the -v command-line option is omitted, or non-matching lines when -v is specified). If however the boolean rv capability and the -v command-line option are both specified, it applies to context matching lines instead. The default is empty (i.e., the terminal's default color pair).

cx=   SGR substring for whole context lines (i.e., non-matching lines when the -v command-line option is omitted, or matching lines when -v is specified). If however the boolean rv capability and the -v command-line option are both specified, it applies to selected non-matching lines instead. The default is empty (i.e., the terminal's default color pair).

rv   Boolean value that reverses (swaps) the meanings of the sl= and cx= capabilities when the -v command-line option is specified. The default is false (i.e., the capability is omitted).

mt=01;31
        SGR substring for matching non-empty text in any matching line (i.e., a selected line when the -v command-line option is omitted, or a context line when -v is

specified).   Setting this is equivalent to setting both
ms= and mc= at once to the same value. The default is a
bold   red   text   foreground   over   the   current   line
background.

ms=01;31
SGR substring for matching non-empty text in a selected
line. (This is only used when the -v command-line option
is omitted.) The effect of the sl= (or cx= if rv)
capability remains active when this kicks in.   The
default is a bold red text foreground over the current
line background.

mc=01;31
SGR substring for matching non-empty text in a context
line. (This is only used when the -v command-line option
is specified.)   The effect of the cx= (or sl= if rv)
capability remains active when this kicks in.   The
default is a bold red text foreground over the current
line background.

fn=35   SGR substring for file names prefixing any content line.
        The default is a magenta text foreground over the
        terminal's default background.

ln=32   SGR substring for line numbers prefixing any content
        line.   The default is a green text foreground over the
        terminal's default background.

bn=32   SGR substring for byte offsets prefixing any content
        line.   The default is a green text foreground over the
        terminal's default background.

se=36   SGR substring for separators that are inserted between
        selected line fields (:), between context line fields,
        (-), and between groups of adjacent lines when nonzero
        context is specified (--). The default is a cyan text
        foreground over the terminal's default background.

ne   Boolean value that prevents clearing to the end of line
        using Erase in Line (EL) to Right (\33[K) each time a
        colorized item ends. This is needed on terminals on
        which EL is not supported. It is otherwise useful on
        terminals for which the back_color_erase (bce) boolean
        terminfo capability does not apply, when the chosen
        highlight colors do not affect the background, or when EL
        is too slow or causes too much flicker. The default is
        false (i.e., the capability is omitted).

Note that boolean capabilities have no =…   part.   They   are
omitted (i.e., false) by default and become true when specified.

See   the   Select   Graphic Rendition (SGR) section in the
documentation of the text terminal that is used for permitted
values   and   their   meaning   as   character attributes.   These
substring values are integers in decimal representation and can
be concatenated with semicolons. grep takes care of assembling
the result into a complete SGR sequence (\33[…m).   Common
values to concatenate include 1 for bold, 4 for underline, 5 for
blink, 7 for inverse, 39 for default foreground color, 30 to 37
for foreground colors, 90 to 97 for 16-color mode foreground
colors, 38;5;0 to 38;5;255 for 88-color and 256-color modes
foreground colors, 49 for default background color, 40 to 47 for
background colors, 100 to 107 for 16-color mode background
colors, and 48;5;0 to 48;5;255 for 88-color and 256-color modes
background colors.

LC_ALL, LC_COLLATE, LANG
        These variables specify the locale for the LC_COLLATE category,
        which determines the collating sequence used to interpret range
        expressions like [a-z].

LC_ALL, LC_CTYPE, LANG
        These variables specify the locale for the LC_CTYPE category,
        which determines the type of characters, e.g., which characters
        are whitespace. This category also determines the character
        encoding, that is, whether text is encoded in UTF-8, ASCII, or
        some other encoding. In the C or POSIX locale, all characters
        are encoded as a single byte and every byte is a valid
        character.

LC_ALL, LC_MESSAGES, LANG
        These variables specify the locale for the LC_MESSAGES category,
        which determines the language that grep uses for messages. The
        default C locale uses American English messages.

POSIXLY_CORRECT
        If set, grep behaves as POSIX requires; otherwise, grep behaves
        more like other GNU programs. POSIX requires that options that
        follow file names must be treated as file names; by default,
        such options are permuted to the front of the operand list and
        are treated as options. Also, POSIX requires that unrecognized
        options be diagnosed as "illegal", but since they are not really
        against the law the default is to diagnose them as "invalid".
        POSIXLY_CORRECT   also   disables   _N_GNU_nonoption_argv_flags_,
        described below.

_N_GNU_nonoption_argv_flags_

      (Here N is grep's numeric process ID.) If the ith character of
      this environment variable's value is 1, do not consider the ith
      operand of grep to be an option, even if it appears to be one.
      A shell can put this variable in the environment for each
      command it runs, specifying which operands are the results of
      file name wildcard expansion and therefore should not be treated
      as options. This behavior is available only with the GNU C
      library, and only when POSIXLY_CORRECT is not set.

EXIT STATUS

Normally the exit status is 0 if a line is selected, 1 if no lines were
selected, and 2 if an error occurred. However, if the -q or --quiet or
--silent is used and a line is selected, the exit status is 0 even if
an error occurred.

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PURPOSE.

BUGS

Reporting Bugs

Email bug reports to the bug-reporting address bug-grep@gnu.org . An
email archive http://lists.gnu.org/mailman/listinfo/bug-grep and a
bug tracker http://debbugs.gnu.org/cgi/pkgreport.cgi?package=grep are
available.

Known Bugs

Large repetition counts in the {n,m} construct may cause grep to use
lots of memory. In addition, certain other obscure regular expressions
require exponential time and space, and may cause grep to run out of
memory.

Back-references are very slow, and may require exponential time.

SEE ALSO

Regular Manual Pages

awk(1), cmp(1), diff(1), find(1), gzip(1), perl(1), sed(1), sort(1),
xargs(1), zgrep(1), read(2), pcre(3), pcresyntax(3), pcrepattern(3),
terminfo(5), glob(7), regex(7).

POSIX Programmer's Manual Page

grep(1p).

```
    Full Documentation
        A   complete   manual   http://www.gnu.org/software/grep/manual/   is
        available.   If   the   info   and grep programs are properly installed at
        your site, the command

                info grep

        should give you access to the complete manual.

    NOTES
        This man page is maintained only fitfully; the  full  documentation  is
        often more up-to-date.

    GNU grep 3.1                        2017-06-21                        GREP(1)
```

[9]: `egrep 'Susy' mysampledata.txt #gives all the line that contains the keyword`

```
Susy oranges 5
Susy oranges 5
Susy oranges 5
Susy oranges 12
```

[11]: `egrep -n 'mellon' mysampledata.txt # -n shows the line numbers that contains↵`
      `↪the keyword + the line with that keyword`

```
5:Mark watermellons 12
14:Oliver rockmellons 2
```

[12]: `egrep -c 'mellon' mysampledata.txt # shows only the numbers/amount of lines↵`
      `↪that contains keywords`

```
2
```

1   REGULAR EXPRESSIONS == higher level of wildcards

'.' (dot) - a single character

'?' (question mark) - 0 or 1 time only

'*' (star) - 0 or more

'+' - 1 or more

'{n}' - exactly n times

'{n,m}' - n to m '[n, m)'

'[agd]' - one of those characters a g d

'[^agd]' - NOT one of them inside

'[c-f]' - from c to f, so that is c, d, e, f

'()' - group

'|' (pipe) OR '^' - the beginning of a line

'$' - the end of the line

```
[16]: egrep '[aeiou]' mysampledata.txt
```

```
Fred apples 20
Susy oranges 5
Susy oranges 5
Susy oranges 5
Mark watermellons 12
Robert pears 4
Terry oranges 9
Lisa peaches 7
Susy oranges 12
Mark grapes 39
Mark grapes 39
Anne mangoes 7
Greg pineapples 3
Oliver rockmellons 2
Betty limes 14
```

```
[18]: egrep '[aeiou]{2,}' mysampledata.txt # 2 or more vowels
```

```
Robert pears 4
Lisa peaches 7
Anne mangoes 7
Greg pineapples 3
```

```
[19]: egrep '2' mysampledata.txt
```

```
Fred apples 20
Mark watermellons 12
Susy oranges 12
Oliver rockmellons 2
```

```
[20]: egrep '2.' mysampledata.txt
```

```
Fred apples 20
```

```
[21]: egrep '2.+' mysampledata.txt
```

```
Fred apples 20
```

```
[33]: egrep '2$' mysampledata.txt
```

```
Mark watermellons 12
Susy oranges 12
Oliver rockmellons 2
```

[34]: `egrep '^A' mysampledata.txt`

```
Anne mangoes 7
```

[40]: `egrep 'is|or|go' mysampledata.txt`

```
Susy oranges 5
Susy oranges 5
Susy oranges 5
Terry oranges 9
Lisa peaches 7
Susy oranges 12
Anne mangoes 7
```

[41]: `egrep '^[A-K]' mysampledata.txt`

```
Fred apples 20
Anne mangoes 7
Greg pineapples 3
Betty limes 14
```

[42]: `ls`

```
1.txt     Kenzh_hw4.ipynb        lifeisgood  mysampledata.txt  shared
Aruzhan   lessoninfo.ipynb       Loop        octave-workspace
a.txt     lessonpractical.ipynb  luck.png    permis
```

[43]: `touch myoutput`

[44]: `ls > myoutput`

[45]: `pwd`

```
/home/jupyter-kkenzh
```

[46]: `file myoutput`

```
myoutput: ASCII text
```

[47]: `cat myoutput`

```
1.txt
Aruzhan
a.txt
Kenzh_hw4.ipynb
```

```
lessoninfo.ipynb
lessonpractical.ipynb
lifeisgood
Loop
luck.png
myoutput
mysampledata.txt
octave-workspace
permis
shared
```

[48]: `ls`

```
1.txt     Kenzh_hw4.ipynb         lifeisgood   myoutput           permis
Aruzhan   lessoninfo.ipynb        Loop         mysampledata.txt   shared
a.txt     lessonpractical.ipynb   luck.png     octave-workspace
```

[50]: `echo 'blahblah'`

```
blahblah
```

[51]: `echo 'blahblah' > myoutput`

[53]: `cat myoutput`

```
blahblah
```

[54]: `ls`

```
1.txt     Kenzh_hw4.ipynb         lifeisgood   myoutput           permis
Aruzhan   lessoninfo.ipynb        Loop         mysampledata.txt   shared
a.txt     lessonpractical.ipynb   luck.png     octave-workspace
```

[55]: `ls >> myoutput` *#save the previous data too, if only > so it deletes previous*␣
       ↪*data and writes the new one*

[56]: `cat myoutput`

```
blahblah
1.txt
Aruzhan
a.txt
Kenzh_hw4.ipynb
lessoninfo.ipynb
lessonpractical.ipynb
lifeisgood
Loop
luck.png
```

```
myoutput
mysampledata.txt
octave-workspace
permis
shared
```

[57]: `wc -l myoutput`

```
15 myoutput
```

[58]: `wc -l < myoutput`

```
15
```

[59]:
```
# difference is not great, but if we use the < that means send data to sdin?? i␣
↪don't really understand that point
# ...(receiver)<... (sender)
```

[60]: `wc -l < myoutput >> myoutput2`

[61]: `tac myoutput2`

```
15
```

[63]: `!p`

```
pwd
/home/jupyter-kkenzh
```

[66]: `ls`

```
1.txt     Kenzh_hw4.ipynb        lifeisgood   myoutput          octave-workspace
Aruzhan   lessoninfo.ipynb       Loop         myoutput2         permis
a.txt     lessonpractical.ipynb  luck.png     mysampledata.txt  shared
```

[67]: `!l`

```
ls
1.txt     Kenzh_hw4.ipynb        lifeisgood   myoutput          octave-workspace
Aruzhan   lessoninfo.ipynb       Loop         myoutput2         permis
a.txt     lessonpractical.ipynb  luck.png     mysampledata.txt  shared
```

[68]: `cd cs_books`

```
bash: cd: cs_books: No such file or directory
```

[71]: `cd /`

```
[72]: !p

      pwd
      /

[73]: ls

      bin     etc                lib          mkdir   root   srv        usr
      boot    home               lib64        mnt     run    swap.img   var
      cdrom   initrd.img         lost+found   opt     sbin   sys        vmlinuz
      dev     initrd.img.old     media        proc    snap   tmp        vmlinuz.old

[1]:  #Process Management
      #ps stands for process
      #

[2]:  ps

        PID TTY          TIME CMD
       7660 pts/2    00:00:00 bash
       8795 pts/2    00:00:00 ps

[3]:  ps au

      USER        PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
      root       1340  0.0  0.0  14888  1908 tty1     Ss+  Apr09   0:00 /sbin/agetty -o
      jupyter+   7620  0.0  0.0  21360  4852 pts/0    Ss+  17:05   0:00 /bin/bash --rcf
      jupyter+   7641  0.0  0.0  21360  4908 pts/1    Ss+  17:05   0:00 /bin/bash --rcf
      jupyter+   7660  0.0  0.0  21360  5048 pts/2    Ss   17:05   0:00 /bin/bash --rcf
      jupyter+   7779  0.0  0.0  21364  4960 pts/3    Ss+  17:11   0:00 /bin/bash --rcf
      jupyter+   7863  0.0  0.0  21364  4976 pts/4    Ss+  17:12   0:00 /bin/bash --rcf
      jupyter+   7923  0.0  0.0  21364  4932 pts/5    Ss+  17:12   0:00 /bin/bash --rcf
      jupyter+   7945  0.0  0.0  21364  4960 pts/6    Ss+  17:12   0:00 /bin/bash --rcf
      jupyter+   7981  0.0  0.0  21364  4964 pts/7    Ss+  17:13   0:00 /bin/bash --rcf
      jupyter+   8091  0.0  0.0  21360  4852 pts/8    Ss+  17:14   0:00 /bin/bash --rcf
      jupyter+   8118  0.0  0.0  21360  4820 pts/9    Ss+  17:14   0:00 /bin/bash --rcf
      jupyter+   8313  0.0  0.0  21464  5168 pts/11   Ss+  17:19   0:00 /bin/bash -l
      jupyter+   8341  0.0  0.0  21464  5172 pts/12   Ss   17:20   0:00 /bin/bash -l
      jupyter+   8358  0.3  0.0  42892  3952 pts/12   S+   17:20   0:03 top
      jupyter+   8480  0.0  0.0  21464  5128 pts/13   Ss   17:25   0:00 /bin/bash -l
      jupyter+   8495  0.2  0.0  42892  4124 pts/13   S+   17:25   0:01 top
      jupyter+   8541  0.0  0.0  21364  4988 pts/14   Ss+  17:25   0:00 /bin/bash --rcf
      jupyter+   8553  0.0  0.0  21364  4948 pts/15   Ss+  17:25   0:00 /bin/bash --rcf
      jupyter+   8583  0.0  0.0  21464  5072 pts/16   Ss   17:26   0:00 /bin/bash -l
      jupyter+   8598  0.3  0.0  42800  3968 pts/16   S+   17:26   0:02 top
      jupyter+   8741  0.0  0.0  21464  5096 pts/10   Ss+  17:36   0:00 /bin/bash -l
      jupyter+   8775  0.0  0.0  21364  4852 pts/17   Ss+  17:36   0:00 /bin/bash --rcf
      jupyter+   8801  0.0  0.0  38372  3608 pts/2    R+   17:37   0:00 ps au
```

```
[ ]: ps aux
```

```
     USER        PID %CPU %MEM    VSZ   RSS TTY       STAT START    TIME COMMAND
     root          1  0.0  0.1  78104  9056 ?         Ss   Apr09    0:18 /sbin/init
     root          2  0.0  0.0      0     0 ?         S    Apr09    0:00 [kthreadd]
     root          4  0.0  0.0      0     0 ?         I<   Apr09    0:00 [kworker/0:0H]
     root          6  0.0  0.0      0     0 ?         I<   Apr09    0:00 [mm_percpu_wq]
     root          7  0.0  0.0      0     0 ?         S    Apr09    0:00 [ksoftirqd/0]
     root          8  0.0  0.0      0     0 ?         I    Apr09    0:50 [rcu_sched]
     root          9  0.0  0.0      0     0 ?         I    Apr09    0:00 [rcu_bh]
     root         10  0.0  0.0      0     0 ?         S    Apr09    0:00 [migration/0]
     root         11  0.0  0.0      0     0 ?         S    Apr09    0:01 [watchdog/0]
     root         12  0.0  0.0      0     0 ?         S    Apr09    0:00 [cpuhp/0]
     root         13  0.0  0.0      0     0 ?         S    Apr09    0:00 [cpuhp/1]
     root         14  0.0  0.0      0     0 ?         S    Apr09    0:01 [watchdog/1]
     root         15  0.0  0.0      0     0 ?         Ss   Apr09    0:00 [migration/1]
     root         16  0.0  0.0      0     0 ?         S    Apr09    0:00 [ksoftirqd/1]
     root         18  0.0  0.0      0     0 ?         I<   Apr09    0:00 [kworker/1:0H]
     root         19  0.0  0.0      0     0 ?         S    Apr09    0:00 [cpuhp/2]
     root         20  0.0  0.0      0     0 ?         S    Apr09    0:01 [watchdog/2]
     root         21  0.0  0.0      0     0 ?         S    Apr09    0:00 [migration/2]
     root         22  0.0  0.0      0     0 ?         S    Apr09    0:00 [ksoftirqd/2]
     root         24  0.0  0.0      0     0 ?         I<   Apr09    0:00 [kworker/2:0H]
     root         25  0.0  0.0      0     0 ?         S    Apr09    0:00 [cpuhp/3]
     root         26  0.0  0.0      0     0 ?         S    Apr09    0:01 [watchdog/3]
     root         27  0.0  0.0      0     0 ?         S    Apr09    0:00 [migration/3]
     root         28  0.0  0.0      0     0 ?         S    Apr09    0:00 [ksoftirqd/3]
     root         30  0.0  0.0      0     0 ?         I<   Apr09    0:00 [kworker/3:0H]
     root         31  0.0  0.0      0     0 ?         S    Apr09    0:00 [cpuhp/4]
     root         32  0.0  0.0      0     0 ?         S    Apr09    0:01 [watchdog/4]
     root         33  0.0  0.0      0     0 ?         S    Apr09    0:00 [migration/4]
     root         34  0.0  0.0      0     0 ?         S    Apr09    0:00 [ksoftirqd/4]
     root         36  0.0  0.0      0     0 ?         I<   Apr09    0:00 [kworker/4:0H]
     root         37  0.0  0.0      0     0 ?         S    Apr09    0:00 [cpuhp/5]
     root         38  0.0  0.0      0     0 ?         S    Apr09    0:01 [watchdog/5]
     root         39  0.0  0.0      0     0 ?         S    Apr09    0:00 [migration/5]
     root         40  0.0  0.0      0     0 ?         S    Apr09    0:00 [ksoftirqd/5]
     root         42  0.0  0.0      0     0 ?         I<   Apr09    0:00 [kworker/5:0H]
     root         43  0.0  0.0      0     0 ?         S    Apr09    0:00 [cpuhp/6]
     root         44  0.0  0.0      0     0 ?         S    Apr09    0:01 [watchdog/6]
     root         45  0.0  0.0      0     0 ?         S    Apr09    0:00 [migration/6]
     root         46  0.0  0.0      0     0 ?         S    Apr09    0:00 [ksoftirqd/6]
```

```
[7]: ps aux | grep 'python'
```

```
     root       1037  0.0  0.2 169100 17264 ?        Ssl  Apr09    0:00
     /usr/bin/python3 /usr/bin/networkd-dispatcher --run-startup-triggers
     root       1111  0.1  1.0 314872 84788 ?        Ds   Apr09   13:15
```

```
/opt/tljh/hub/bin/python3 -m jupyterhub.app -f /opt/tljh/hub/lib/python3.6/site-
packages/tljh/jupyterhub_config.py --upgrade-db
root        1230  0.0  0.2 185944 19896 ?        Ssl  Apr09    0:00
/usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-shutdown
--wait-for-signal
root        1875  0.0  0.3 172540 28420 ?        Ss   Apr09    4:03
/opt/tljh/hub/bin/python3 -m tljh.cull_idle_servers --timeout=600 --cull-
every=60 --concurrency=5 --max-age=0
jupyter+    7527  0.6  1.0 1318724 87024 ?       Ssl  17:05    0:12
/opt/tljh/user/bin/python /opt/tljh/user/bin/jupyterhub-singleuser --port=37745
--NotebookApp.default_url=/lab
jupyter+    7598  0.0  0.5 487852 46692 ?        Ssl  17:05    0:00
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-
kkenzh/.local/share/jupyter/runtime/kernel-
ad7104a9-b6a7-4b6f-b1ed-56f55c054515.json
jupyter+    7601  0.0  0.5 487852 46676 ?        Ssl  17:05    0:00
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-
kkenzh/.local/share/jupyter/runtime/kernel-
ccc3638b-75f3-4dca-a2af-6fb27e061e3e.json
jupyter+    7604  0.0  0.5 487852 47224 ?        Ssl  17:05    0:00
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-kkenzh/.local/share/ju
pyter/runtime/kernel-b9f2a080-e8a6-4838-a84b-e43a2a30caa4.json
jupyter+    7620  0.0  0.0  21360  4852 pts/0    Ss+  17:05    0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+    7641  0.0  0.0  21360  4908 pts/1    Ss+  17:05    0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+    7660  0.0  0.0  21360  5052 pts/2    Ss   17:05    0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+    7696  0.6  0.9 1241184 81052 ?       Ssl  17:11    0:11
/opt/tljh/user/bin/python /opt/tljh/user/bin/jupyterhub-singleuser --port=34841
--NotebookApp.default_url=/lab
jupyter+    7767  0.0  0.5 487856 46556 ?        Ssl  17:11    0:00
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-unisatkz/.local/share/
jupyter/runtime/kernel-33dc201a-c48c-4637-be72-d35353565780.json
jupyter+    7779  0.0  0.0  21364  4960 pts/3    Ss+  17:11    0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+    7803  0.5  0.9 1306300 78180 ?       Ssl  17:12    0:09
/opt/tljh/user/bin/python /opt/tljh/user/bin/jupyterhub-singleuser --port=50985
--NotebookApp.default_url=/lab
jupyter+    7851  0.0  0.5 487984 46976 ?        Ssl  17:12    0:00
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-unisatkz/.local/share/
jupyter/runtime/kernel-b2395550-7b56-472c-9d23-9eb7f57de3e4.json
jupyter+    7863  0.0  0.0  21364  4976 pts/4    Ss+  17:12    0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+    7901  0.0  0.5 487852 46464 ?        Ssl  17:12    0:00
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-cubefiction/.local/sha
re/jupyter/runtime/kernel-826e49b5-392c-4a36-a0f0-0277e8482ed7.json
jupyter+    7904  0.0  0.5 487852 46724 ?        Ssl  17:12    0:00
```

```
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-cubefiction/.local/sha
re/jupyter/runtime/kernel-0b04ecbf-2983-4a58-880f-c3cb040b4e59.json
jupyter+  7907  0.0  0.5 554288 48432 ?        Ssl  17:12   0:00
/opt/tljh/user/bin/python -m ipykernel_launcher -f /home/jupyter-cubefiction/.lo
cal/share/jupyter/runtime/kernel-91594d44-d159-4119-bdda-c5102fcd366f.json
jupyter+  7923  0.0  0.0  21364  4932 pts/5   Ss+  17:12   0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+  7945  0.0  0.0  21364  4960 pts/6   Ss+  17:12   0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+  7969  0.0  0.5 487852 46900 ?        Ssl  17:13   0:00
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-cubefiction/.local/sha
re/jupyter/runtime/kernel-4ce232eb-1ea8-42d4-85a5-f3fc633e8fee.json
jupyter+  7981  0.0  0.0  21364  4964 pts/7   Ss+  17:13   0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+  8006  0.5  0.9 1011036 77608 ?       Ssl  17:14   0:08
/opt/tljh/user/bin/python /opt/tljh/user/bin/jupyterhub-singleuser --port=40937
--NotebookApp.default_url=/lab
jupyter+  8079  0.0  0.5 487852 46668 ?        Ssl  17:14   0:00
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-danenok/.local/share/j
upyter/runtime/kernel-28cd31e5-5e6a-4a40-a8e0-fd9410e89aef.json
jupyter+  8091  0.0  0.0  21360  4852 pts/8   Ss+  17:14   0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+  8106  0.0  0.5 487852 46472 ?        Ssl  17:14   0:00
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-
danenok/.local/share/jupyter/runtime/kernel-76d9a3a0-1671-4195-86be-
dfee4e4bef40.json
jupyter+  8118  0.0  0.0  21360  4820 pts/9   Ss+  17:14   0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+  8404  0.6  0.9 1019808 80376 ?       Ssl  17:24   0:06
/opt/tljh/user/bin/python /opt/tljh/user/bin/jupyterhub-singleuser --port=42795
--NotebookApp.default_url=/lab
jupyter+  8523  0.0  0.5 487852 46844 ?        Ssl  17:25   0:00
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-tsagynysh/.local/share
/jupyter/runtime/kernel-639ac80f-c887-4776-a608-fe60fdd90c0d.json
jupyter+  8526  0.0  0.5 487852 46572 ?        Ssl  17:25   0:00
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-
tsagynysh/.local/share/jupyter/runtime/kernel-
af8e6582-bc32-4924-9b01-e32579b16168.json
jupyter+  8541  0.0  0.0  21364  4988 pts/14  Ss+  17:25   0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+  8553  0.0  0.0  21364  4948 pts/15  Ss+  17:25   0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+  8763  0.1  0.5 487852 46660 ?        Ssl  17:36   0:00
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-unisatkz/.local/share/
jupyter/runtime/kernel-8cbf4c2e-215a-429f-b30a-29f7835d63de.json
jupyter+  8775  0.0  0.0  21364  4852 pts/17  Ss+  17:36   0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+  8811  0.1  0.5 487852 46844 ?        Ssl  17:37   0:00
```

```
/opt/tljh/user/bin/python -m bash_kernel -f /home/jupyter-tsagynysh/.local/share
/jupyter/runtime/kernel-78f93899-3128-47d8-a1b3-53e4c6ac3862.json
jupyter+  8823  0.0  0.0  21364  5108 pts/18   Ss+  17:37   0:00 /bin/bash
--rcfile /opt/tljh/user/lib/python3.7/site-packages/pexpect/bashrc.sh
jupyter+  9387  0.0  0.0  13136  1104 pts/2    S+   17:41   0:00 grep
--color=auto python
```