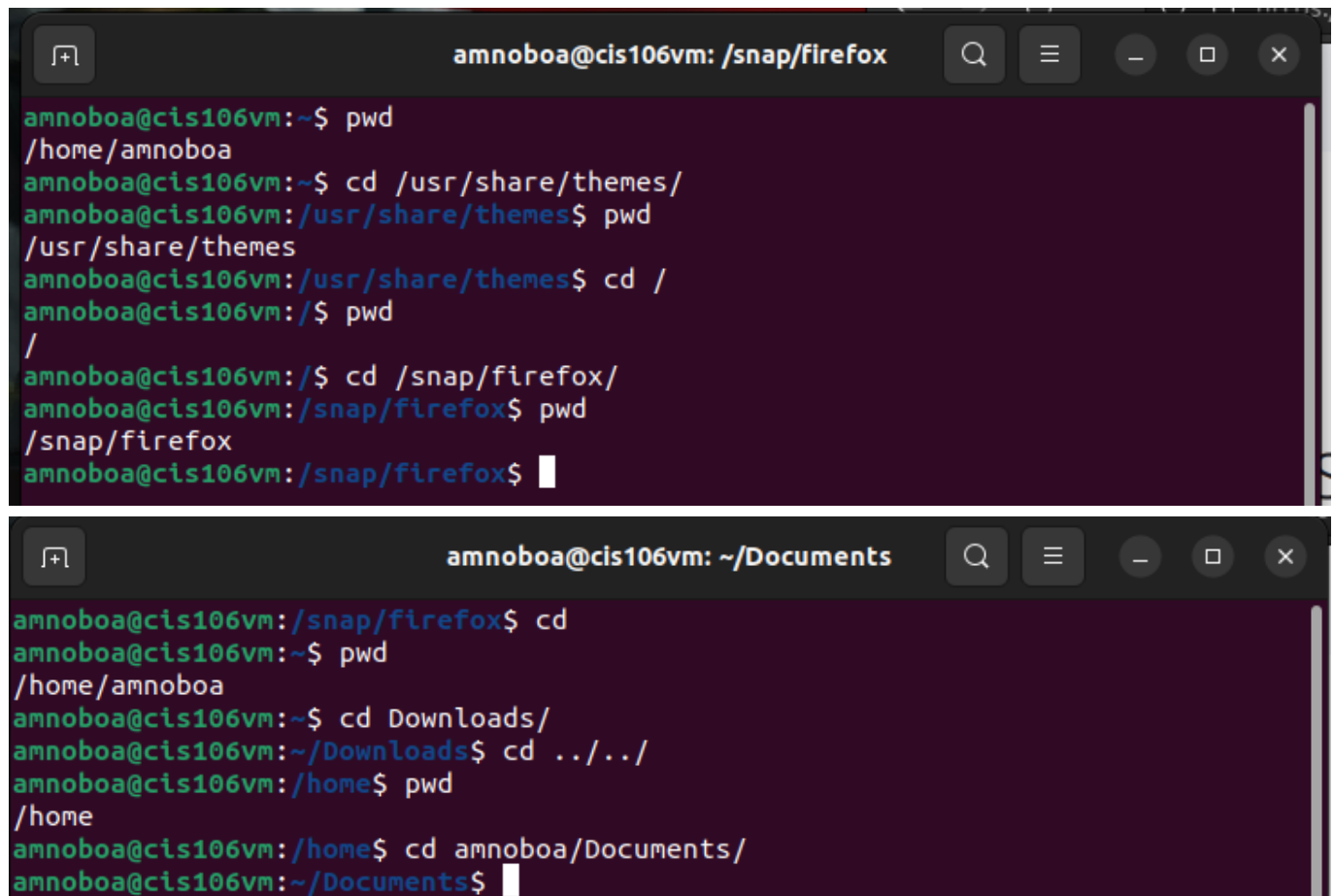


# Lab 4 Submission

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## Questions 1



The image contains two terminal window screenshots. The first window has a title bar 'amnoba@cis106vm: /snap/firefox' and shows a sequence of commands: 'pwd' (returns /home/amnoba), 'cd /usr/share/themes/' (returns /usr/share/themes), 'cd /' (returns /), and 'cd /snap/firefox/' (returns /snap/firefox). The second window has a title bar 'amnoba@cis106vm: ~/Documents' and shows: 'cd' (returns /snap/firefox), 'pwd' (returns /home/amnoba), 'cd Downloads/' (returns ~/Downloads), 'cd ../../' (returns /home), 'pwd' (returns /home), and 'cd amnoba/Documents/' (returns ~/Documents).

```
amnoba@cis106vm: /snap/firefox
amnoba@cis106vm:~$ pwd
/home/amnoba
amnoba@cis106vm:~$ cd /usr/share/themes/
amnoba@cis106vm:/usr/share/themes$ pwd
/usr/share/themes
amnoba@cis106vm:/usr/share/themes$ cd /
amnoba@cis106vm:/$ pwd
/
amnoba@cis106vm:/$ cd /snap/firefox/
amnoba@cis106vm:/snap/firefox$ pwd
/snap/firefox
amnoba@cis106vm:/snap/firefox$

amnoba@cis106vm: ~/Documents
amnoba@cis106vm:/snap/firefox$ cd
amnoba@cis106vm:~$ pwd
/home/amnoba
amnoba@cis106vm:~$ cd Downloads/
amnoba@cis106vm:~/Downloads$ cd ../../
amnoba@cis106vm:/home$ pwd
/home
amnoba@cis106vm:/home$ cd amnoba/Documents/
amnoba@cis106vm:~/Documents$
```

## Questions 2

```
amnoboa@cis106vm: ~/lab4files
amnoboa@cis106vm:/snap/firefox$ cd
amnoboa@cis106vm:~$ pwd
/home/amnoboa
amnoboa@cis106vm:~$ cd Downloads/
amnoboa@cis106vm:~/Downloads$ cd ../../
amnoboa@cis106vm:/home$ pwd
/home
amnoboa@cis106vm:/home$ cd amnoboa/Documents/
amnoboa@cis106vm:~/Documents$ cd /usr/share/
amnoboa@cis106vm:/usr/share$ ls ~/lab4files/
countries.json  document.docx  helloWorld.c  sample.xls  Ubuntu.pdf
csvfile.csv     globe.avi      Linux.pdf     Tux.png     website.html
amnoboa@cis106vm:/usr/share$ cd ~/lab4files/
amnoboa@cis106vm:~/lab4files$ ls -l
total 6580
-rw-rw-r-- 1 amnoboa amnoboa 20471 Feb 22 2022 countries.json
-rw-rw-r-- 1 amnoboa amnoboa 284042 Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 amnoboa amnoboa 764176 Feb 22 2022 document.docx
-rw-rw-r-- 1 amnoboa amnoboa 742478 Feb 22 2022 globe.avi
-rw-rw-r-- 1 amnoboa amnoboa 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 amnoboa amnoboa 2600138 Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 amnoboa amnoboa 8704 Feb 22 2022 sample.xls
-rw-rw-r-- 1 amnoboa amnoboa 42777 Feb 22 2022 Tux.png
-rw-rw-r-- 1 amnoboa amnoboa 2114053 Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 amnoboa amnoboa 137453 Feb 22 2022 website.html
amnoboa@cis106vm:~/lab4files$
```

```
amnoboa@cis106vm: ~/lab4files
amnoboa@cis106vm:~/lab4files$ ls -lh
total 6.5M
-rw-rw-r-- 1 amnoboa amnoboa 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 amnoboa amnoboa 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 amnoboa amnoboa 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 amnoboa amnoboa 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 amnoboa amnoboa 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 amnoboa amnoboa 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 amnoboa amnoboa 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 amnoboa amnoboa 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 amnoboa amnoboa 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 amnoboa amnoboa 135K Feb 22 2022 website.html
amnoboa@cis106vm:~/lab4files$ ls -lhs
total 6.5M
-rw-rw-r-- 1 amnoboa amnoboa 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 amnoboa amnoboa 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 amnoboa amnoboa 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 amnoboa amnoboa 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 amnoboa amnoboa 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 amnoboa amnoboa 135K Feb 22 2022 website.html
-rw-rw-r-- 1 amnoboa amnoboa 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 amnoboa amnoboa 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 amnoboa amnoboa 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 amnoboa amnoboa 76 Feb 22 2022 helloWorld.c
amnoboa@cis106vm:~/lab4files$
```

```
amnoboa@cis106vm: ~/lab4files
amnoboa@cis106vm:~/lab4files$ ls -lhSgGi
total 6.5M
1443615 -rw-rw-r-- 1 2.5M Feb 22 2022 Linux.pdf
1443617 -rw-rw-r-- 1 2.1M Feb 22 2022 Ubuntu.pdf
1443620 -rw-rw-r-- 1 747K Feb 22 2022 document.docx
1443621 -rw-rw-r-- 1 726K Feb 22 2022 globe.avi
1443619 -rw-rw-r-- 1 278K Feb 22 2022 csvfile.csv
1443696 -rw-rw-r-- 1 135K Feb 22 2022 website.html
1443616 -rw-rw-r-- 1 42K Feb 22 2022 Tux.png
1443618 -rw-rw-r-- 1 20K Feb 22 2022 countries.json
1443695 -rw-rw-r-- 1 8.5K Feb 22 2022 sample.xls
1443694 -rw-rw-r-- 1 76 Feb 22 2022 helloWorld.c
amnoboa@cis106vm:~/lab4files$ ls -Xr
sample.xls  Ubuntu.pdf  countries.json  document.docx  helloWorld.c
Tux.png    Linux.pdf   website.html   csvfile.csv    globe.avi
amnoboa@cis106vm:~/lab4files$
```

## Questions 3

```

amnoboa@cis106vm: ~/Downloads
amnoboa@cis106vm:~$ cd /etc/
amnoboa@cis106vm:/etc$ tree ~/lab4files/
/home/amnoboa/lab4files/
├── countries.json
├── csvfile.csv
├── document.docx
├── globe.avi
├── helloWorld.c
├── Linux.pdf
├── sample.xls
├── Tux.png
├── Ubuntu.pdf
└── website.html

0 directories, 10 files
amnoboa@cis106vm:/etc$ cd ~/Downloads/
amnoboa@cis106vm:~/Downloads$ tree -fph ../lab4files/
[drwxrwxr-x 4.0K] ../lab4files
├── [-rw-rw-r-- 20K] ../lab4files/countries.json
├── [-rw-rw-r-- 277K] ../lab4files/csvfile.csv
├── [-rw-rw-r-- 746K] ../lab4files/document.docx
├── [-rw-rw-r-- 725K] ../lab4files/globe.avi
├── [-rw-rw-r-- 76] ../lab4files/helloWorld.c
├── [-rw-rw-r-- 2.5M] ../lab4files/Linux.pdf
├── [-rw-rw-r-- 8.5K] ../lab4files/sample.xls
├── [-rw-rw-r-- 42K] ../lab4files/Tux.png
├── [-rw-rw-r-- 2.0M] ../lab4files/Ubuntu.pdf
└── [-rw-rw-r-- 134K] ../lab4files/website.html

0 directories, 10 files
amnoboa@cis106vm:~/Downloads$

```

```

amnoboa@cis106vm: ~/Downloads
amnoboa@cis106vm:~/Downloads$ tree -tug ../lab4files/
[amnoboa amnoboa] ../lab4files/
├── [amnoboa amnoboa] Linux.pdf
├── [amnoboa amnoboa] Tux.png
├── [amnoboa amnoboa] Ubuntu.pdf
├── [amnoboa amnoboa] sample.xls
├── [amnoboa amnoboa] globe.avi
├── [amnoboa amnoboa] document.docx
├── [amnoboa amnoboa] csvfile.csv
├── [amnoboa amnoboa] countries.json
├── [amnoboa amnoboa] website.html
└── [amnoboa amnoboa] helloWorld.c

0 directories, 10 files
amnoboa@cis106vm:~/Downloads$ exa --help
Usage:
  exa [options] [files...]

META OPTIONS
  -?, --help          show list of command-line options
  -v, --version       show version of exa

DISPLAY OPTIONS
  -1, --oneline       display one entry per line
  -l, --long          display extended file metadata as a table
  -G, --grid          display entries as a grid (default)
  -x, --across        sort the grid across, rather than downwards
  -R, --recurse       recurse into directories
  -T, --tree          recurse into directories as a tree
  -F, --classify      display type indicator by file names
  --colo[u]r=WHEN    when to use terminal colours (always, auto, never)
  --colo[u]r-scale    highlight levels of file sizes distinctly
  --icons             display icons

```

```

amnoboa@cis106vm: ~/Downloads
amnoboa@cis106vm:~/Downloads$ exa ~/lab4files/ -l
.rw-rw-r-- 20k amnoboa 22 Feb 14:16 countries.json
.rw-rw-r-- 284k amnoboa 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k amnoboa 22 Feb 14:13 document.docx
.rw-rw-r-- 742k amnoboa 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 amnoboa 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M amnoboa 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k amnoboa 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k amnoboa 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M amnoboa 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k amnoboa 22 Feb 14:16 website.html
amnoboa@cis106vm:~/Downloads$ exa ~/lab4files/ -lh
Permissions Size User Date Modified Name
.rw-rw-r-- 20k amnoboa 22 Feb 14:16 countries.json
.rw-rw-r-- 284k amnoboa 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k amnoboa 22 Feb 14:13 document.docx
.rw-rw-r-- 742k amnoboa 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 amnoboa 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M amnoboa 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k amnoboa 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k amnoboa 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M amnoboa 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k amnoboa 22 Feb 14:16 website.html
amnoboa@cis106vm:~/Downloads$
amnoboa@cis106vm:~/Downloads$ exa ~/lab4files/ -lh
Permissions Size User Date Modified Name
.rw-rw-r-- 20k amnoboa 22 Feb 14:16 countries.json
.rw-rw-r-- 284k amnoboa 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k amnoboa 22 Feb 14:13 document.docx
.rw-rw-r-- 742k amnoboa 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 amnoboa 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M amnoboa 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k amnoboa 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k amnoboa 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M amnoboa 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k amnoboa 22 Feb 14:16 website.html
amnoboa@cis106vm:~/Downloads$ exa ~/lab4files/ -lh --no-user -U
Permissions Size Date Created Name
.rw-rw-r-- 20k 22 Oct 21:29 countries.json
.rw-rw-r-- 284k 22 Oct 21:29 csvfile.csv
.rw-rw-r-- 764k 22 Oct 21:29 document.docx
.rw-rw-r-- 742k 22 Oct 21:29 globe.avi
.rw-rw-r-- 76 22 Oct 21:29 helloWorld.c
.rw-rw-r-- 2.6M 22 Oct 21:29 Linux.pdf
.rw-rw-r-- 8.7k 22 Oct 21:29 sample.xls
.rw-rw-r-- 43k 22 Oct 21:29 Tux.png
.rw-rw-r-- 2.1M 22 Oct 21:29 Ubuntu.pdf
.rw-rw-r-- 137k 22 Oct 21:29 website.html
amnoboa@cis106vm:~/Downloads$

```

## Questions 4 Challenge Question



```

amnobia@cis106vm: /usr
amnobia@cis106vm:~$ pwd
/home/amnobia
amnobia@cis106vm:~$ cd /usr/
amnobia@cis106vm:/usr$ cd /proc/sys/net/ipv4/
amnobia@cis106vm:/proc/sys/net/ipv4$ cd -
/usr
amnobia@cis106vm:/usr$ ls share/backgrounds/
Blue_flower_by_Elena_Stravoravdi.jpg      jj_light_by_Hiking93.jpg
canvas_by_roytanck.jpg                    Mirror_by_Uday_Nakade.jpg
Cherry_Tree_in_Lakones_by_elenastravoravdi.jpg  Optical_Fibers_in_Dark_by_Elena_Stravoravdi.jpg
contest                                   ubuntu2_by_arman1992.jpg
DSC2943_by_kcpru.jpg                      ubuntu_by_arman1992.jpg
Jammy-Jellyfish_WP_4096x2304_Grey.png      ubuntu-default-greyscale-wallpaper.png
jj_dark_by_Hiking93.jpg                    warty-final-ubuntu.png

```

```

amnobia@cis106vm: /dev/disk/by-id
amnobia@cis106vm:/usr$ ls ~/cis106f22/
CheatSheets  finalproject  Labs  weekreports
amnobia@cis106vm:/usr$ ls ~/Downloads/
Dancing_Script  IMG_0409.jpeg  mygame.lst  Silkscreen  soft_link_myfile.txt
Dancing_Script.zip  lab4files.zip  MyWallpapers  Silkscreen.zip  wallpaper.jpg
amnobia@cis106vm:/usr$ cd /dev/disk/by-id/
amnobia@cis106vm:/dev/disk/by-id$ ls -la ~/
total 9300
drwxr-x--- 22 amnobia amnobia 4096 Oct 22 21:29 .
drwxr-xr-x  3 root    root    4096 Sep 20 17:06 ..
-rw-----  1 amnobia amnobia 5743 Oct 22 21:56 .bash_history
-rw-r--r--  1 amnobia amnobia 220 Sep 20 17:06 .bash_logout
-rw-r--r--  1 amnobia amnobia 3771 Sep 20 17:06 .bashrc
drwx----- 18 amnobia amnobia 4096 Oct  5 23:49 .cache
drwxrwxr-x  7 amnobia amnobia 4096 Oct 12 17:54 cis106f22
-rw-rw-r--  1 amnobia amnobia 7129996 Oct  5 16:39 cis106f22.zip
-rw-rw-r--  1 amnobia amnobia 3520 Oct  5 21:54 .cis106.png
drwx----- 20 amnobia amnobia 4096 Oct 22 22:08 .config
drwxr-xr-x  2 amnobia amnobia 4096 Oct 12 17:46 Desktop
drwxr-xr-x  2 amnobia amnobia 4096 Oct 19 18:24 Documents
drwxr-xr-x  5 amnobia amnobia 4096 Oct 22 21:29 Downloads
-rw-rw-r--  1 amnobia amnobia 48 Sep 30 01:16 gitcommands.txt
-rw-rw-r--  1 amnobia amnobia 63 Sep 30 00:59 .gitconfig
-rw-rw-r--  1 amnobia amnobia 5971 Oct  6 01:54 .github.jpeg
drwx-----  2 amnobia amnobia 4096 Oct  5 21:39 .gnupg
-rwxrwxr-x  1 amnobia amnobia 354 Sep 30 00:41 installprograms.sh
drwxrwxr-x  2 amnobia amnobia 4096 Feb 22 2022 lab4files
-rw-----  1 amnobia amnobia 20 Oct  6 01:22 .lessht
drwx-----  4 amnobia amnobia 4096 Sep 30 01:20 .local
drwxr-xr-x  2 amnobia amnobia 4096 Sep 20 17:55 Music
-rw-rw-r--  2 amnobia amnobia 12 Oct 19 18:23 myfile.txt
drwxr-xr-x  3 amnobia amnobia 4096 Oct 12 18:51 Pictures
drwx-----  3 amnobia amnobia 4096 Sep 30 00:06 .pki
drwxrwxr-x  2 amnobia amnobia 4096 Feb 27 2022 practicels
-rw-rw-r--  1 amnobia amnobia 2229212 Oct 22 02:37 practicels.tar.xz
-rw-r--r--  1 amnobia amnobia 807 Sep 20 17:06 .profile
drwxr-xr-x  2 amnobia amnobia 4096 Sep 20 17:55 Public
drwx-----  7 amnobia amnobia 4096 Oct  5 21:39 snap
drwx-----  2 amnobia amnobia 4096 Sep 30 01:04 .ssh
-rw-r--r--  1 amnobia amnobia 0 Sep 20 17:59 .sudo_as_admin_successful
drwxr-xr-x  2 amnobia amnobia 4096 Sep 20 17:55 Templates
-rw-r-----  1 amnobia amnobia 5 Oct 22 20:40 .vboxclient-clipboard.pid
-rw-r-----  1 amnobia amnobia 5 Oct 22 20:40 .vboxclient-display-svga-x11.pid
-rw-r-----  1 amnobia amnobia 5 Oct 22 20:40 .vboxclient-draganddrop.pid
-rw-r-----  1 amnobia amnobia 5 Oct 22 20:40 .vboxclient-seamless.pid
drwxr-xr-x  2 amnobia amnobia 4096 Sep 20 17:55 Videos
drwxrwxr-x  3 amnobia amnobia 4096 Sep 30 00:06 .vscode

```

```

amnoboa@cis106vm: /dev/disk/by-id
amnoboa@cis106vm:/dev/disk/by-id$ ls -t /usr/share/themes/
Yaru          Yaru-blue-dark  Yaru-hdpi      Yaru-olive-dark  Yaru-purple-dark  Yaru-sage-dark  Default  Adwaita-dark
Yaru-bark     Yaru-blue       Yaru-naganta   Yaru-prussiangreen  Yaru-red          Yaru-viridian   Emacs    HighContrast
Yaru-bark-dark Yaru-dark-hdpi  Yaru-magenta-dark Yaru-prussiangreen-dark Yaru-red-dark     Yaru-viridian-dark Raleigh
Yaru-blue     Yaru-dark-xhdpi Yaru-olive     Yaru-purple       Yaru-sage         Yaru-xhdpi      Adwaita
amnoboa@cis106vm:/dev/disk/by-id$ ls -X /usr/share/
accountsservice  file             hwdata          ModemManager    system-config-printer
aclocal          file-roller     hyphen          mousetweaks     systemd
acpi-support     fish            i18n            mythes          systentap
adduser          flameshot       ibus            nano            tabset
aisleriot         flatpak         ibus-table     nautilus        tcltk
alacarte         fontconfig      icons           nautilus-python terminfo
alsa             fonts           ImageMagick-6   nautilus-share  tex-common
alsa-base        fonts-droid-fallback  in-config      nemo            texlive
alsa-card-profile fonts-sil-abyssinica  indicator-application  netpbm          texmf
appdata          fonts-sil-padauk    indicator-power  netplan         themes
app-info         foo2qpdf         indicators      numpy3          thumbnails
applications     foo2zjs          info            open-vm-tools  tilix
appport          fwupd           initramfs-tools openvpn          totem
apps             gamemode        installed-tests orca            tracker3
apturl           gcc             ipp-usb         os-prober       tracker3-miners
aspell           GConf           iptables        p11-kit         transmission
avahi            gdb             iso-codes       package-data-downloads  ubuntu
backgrounds      gdm             java            PackageKit      ubuntu-drivers-common
base-files       geany           javascript      pam             ubuntu-release-upgrader
base-passwd      gedit           kde4            pam-configs     ubuntu-wayland
bash-completion  GeoIP           keyrings        perl            ucf
binfmts          gettext         language-selector  perl5           ufw
branding          ghostscript     language-support  perl-openssl-defaults  unattended-upgrades
brlty            git-core        language-tools    pipewire        unity
bug              gitweb          libcaca          pixmaps         update-manager
build-essential  glade           libbin           pkgconfig       update-notifier
ca-certificates  glvnd           libdebuginfod-common  plymouth        upstart
caffeine-indicator  gnome          libdrm           pnm2ppa        usb-creator
catdoc           gnome-applets   libexttextcat    pocketsphinx   usb_modeswitch
cmake            gnome-background-properties  libgnomekbd     polkit-1        vala
cogl             gnome-bluetooth  libgweather      poppler         vim
color            gnome-control-center  libgweather-4   ppd             vlc
colord           gnome-initial-setup  libinput         ppp             vulkan
common-licenses  gnome-logs       liblangtag       pps             w3m
consolefonts     gnome-mahjongg    liblouis         pulseaudio      wayland-sessions
console-setup    gnome-panel       liblouisutdm     pyshared        X11
consoletrans     gnome-remote-desktop  libmysofa        python3          xapps-common
cups             gnome-session     libreoffice      python-apt      xdg-desktop-portal
dbus-1           gnome-settings-daemon  librevege        qt5             xml
dconf            gnome-shell       libthai          readline        xml-core
debconf          gnome-software    libwacom         remmina         xsessions

```