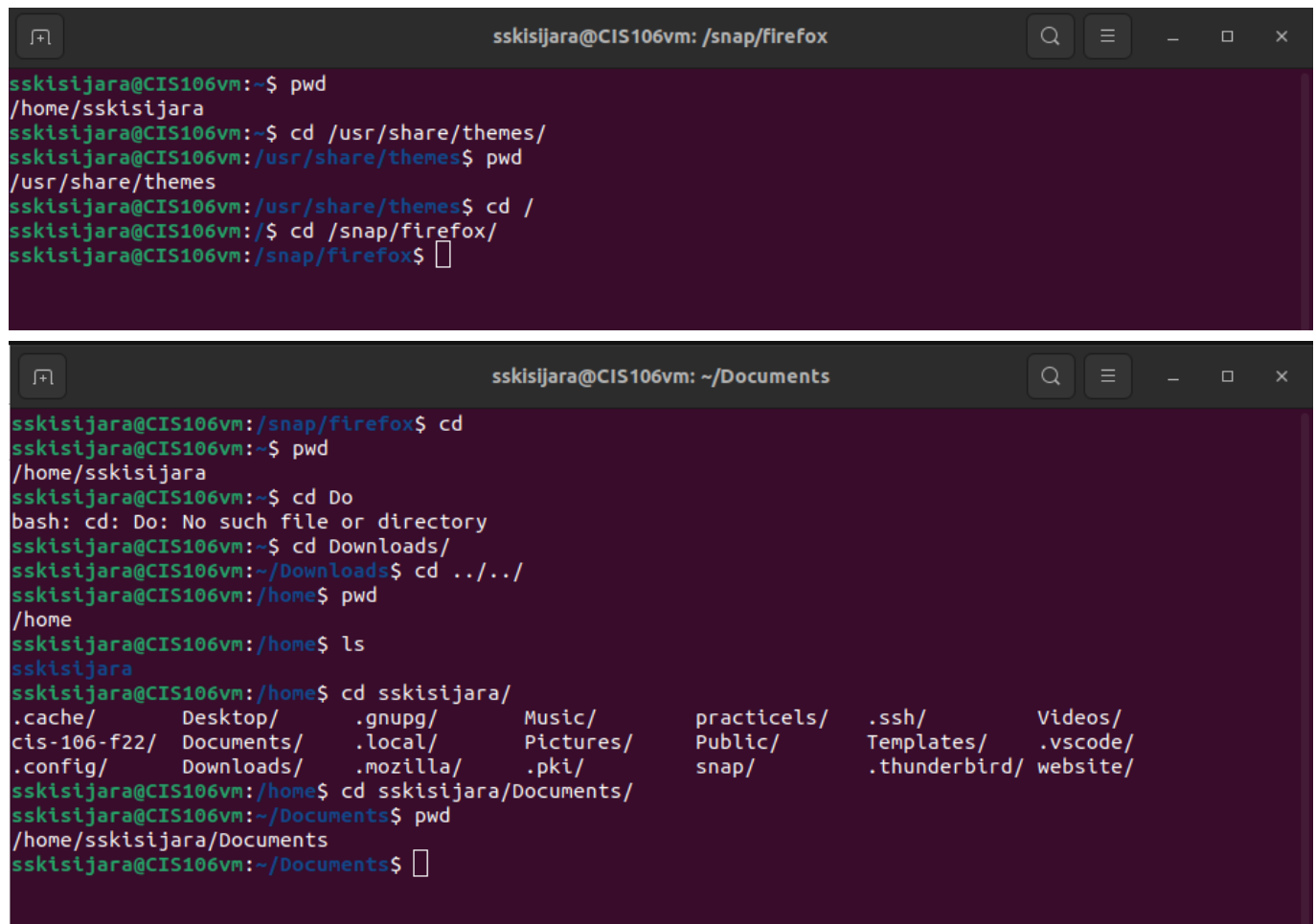


# Lab 4 Submission

---

## Question 1



The image shows two terminal windows. The first window, titled 'sskisijara@CIS106vm: /snap/firefox', shows a sequence of commands: 'pwd' (returns /home/sskisijara), 'cd /usr/share/themes/' (returns /usr/share/themes), 'pwd' (returns /usr/share/themes), 'cd /' (returns /), 'cd /snap/firefox/' (returns /snap/firefox), and the prompt is ready for the next command. The second window, titled 'sskisijara@CIS106vm: ~/Documents', shows a sequence of commands: 'cd' (returns /snap/firefox), 'pwd' (returns /home/sskisijara), 'cd Do' (returns an error: 'bash: cd: Do: No such file or directory'), 'cd Downloads/' (returns /Downloads), 'cd ../../' (returns /home), 'pwd' (returns /home), 'ls' (lists the contents of /home), 'cd sskisijara/' (returns /home/sskisijara/), and a directory listing of /home/sskisijara/ showing various folders like .cache/, Desktop/, .gnupg/, Music/, practicels/, .ssh/, Videos/, cis-106-f22/, Documents/, .local/, Pictures/, Public/, Templates/, .vscode/, .config/, Downloads/, .mozilla/, .pki/, snap/, .thunderbird/, and website/. Finally, 'cd sskisijara/Documents/' (returns /Documents), 'pwd' (returns /home/sskisijara/Documents), and the prompt is ready for the next command.

```
sskisijara@CIS106vm:~$ pwd
/home/sskisijara
sskisijara@CIS106vm:~$ cd /usr/share/themes/
sskisijara@CIS106vm:/usr/share/themes$ pwd
/usr/share/themes
sskisijara@CIS106vm:/usr/share/themes$ cd /
sskisijara@CIS106vm:/$ cd /snap/firefox/
sskisijara@CIS106vm:/snap/firefox$

sskisijara@CIS106vm:~/Documents$ cd
sskisijara@CIS106vm:~$ pwd
/home/sskisijara
sskisijara@CIS106vm:~$ cd Do
bash: cd: Do: No such file or directory
sskisijara@CIS106vm:~$ cd Downloads/
sskisijara@CIS106vm:~/Downloads$ cd ../../
sskisijara@CIS106vm:/home$ pwd
/home
sskisijara@CIS106vm:/home$ ls
sskisijara
sskisijara@CIS106vm:/home$ cd sskisijara/
sskisijara@CIS106vm:/home/sskisijara$ ls
.cache/      Desktop/    .gnupg/    Music/      practicels/ .ssh/       Videos/
cis-106-f22/ Documents/  .local/    Pictures/   Public/     Templates/  .vscode/
.config/     Downloads/ .mozilla/   .pki/       snap/       .thunderbird/ website/
sskisijara@CIS106vm:/home/sskisijara$ cd sskisijara/Documents/
sskisijara@CIS106vm:~/Documents$ pwd
/home/sskisijara/Documents
sskisijara@CIS106vm:~/Documents$
```

## Question 2

```

sskisijara@CIS106vm:~/Documents$ pwd
/home/sskisijara/Documents
sskisijara@CIS106vm:~/Documents$ cd /usr/share/
sskisijara@CIS106vm:/usr/share$ ls /home/sskisijara/lab4files/
countries.json  document.docx  helloWorld.c  sample.xls  Ubuntu.pdf
csvfile.csv    globe.avi      Linux.pdf     Tux.png     website.html
sskisijara@CIS106vm:/usr/share$ cd /home/sskisijara/lab4files/
sskisijara@CIS106vm:~/lab4files$ ls -l
total 6588
-rw-rw-r-- 1 sskisijara sskisijara 20471 Feb 22 2022 countries.json
-rw-rw-r-- 1 sskisijara sskisijara 284042 Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 sskisijara sskisijara 764176 Feb 22 2022 document.docx
-rw-rw-r-- 1 sskisijara sskisijara 742478 Feb 22 2022 globe.avi
-rw-rw-r-- 1 sskisijara sskisijara 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 sskisijara sskisijara 2600138 Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 sskisijara sskisijara 8704 Feb 22 2022 sample.xls
-rw-rw-r-- 1 sskisijara sskisijara 42777 Feb 22 2022 Tux.png
-rw-rw-r-- 1 sskisijara sskisijara 2114053 Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 sskisijara sskisijara 137453 Feb 22 2022 website.html
sskisijara@CIS106vm:~/lab4files$ ls -lh
total 6.5M
-rw-rw-r-- 1 sskisijara sskisijara 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 sskisijara sskisijara 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 sskisijara sskisijara 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 sskisijara sskisijara 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 sskisijara sskisijara 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 sskisijara sskisijara 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 sskisijara sskisijara 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 sskisijara sskisijara 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 sskisijara sskisijara 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 sskisijara sskisijara 135K Feb 22 2022 website.html
sskisijara@CIS106vm:~/lab4files$

```

```

sskisijara@CIS106vm: ~/lab4files
sskisijara@CIS106vm:~/lab4files$ ls -lh
total 6.5M
-rw-rw-r-- 1 sskisijara sskisijara 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 sskisijara sskisijara 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 sskisijara sskisijara 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 sskisijara sskisijara 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 sskisijara sskisijara 76 Feb 22 2022 helloWorld.c
-rw-rw-r-- 1 sskisijara sskisijara 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 sskisijara sskisijara 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 sskisijara sskisijara 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 sskisijara sskisijara 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 sskisijara sskisijara 135K Feb 22 2022 website.html
sskisijara@CIS106vm:~/lab4files$ ls -lhs
total 6.5M
-rw-rw-r-- 1 sskisijara sskisijara 2.5M Feb 22 2022 Linux.pdf
-rw-rw-r-- 1 sskisijara sskisijara 2.1M Feb 22 2022 Ubuntu.pdf
-rw-rw-r-- 1 sskisijara sskisijara 747K Feb 22 2022 document.docx
-rw-rw-r-- 1 sskisijara sskisijara 726K Feb 22 2022 globe.avi
-rw-rw-r-- 1 sskisijara sskisijara 278K Feb 22 2022 csvfile.csv
-rw-rw-r-- 1 sskisijara sskisijara 135K Feb 22 2022 website.html
-rw-rw-r-- 1 sskisijara sskisijara 42K Feb 22 2022 Tux.png
-rw-rw-r-- 1 sskisijara sskisijara 20K Feb 22 2022 countries.json
-rw-rw-r-- 1 sskisijara sskisijara 8.5K Feb 22 2022 sample.xls
-rw-rw-r-- 1 sskisijara sskisijara 76 Feb 22 2022 helloWorld.c
sskisijara@CIS106vm:~/lab4files$

```

```
saskisijara@CIS106vm: ~/lab4files
saskisijara@CIS106vm:~/lab4files$ ls -lhSgGi
total 6.5M
1195018 -rw-rw-r-- 1 2.5M Feb 22 2022 Linux.pdf
1195074 -rw-rw-r-- 1 2.1M Feb 22 2022 Ubuntu.pdf
1195092 -rw-rw-r-- 1 747K Feb 22 2022 document.docx
1195093 -rw-rw-r-- 1 726K Feb 22 2022 globe.avi
1195091 -rw-rw-r-- 1 278K Feb 22 2022 csvfile.csv
1195096 -rw-rw-r-- 1 135K Feb 22 2022 website.html
1195072 -rw-rw-r-- 1 42K Feb 22 2022 Tux.png
1195079 -rw-rw-r-- 1 20K Feb 22 2022 countries.json
1195095 -rw-rw-r-- 1 8.5K Feb 22 2022 sample.xls
1195094 -rw-rw-r-- 1 76 Feb 22 2022 helloWorld.c
saskisijara@CIS106vm:~/lab4files$ ls -Xr
sample.xls  Ubuntu.pdf  countries.json  document.docx  helloWorld.c
Tux.png     Linux.pdf   website.html   csvfile.csv    globe.avi
saskisijara@CIS106vm:~/lab4files$
```

### Question 3

```

sskisijsara@CIS106vm: ~/Downloads
sskisijsara@CIS106vm:~$ cd /etc/
sskisijsara@CIS106vm:/etc$ tree /home/sskisijsara/lab4files/
/home/sskisijsara/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
sskisijsara@CIS106vm:/etc$ cd ~/Downloads/
sskisijsara@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
sskisijsara@CIS106vm:~/Downloads$ 

```

```

sskisijsara@CIS106vm: ~/Downloads
sskisijsara@CIS106vm:~/Downloads$ tree -tug ../lab4files/
[sskisijsara sskisijsara] ../lab4files/
├── [sskisijsara sskisijsara] Linux.pdf
├── [sskisijsara sskisijsara] Tux.png
├── [sskisijsara sskisijsara] Ubuntu.pdf
├── [sskisijsara sskisijsara] sample.xls
├── [sskisijsara sskisijsara] globe.avi
├── [sskisijsara sskisijsara] document.docx
├── [sskisijsara sskisijsara] csvfile.csv
├── [sskisijsara sskisijsara] countries.json
├── [sskisijsara sskisijsara] website.html
└── [sskisijsara sskisijsara] helloWorld.c

0 directories, 10 files
sskisijsara@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
  --no-icons           don't display icons (always overrides --icons)

FILTERING AND SORTING OPTIONS
  -a, --all            show hidden and 'dot' files
  -d, --list-dirs      list directories as files; don't list their contents
  -L, --level DEPTH   limit the depth of recursion
  -r, --reverse        reverse the sort order
  -s, --sort SORT_FIELD which field to sort by
  --group-directories-first list directories before other files
  -D, --only-dirs      list only directories
  -I, --ignore-glob GLOB ignore patterns (glob-extended) of files to ignore

```

```
-I, --ignore-glob GLOBS  glob patterns (pipe-separated) of files to ignore
Valid sort fields:       name, Name, extension, Extension, size, type,
                        modified, accessed, created, inode, and none.
                        date, time, old, and new all refer to modified.
```

```
sskisijara@CIS106vm: ~/Downloads
sskisijara@CIS106vm:~/Downloads$ exa ~/lab4files/ -l
.rw-rw-r-- 20k sskisijara 22 Feb 14:16 countries.json
.rw-rw-r-- 284k sskisijara 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k sskisijara 22 Feb 14:13 document.docx
.rw-rw-r-- 742k sskisijara 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 sskisijara 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M sskisijara 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k sskisijara 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k sskisijara 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M sskisijara 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k sskisijara 22 Feb 14:16 website.html
sskisijara@CIS106vm:~/Downloads$
sskisijara@CIS106vm:~/Downloads$ exa ~/lab4files/ -lh
Permissions Size User Date Modified Name
.rw-rw-r-- 20k sskisijara 22 Feb 14:16 countries.json
.rw-rw-r-- 284k sskisijara 22 Feb 14:15 csvfile.csv
.rw-rw-r-- 764k sskisijara 22 Feb 14:13 document.docx
.rw-rw-r-- 742k sskisijara 22 Feb 14:12 globe.avi
.rw-rw-r-- 76 sskisijara 22 Feb 14:18 helloWorld.c
.rw-rw-r-- 2.6M sskisijara 22 Feb 14:10 Linux.pdf
.rw-rw-r-- 8.7k sskisijara 22 Feb 14:12 sample.xls
.rw-rw-r-- 43k sskisijara 22 Feb 14:10 Tux.png
.rw-rw-r-- 2.1M sskisijara 22 Feb 14:11 Ubuntu.pdf
.rw-rw-r-- 137k sskisijara 22 Feb 14:16 website.html
sskisijara@CIS106vm:~/Downloads$ exa ~/lab4files/ -lh --no-user -U
Permissions Size Date Created Name
.rw-rw-r-- 20k 14 Oct 16:43 countries.json
.rw-rw-r-- 284k 14 Oct 16:43 csvfile.csv
.rw-rw-r-- 764k 14 Oct 16:43 document.docx
.rw-rw-r-- 742k 14 Oct 16:43 globe.avi
.rw-rw-r-- 76 14 Oct 16:43 helloWorld.c
.rw-rw-r-- 2.6M 14 Oct 16:43 Linux.pdf
.rw-rw-r-- 8.7k 14 Oct 16:43 sample.xls
.rw-rw-r-- 43k 14 Oct 16:43 Tux.png
.rw-rw-r-- 2.1M 14 Oct 16:43 Ubuntu.pdf
.rw-rw-r-- 137k 14 Oct 16:43 website.html
sskisijara@CIS106vm:~/Downloads$
```

## Question 4 Challenge Question

```

sskisijara@CIS106vm: /usr/share
sskisijara@CIS106vm: /usr/share
sskisijara@CIS106vm: /dev/disk/by-id

sskisijara@CIS106vm:~$ pwd
/home/sskisijara
sskisijara@CIS106vm:~$ cd /usr/share/icons/default/
sskisijara@CIS106vm:/usr/share/icons/default$ cd
sskisijara@CIS106vm:~$ cd /proc/sys/net/ipv4/
sskisijara@CIS106vm:/proc/sys/net/ipv4$ cd ../
sskisijara@CIS106vm:/proc/sys/net$ ls /usr/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
sskisijara@CIS106vm:/proc/sys/net$ ls /home/sskisijara/cis-106-f22/
cheatsheets 'final project' labs 'week reports'
sskisijara@CIS106vm:/proc/sys/net$ cd /home/
sskisijara@CIS106vm:/home$ ls /sskisijara/Downloads/
ls: cannot access '/sskisijara/Downloads/': No such file or directory
sskisijara@CIS106vm:/home$ ls /Downloads/
ls: cannot access '/Downloads/': No such file or directory
sskisijara@CIS106vm:/home$ ls /home/sskisijara/Downloads/
game.txt      Inter_Tight.zip  Ms_Madi        Noto_Sans_JP      practicels.tar.xz
Inter_Tight   lab4files.zip   Ms_Madi.zip    Noto_Sans_JP.zip  wallpaper.jpg
sskisijara@CIS106vm:/home$ cd /dev/disk/by-id/
sskisijara@CIS106vm:/dev/disk/by-id$ ls -la
total 0
drwxr-xr-x 2 root root 140 Oct 10 16:54 .
drwxr-xr-x 8 root root 160 Oct 10 16:53 ..
lrwxrwxrwx 1 root root 9 Oct 10 16:54 ata-VBOX_CD-ROM_VB2-01700376 -> ../../sr0
lrwxrwxrwx 1 root root 9 Oct 10 16:53 ata-VBOX_HARDDISK_VB72c2c399-259d0e10 -> ../../sda
lrwxrwxrwx 1 root root 10 Oct 10 16:53 ata-VBOX_HARDDISK_VB72c2c399-259d0e10-part1 -> ../../sda1
lrwxrwxrwx 1 root root 10 Oct 10 16:53 ata-VBOX_HARDDISK_VB72c2c399-259d0e10-part2 -> ../../sda2
lrwxrwxrwx 1 root root 10 Oct 10 16:53 ata-VBOX_HARDDISK_VB72c2c399-259d0e10-part3 -> ../../sda3
sskisijara@CIS106vm:/dev/disk/by-id$ cd
sskisijara@CIS106vm:~$ cd /usr/share/themes/
sskisijara@CIS106vm:/usr/share/themes$ ls -S
Adwaita      Yaru      Yaru-dark-hdpi  Yaru-olive-dark  Yaru-red-dark
Adwaita-dark Yaru-bark  Yaru-dark-xdpi  Yaru-prussiangreen Yaru-sage
Default      Yaru-bark-dark Yaru-hdpi      Yaru-prussiangreen-dark Yaru-sage-dark
Emacs        Yaru-blue   Yaru-magenta    Yaru-purple       Yaru-viridian
HighContrast Yaru-blue-dark Yaru-magenta-dark Yaru-purple-dark   Yaru-viridian-dark
Raleigh      Yaru-dark   Yaru-olive      Yaru-red          Yaru-xhdp
sskisijara@CIS106vm:/usr/share/themes$ cd ../
sskisijara@CIS106vm:/usr/share$ ls -X
accountsservice  gnome-system-monitor  perl

```

```

sskisijara@CIS106vm: /usr/share
sskisijara@CIS106vm: /dev/disk/by-id

sskisijara@CIS106vm: /usr/share
sskisijara@CIS106vm: /dev/disk/by-id

aclocal          gnome-todo        perl
acpi-support     gnome-tweaks      perl-openssl-defaults
adduser          gnome-video-effects pipewire
aisleriot         gnupg             pixmaps
alacarte         grilo-plugins     pkgconfig
alsa             groff             plymouth
alsa-base        grub              pnm2ppa
alsa-card-profile grub-gfxpayload-lists pocketsphinx
appdata          gst-plugins-base  polkit-1
applications     gtk-doc            poppler
appport          gtk-engines        ppd
apps             gtksourceview-4   ppp
apturl           guile              publicsuffix
aspell           gupnp-av           pulseaudio
avahi            gvfs               pyshared
backgrounds      help               python3
base-files       help-langpack     python-apt
base-passwd      hplip              qts
bash-completion hunspell           readline
binfmts          hwdata             remmina
branding          hyphen             rhythmbox
brltty           i18n               rig
bug              ibus               rsync
build-essential  ibus-table         rsyslog
ca-certificates  icons              rubygems-integration

```



```

caffeine-indicator      ImageMagick-6           rygel
catdoc                  im-config               samba
cmake                   indicator-application   seahorse
cogl                    indicator-power         secureboot
color                   indicators              sensible-utils
colord                  info                    session-migration
common-licenses         initramfs-tools         sgml
consolefonts            installed-tests          sgml-base
console-setup          ipp-usb                 sgml-data
consoletrans            iptables                snmp
cowsay                  iso-codes                software-properties
cups                    java                     solid
dbus-1                  javascript              sounds
dconf                   kde4                     source-highlight
debconf                 keyrings                 speech-dispatcher
debhelper               language-selector       ssl-cert
debianutils             language-support        system-config-printer
defaults                language-tools          systemd
desktop-directories    libcaca                  systemtap
dict                    libc-bin                 tabset
dictionaries-common     libdebuginfod-common    tcltk

```

```

sskisijara@CIS106vm: /usr/share
sskisijara@CIS106vm: /usr/share
sskisijara@CIS106vm: /dev/disk/by-id

eog                libreoffice        transmission
evince             libvenge           ubuntu
evolution-data-server libthai            ubuntu-drivers-common
figlet             libwacom           ubuntu-release-upgrader
file               lightdm            ubuntu-wayland
file-roller        lintian            ucf
fish               linux-sound-base  ufw
flameshot          locale             unattended-upgrades
fontconfig         locale-langpack   unity
fonts              locales            update-manager
fonts-droid-fallback lto-disabled-list update-notifier
fonts-sil-abyssinica m2300w             upstart
fonts-sil-padauk   man                usb-creator
foo2qpd            man-db             usb_modeswitch
foo2zjs            mate-panel         vala
fwupd              maven-repo         vim
gamemode           media-player-info  vlc
games              menu                vulkan
gcc                mesa-demos         w3m
GConf              metaio             wayland-sessions
gdb                mfx                X11
gdm                mime               xapps-common
geany              misc               xdg-desktop-portal
gedit              mobile-broadband-provider-info xml
GeoIP              ModemManager       xml-core
gettext            mousetweaks        xsessions
ghostscript        mythes             yelp
git-core           nano               yelp-xsl
gitweb             nautilus           zenity
glade              nautilus-python   zoneinfo
glvnd              nautilus-share    zoneinfo-icu
gnome               nemo               zsh
gnome-applets      netpbm             gir-1.0
gnome-background-properties netplan            glib-2.0
gnome-bluetooth    numpy3             gnome-bluetooth-3.0
gnome-control-center open-vm-tools       goa-1.0
gnome-initial-setup openvpn             gstreamer-1.0
gnome-logs          orca                gtk-4.0
gnome-mahjongg      os-prober           gtksourceview-2.0
gnome-panel         p11-kit             gtksourceview-3.0
gnome-remote-desktop package-data-downloads gupnp-dlna-2.0
gnome-session       PackageKit          org.gnome.Characters
gnome-settings-daemon pam                  drirc.d
gnome-shell         pam-configs
sskisijara@CIS106vm: /usr/share$

```