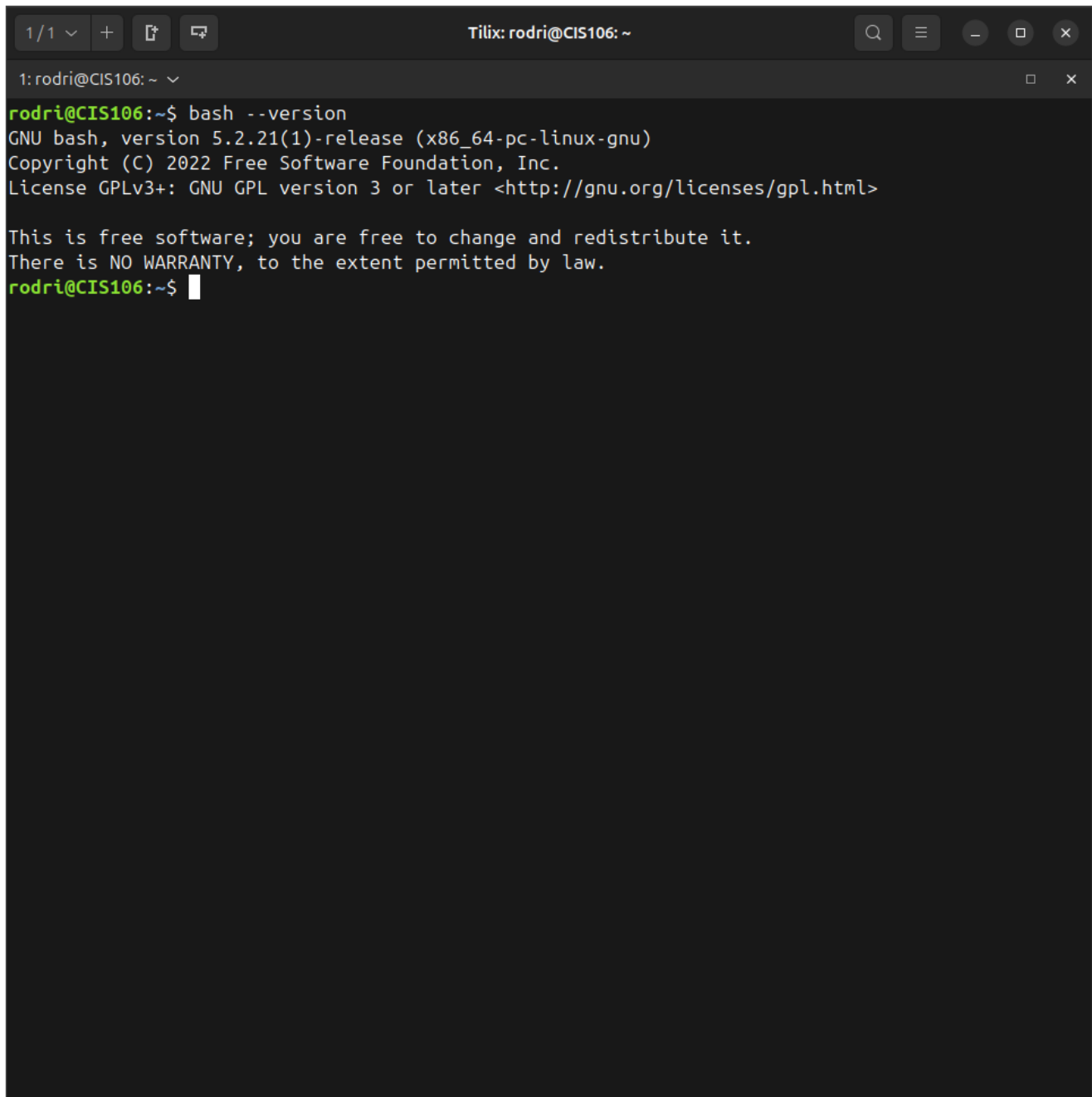


Week Report 3

Completed work for week 3

- [Lab 3](#)
- [Notes 3](#)

Practice 2: Accessing the Bash Shell

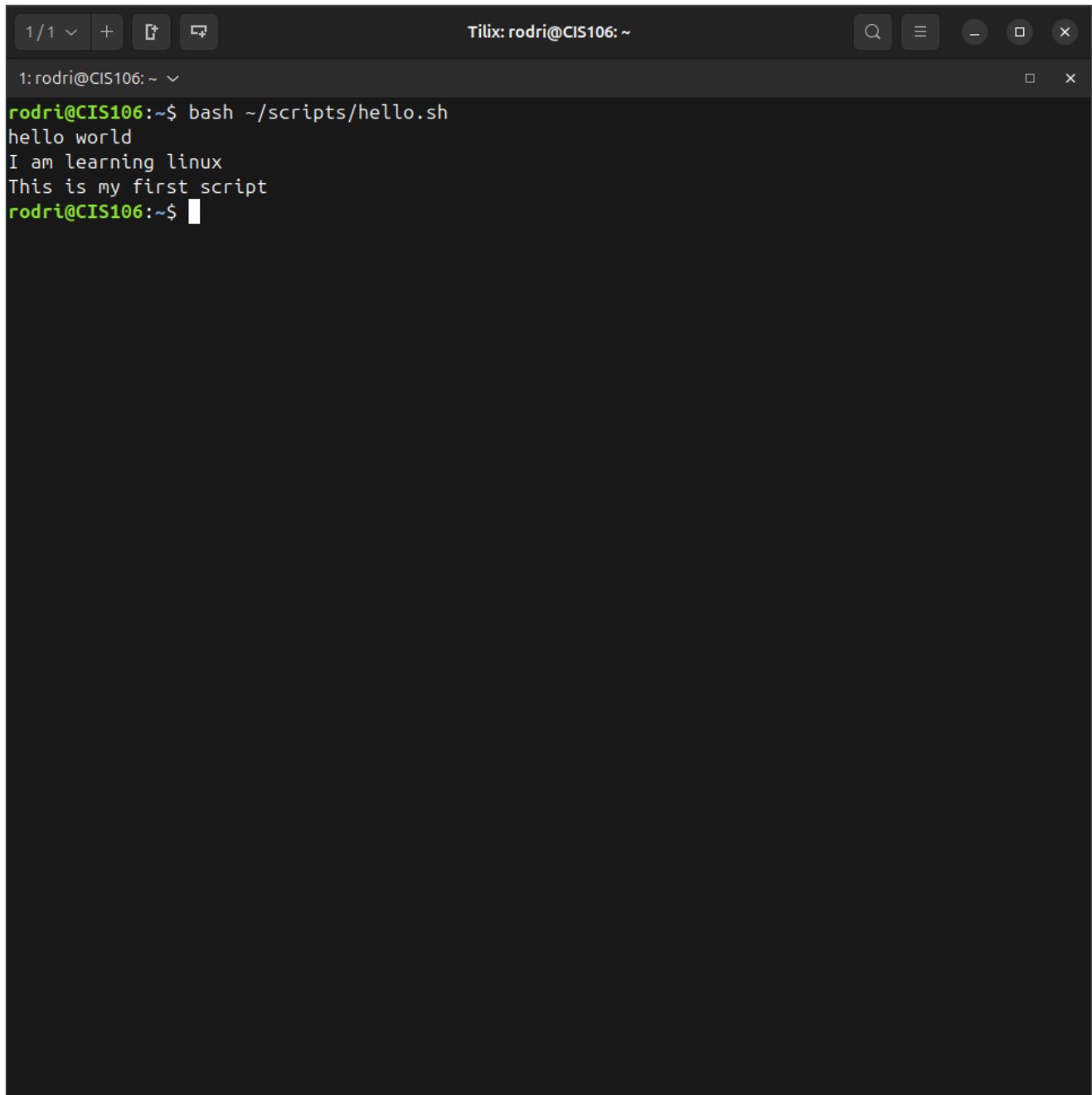


```
Tilix: rodri@CIS106: ~  
1: rodri@CIS106: ~  
rodri@CIS106:~$ bash --version  
GNU bash, version 5.2.21(1)-release (x86_64-pc-linux-gnu)  
Copyright (C) 2022 Free Software Foundation, Inc.  
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>  
  
This is free software; you are free to change and redistribute it.  
There is NO WARRANTY, to the extent permitted by law.  
rodri@CIS106:~$
```

Practice 3: Using the command history

```
Tilix: rodri@CIS106: ~  
1: rodri@CIS106: ~  
284 clear  
285 bash cis106/labs/lab3/challenge_lab3.sh  
286 clear  
287 bash cis106/labs/lab3/challenge_lab3.sh  
288 xclear  
289 clear  
290 bash cis106/labs/lab3/challenge_lab3.sh  
291 bash cis106/labs/lab3/test.sh  
292 bash cis106/labs/lab3/challenge_lab3.sh  
293 bash cis106/labs/lab3/test.sh  
294 bash cis106/labs/lab3/challenge_lab3.sh  
295 bash cis106/labs/lab3/test.sh  
296 clear  
297 bash cis106/labs/lab3/test.sh  
298 clear  
299 bash --version  
300 clear  
301 date  
302 echo  
303 clear  
304 date  
305 echo "hello world"  
306 uname -a  
307 history  
rodri@CIS106:~$ !119  
batcat .bashrc  
Command 'batcat' not found, but can be installed with:  
sudo apt install bat  
rodri@CIS106:~$ !305  
echo "hello world"  
hello world  
rodri@CIS106:~$ !!  
echo "hello world"  
hello world  
rodri@CIS106:~$ echo "hello"  
hello  
rodri@CIS106:~$ !!world  
echo "hello"world  
helloworld  
rodri@CIS106:~$
```

Practice 4: My first Shell Script

A terminal window titled "Tilix: rodri@CIS106: ~" with standard window controls. The prompt is "1: rodri@CIS106: ~". The user enters "bash ~/scripts/hello.sh". The script outputs three lines: "hello world", "I am learning linux", and "This is my first script". The prompt returns to "rodri@CIS106:~\$".

```
1: rodri@CIS106: ~  
rodri@CIS106:~$ bash ~/scripts/hello.sh  
hello world  
I am learning linux  
This is my first script  
rodri@CIS106:~$
```

Practice 5: Using man

The screenshot shows a terminal window with two panes. The left pane displays the man page for the `free` command, detailing its syntax, description, and output columns. The right pane shows the command being executed and its output.

Man Page for `free`:

NAME
`free` - Display amount of free and used memory in the system

SYNOPSIS
`free [options]`

DESCRIPTION
`free` displays the total amount of free and used physical and swap memory in the system, as well as the buffers and caches used by the kernel. The information is gathered by parsing `/proc/meminfo`. The displayed columns are:

total Total usable memory (MemTotal and SwapTotal in `/proc/meminfo`). This includes the physical and swap memory minus a few reserved bits and kernel binary code.

used Used or unavailable memory (calculated as **total** - **available**)

free Unused memory (MemFree and SwapFree in `/proc/meminfo`)

shared Memory used (mostly) by tmpfs (Shmem in `/proc/meminfo`)

buffers Memory used by kernel buffers (Buffers in `/proc/meminfo`)

cache Memory used by the page cache and slabs (Cached and SReclaimable in `/proc/meminfo`)

buff/cache Sum of **buffers** and **cache**

Manual page `free(1)` line 1 (press h for help or q to quit)

Terminal Output:

```
rodri@CIS106:~$ uname -s
Linux
rodri@CIS106:~$ uname -n
CIS106
rodri@CIS106:~$ uname -io
x86_64 GNU/Linux
rodri@CIS106:~$ man date
rodri@CIS106:~$ man df
rodri@CIS106:~$ man free
rodri@CIS106:~$ man clear
rodri@CIS106:~$ man history
rodri@CIS106:~$ free --giga
              total        used        free      shared  buff/cache
Mem:           4            3            0            0            1
Swap:           4            1            2
```

Practice 6: Using the help option

The screenshot shows a terminal window with two panes. The left pane displays the man page for the `date` command, detailing its syntax, flags, and examples. The right pane shows the output of the `whatis` command for various system utilities.

Man Page for `date`:

%z +hhmm numeric time zone (e.g., -0400)
%:z +hh:mm numeric time zone (e.g., -04:00)
%::z +hh:mm:ss numeric time zone (e.g., -04:00:00)
%:::z numeric time zone with : to necessary precision (e.g., -04, +05:30)
%Z alphabetic time zone abbreviation (e.g., EDT)

By default, date pads numeric fields with zeroes.
The following optional flags may follow '%':

- (hyphen) do not pad the field
- _ (underscore) pad with spaces
- 0 (zero) pad with zeros
- + pad with zeros, and put '+' before future years with >4 digits
- ^ use upper case if possible
- # use opposite case if possible

After any flags comes an optional field width, as a decimal number; then an optional modifier, which is either
E to use the locale's alternate representations if available, or
O to use the locale's alternate numeric symbols if available.

Examples:
Convert seconds since the Epoch (1970-01-01 UTC) to a date
`$ date --date='@2147483647'`

Show the time on the west coast of the US (use `tzselect(1)` to find TZ)
`$ TZ='America/Los_Angeles' date`

Show the local time for 9AM next Friday on the west coast of the US
`$ date --date='TZ="America/Los_Angeles" 09:00 next Fri'`

GNU coreutils online help: <<https://www.gnu.org/software/coreutils/>>
Full documentation <<https://www.gnu.org/software/coreutils/date>>
or available locally via: `info '(coreutils) date invocation'`

Terminal Output:

```
rodri@CIS106:~$ whatis ls
ls (1) - list directory contents
rodri@CIS106:~$ whatis pwd
pwd (1) - print name of current/working directory
rodri@CIS106:~$ whatis apt
apt (8) - command-line interface
rodri@CIS106:~$ whatis sudo
sudo (8) - execute a command as another user
rodri@CIS106:~$
```

Practice 7: Cheat!

```
1: rodri@CIS106: ~  
tar -xvf /path/to/foo.tar  
  
# To extract a .tar in specified directory:  
tar -xvf /path/to/foo.tar -C /path/to/destination/  
  
# To create an uncompressed archive:  
tar -cvf /path/to/foo.tar /path/to/foo/  
  
# To extract a .tgz or .tar.gz archive:  
tar -xzvf /path/to/foo.tgz  
tar -xzvf /path/to/foo.tar.gz  
  
# To create a .tgz or .tar.gz archive:  
tar -czvf /path/to/foo.tgz /path/to/foo/  
tar -czvf /path/to/foo.tar.gz /path/to/foo/  
  
# To list the content of an .tgz or .tar.gz archive:  
tar -tzvf /path/to/foo.tgz  
tar -tzvf /path/to/foo.tar.gz  
  
# To extract a .tar.bz2 archive:  
tar -xjvf /path/to/foo.tar.bz2  
  
# To create a .tar.bz2 archive:  
tar -cjvf /path/to/foo.tar.bz2 /path/to/foo/  
  
# To list the content of an .tar.bz2 archive:  
tar -tjvf /path/to/foo.tar.bz2  
  
# To create a .tgz archive and exclude all jpg,gif,... from the tgz:  
tar -czvf /path/to/foo.tgz --exclude='*.{jpg,gif,png,wmv,flv,tar,gz,zip}' /path/to/foo/  
  
# To use parallel (multi-threaded) implementation of compression algorithms:  
tar -z ... -> tar -Ipigz ...  
tar -j ... -> tar -Ipbzip2 ...  
tar -J ... -> tar -Ipxz ...  
  
# To append a new file to an old tar archive:  
tar -rf <archive.tar> <new-file-to-append>  
rodri@CIS106:~$  
  
2: rodri@CIS106: ~  
tar -xvf /path/to/foo.tar  
  
# To extract a .tar in specified directory:  
tar -xvf /path/to/foo.tar -C /path/to/destination/  
  
# To create an uncompressed archive:  
tar -cvf /path/to/foo.tar /path/to/foo/  
  
# To extract a .tgz or .tar.gz archive:  
tar -xzvf /path/to/foo.tgz  
tar -xzvf /path/to/foo.tar.gz  
  
# To create a .tgz or .tar.gz archive:  
tar -czvf /path/to/foo.tgz /path/to/foo/  
tar -czvf /path/to/foo.tar.gz /path/to/foo/  
  
# To list the content of an .tgz or .tar.gz archive:  
tar -tzvf /path/to/foo.tgz  
tar -tzvf /path/to/foo.tar.gz  
  
# To extract a .tar.bz2 archive:  
tar -xjvf /path/to/foo.tar.bz2  
  
# To create a .tar.bz2 archive:  
tar -cjvf /path/to/foo.tar.bz2 /path/to/foo/  
  
# To list the content of an .tar.bz2 archive:  
tar -tjvf /path/to/foo.tar.bz2  
  
# To create a .tgz archive and exclude all jpg,gif,... from the tgz:  
tar -czvf /path/to/foo.tgz --exclude='*.{jpg,gif,png,wmv,flv,tar,gz,zip}' /path/to/foo/  
  
# To use parallel (multi-threaded) implementation of compression algorithms:  
tar -z ... -> tar -Ipigz ...  
tar -j ... -> tar -Ipbzip2 ...  
tar -J ... -> tar -Ipxz ...  
  
# To append a new file to an old tar archive:  
tar -rf <archive.tar> <new-file-to-append>  
rodri@CIS106:~$
```

Practice 1: Managing Software

```
1: rodri@CIS106: ~  
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...  
Processing triggers for libc-bin (2.39-0ubuntu8.4) ...  
Processing triggers for man-db (2.12.0-4build2) ...  
rodri@CIS106:~$ man bastet  
rodri@CIS106:~$ bastet  
rodri@CIS106:~$ sudo apt remove bastet  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following package was automatically installed and is no longer required:  
  libboost-program-options1.83.0  
Use 'sudo apt autoremove' to remove it.  
The following packages will be REMOVED:  
  bastet  
0 upgraded, 0 newly installed, 1 to remove and 1 not upgraded.  
After this operation, 214 kB disk space will be freed.  
Do you want to continue? [Y/n] Y  
(Reading database ... 239420 files and directories currently installed.)  
Removing bastet (0.43-7build1) ...  
Processing triggers for hicolor-icon-theme (0.17-2) ...  
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...  
Processing triggers for man-db (2.12.0-4build2) ...  
Processing triggers for desktop-file-utils (0.27-2build1) ...  
rodri@CIS106:~$ sudo apt purge bastet  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following package was automatically installed and is no longer required:  
  libboost-program-options1.83.0  
Use 'sudo apt autoremove' to remove it.  
The following packages will be REMOVED:  
  bastet*  
0 upgraded, 0 newly installed, 1 to remove and 1 not upgraded.  
After this operation, 0 B of additional disk space will be used.  
Do you want to continue? [Y/n] Y  
(Reading database ... 239410 files and directories currently installed.)  
Purging configuration files for bastet (0.43-7build1) ...  
rodri@CIS106:~$  
  
2: rodri@CIS106: ~  
rodri@CIS106:~$ apt search "tetris clone"  
Sorting... Done  
Full Text Search... Done  
bastet/noble 0.43-7build1 amd64  
  ncurses Tetris clone with a bastard algorithm  
  
lttris/noble 1.2.8-1 amd64  
  very polished Tetris clone with CPU opponents  
  
tint/noble 0.07 amd64  
  Tetris clone for text based terminal  
  
rodri@CIS106:~$
```

Practice 3: Installing and removing Snap

```

1/1  +  [?] [x]  Tilix: rodri@CIS106: ~
1: rodri@CIS106: ~  [x]
    Quota Groups: set-quota, remove-quota, quotas, quota
    Validation Sets: validate
    ... Other: warnings, okay, known, ack, version
    Development: validate

For more information about a command, run 'snap help <command>'.
For a short summary of all commands, run 'snap help --all'.
rodri@CIS106:~$ snap find tetris clone
Name                Version  Publisher  Notes  Summary
tetris-in-racket    1.2-2    brunonova  -      Tetris clone developed in Racket
vitetris            0.57     bladernr   -      Console based version of Tetris
fairtris            3.0.0.4  chronoscz  -      A fair implementation of Classic Tetris® video
game.
pmtris              1.0      kz6fittycent -      Poor Man's Tetris Clone
ltris-windows       1.2.3    marisag1967 -      A free Tetris clone that follows the original r
ules but adds some extras
rodri@CIS106:~$ snap install tetris-in-racket
tetris-in-racket 1.2-2 from Bruno Nova (brunonova) installed
rodri@CIS106:~$ snap start tetris-in-racket
error: snap "tetris-in-racket" has no services
rodri@CIS106:~$ start tetris-in-racket
Command 'start' not found, did you mean:
  command 'stars' from snap stars (2.7jrc3)
  command 'stat' from deb coreutils (9.4-2ubuntu2)
  command 'kstart' from deb kde-cli-tools (4:5.27.10-0ubuntu1)
  command 'startx' from deb xinit (1.4.1-0ubuntu4)
  command 'rstart' from deb x11-session-utils (7.7+6)
See 'snap info <snapname>' for additional versions.
rodri@CIS106:~$ snap remove tetris-in-racket
snap "tetris-in-racket" is not installed
rodri@CIS106:~$ tetris-in-racket --help
shm_open() failed: Permission denied
Connection failure: Connection refused
pa_context_connect() failed: Connection refused
shm_open() failed: Permission denied
Connection failure: Connection refused
pa_context_connect() failed: Connection refused
rodri@CIS106:~$ sudo snap remove tetris-in-racket
tetris-in-racket removed
rodri@CIS106:~$

```

Practice 4: Working with FlatPak

