

## Question 1:

```
osc@ubuntu:~/final-src-osc10e/ch2$ ls
hello.c Makefile simple.c
osc@ubuntu:~/final-src-osc10e/ch2$ make
make -C /lib/modules/4.4.0-87-generic/build M=/home/osc/final-src-osc10e/ch2 modules
make[1]: Entering directory '/usr/src/linux-headers-4.4.0-87-generic'
  CC [M] /home/osc/final-src-osc10e/ch2/simple.o
  Building modules, stage 2.
  MODPOST 1 modules
  CC      /home/osc/final-src-osc10e/ch2/simple.mod.o
  LD [M] /home/osc/final-src-osc10e/ch2/simple.ko
make[1]: Leaving directory '/usr/src/linux-headers-4.4.0-87-generic'
osc@ubuntu:~/final-src-osc10e/ch2$ ls
hello.c  modules.order  simple.c  simple.mod.c  simple.o
Makefile Module.symvers simple.ko  simple.mod.o
osc@ubuntu:~/final-src-osc10e/ch2$
```

Figure 1: Make Simple

```
osc@ubuntu:~/final-src-osc10e/ch2$ sudo insmod simple.ko
osc@ubuntu:~/final-src-osc10e/ch2$ dmesg
[ 842.005442] Loading Module
osc@ubuntu:~/final-src-osc10e/ch2$ sudo rmmod simple
osc@ubuntu:~/final-src-osc10e/ch2$ dmesg
[ 842.005442] Loading Module
[ 916.589770] Removing Module
osc@ubuntu:~/final-src-osc10e/ch2$
```

Figure 2: Load and Unload Simple

## Question 2:

```
osc@ubuntu:~/final-src-osc10e/ch2$ ls -al
total 20
drwxrwxr-x  2 osc osc 4096 Feb 10 15:20 .
drwxrwxr-x 11 osc osc 4096 Jul 19  2018 ..
-rw-rw-r--  1 osc osc 2317 Jun 18  2018 hello.c
-rw-rw-r--  1 osc osc  153 Feb 10 15:19 Makefile
-rw-rw-r--  1 osc osc  737 Jun 18  2018 simple.c
osc@ubuntu:~/final-src-osc10e/ch2$ make
make -C /lib/modules/4.4.0-87-generic/build M=/home/osc/final-src-osc10e/ch2 modules
make[1]: Entering directory '/usr/src/linux-headers-4.4.0-87-generic'
  CC [M]  /home/osc/final-src-osc10e/ch2/hello.o
  Building modules, stage 2.
  MODPOST 1 modules
  CC      /home/osc/final-src-osc10e/ch2/hello.mod.o
  LD [M]  /home/osc/final-src-osc10e/ch2/hello.ko
make[1]: Leaving directory '/usr/src/linux-headers-4.4.0-87-generic'
osc@ubuntu:~/final-src-osc10e/ch2$ ls -al
total 116
drwxrwxr-x  3 osc osc  4096 Feb 10 15:20 .
drwxrwxr-x 11 osc osc  4096 Jul 19  2018 ..
-rw-rw-r--  1 osc osc  2317 Jun 18  2018 hello.c
-rw-rw-r--  1 osc osc  5752 Feb 10 15:20 hello.ko
-rw-rw-r--  1 osc osc   235 Feb 10 15:20 .hello.ko.cmd
-rw-rw-r--  1 osc osc   990 Feb 10 15:20 hello.mod.c
-rw-rw-r--  1 osc osc  3136 Feb 10 15:20 hello.mod.o
-rw-rw-r--  1 osc osc 27108 Feb 10 15:20 .hello.mod.o.cmd
-rw-rw-r--  1 osc osc  4496 Feb 10 15:20 hello.o
-rw-rw-r--  1 osc osc 29212 Feb 10 15:20 .hello.o.cmd
-rw-rw-r--  1 osc osc   153 Feb 10 15:19 Makefile
-rw-rw-r--  1 osc osc    47 Feb 10 15:20 modules.order
-rw-rw-r--  1 osc osc     0 Feb 10 15:20 Module.symvers
-rw-rw-r--  1 osc osc   737 Jun 18  2018 simple.c
drwxrwxr-x  2 osc osc  4096 Feb 10 15:20 .tmp_versions
```

Figure 3: Make Hello

```
osc@ubuntu:~/final-src-osc10e/ch2$ sudo insmod hello.ko
osc@ubuntu:~/final-src-osc10e/ch2$ cat /proc/hello
Hello World
osc@ubuntu:~/final-src-osc10e/ch2$ sudo rmmod hello
osc@ubuntu:~/final-src-osc10e/ch2$ dmesg
[ 1297.398673] /proc/hello created
[ 1324.957558] /proc/hello removed
```

Figure 4: Load and Unload Hello