

## How to use

1. Run `make` to compile the kernel module.
2. Run `make install` to insert the module.
3. Run `make mls` to see if the module is loaded.
4. Run `dmesg` to see the output.
5. Run `make rm` to remove the module.
6. Run `dmesg` to see the output.

## Description

As the screenshot shows, the kernel module prints the data in the link list. `dmesg` command is used to verify the information.

## Screenshot

```
kfc@ubuntu:~/Desktop/LOSE/link_list_c$ make
make -C /lib/modules/5.15.0-101-generic/build M=/home/kfc/Desktop/LOSE/link_list_c modules
make[1]: Entering directory '/usr/src/linux-headers-5.15.0-101-generic'
  CC [M] /home/kfc/Desktop/LOSE/link_list_c/link_list_c.o
  make MODPOST /home/kfc/Desktop/LOSE/link_list_c/Module.symvers
  CC [M] /home/kfc/Desktop/LOSE/link_list_c/link_list_c.mod.o
  LD [M] /home/kfc/Desktop/LOSE/link_list_c/link_list_c.ko
  BTF [M] /home/kfc/Desktop/LOSE/link_list_c/link_list_c.ko
Skipping BTF generation for /home/kfc/Desktop/LOSE/link_list_c/link_list_c.ko due to unavailability of vmlinux
make[1]: Leaving directory '/usr/src/linux-headers-5.15.0-101-generic'
kfc@ubuntu:~/Desktop/LOSE/link_list_c$ make install
sudo insmod link_list_c.ko
kfc@ubuntu:~/Desktop/LOSE/link_list_c$ dmesg | tail
[ 4924.616556] Collatz Conjecture List:

[ 5007.136853] module removed
[ 5017.864221] module loaded
[ 5017.864227] Collatz Conjecture List:
[ 5017.864229] 100, 50, 25, 76, 38, 19, 58, 29, 88, 44, 22, 11, 34, 17, 52, 26, 13, 40, 20, 10, 5, 16, 8, 4, 2, 1,
[ 5058.719861] module removed
[ 5091.373296] module loaded
[ 5091.373299] Collatz Conjecture List:
[ 5091.373301] 100 50 25 76 38 19 58 29 88 44 22 11 34 17 52 26 13 40 20 10 5 16 8 4 2 1
kfc@ubuntu:~/Desktop/LOSE/link_list_c$ make uninstall
sudo rmmod link_list_c
kfc@ubuntu:~/Desktop/LOSE/link_list_c$ dmesg | tail
[ 5007.136853] module removed
[ 5017.864221] module loaded
[ 5017.864227] Collatz Conjecture List:
[ 5017.864229] 100, 50, 25, 76, 38, 19, 58, 29, 88, 44, 22, 11, 34, 17, 52, 26, 13, 40, 20, 10, 5, 16, 8, 4, 2, 1,
[ 5058.719861] module removed
[ 5091.373296] module loaded
[ 5091.373299] Collatz Conjecture List:
[ 5091.373301] 100 50 25 76 38 19 58 29 88 44 22 11 34 17 52 26 13 40 20 10 5 16 8 4 2 1
[ 5108.472759] module removed
kfc@ubuntu:~/Desktop/LOSE/link_list_c$
```

Figure 1: Screenshot