TODO

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Assignment

Kernel : 4.20.16 STABLE

OS : Ubuntu 18.04.2 desktop amd64

**Task 1: Build and run modules**

*linux/init.h* defines the macros used for free up kernal memory.*\_\_init, \_\_exit* and *\_\_initdata. \_\_init* and *\_\_initdata* are used to clear up functions and variables respectively. These are only need for built-in modules and it does nothing for loadable modules. *\_\_exit* macro help in omission of the function when the module is built-in because a built-in function does not need a exit function but a loadable function needs it.

*linux/module.h* help us in dynamic loading of modules into the kernel. And provides access to these methods:

*module\_init*  
 *module\_exit*

*MODULE\_LICENSE("GPL")* is used to inform the user that the code is not open source.

*module\_init* and *module\_exit* is use to point to the function pointer that will be executed when the module is loaded and when the module is unloaded receptively.

|  |
| --- |
| Makefile |
| obj-m := hello.o  KDIR := /lib/modules/$(shell uname -r)/build  all:      $(MAKE) -C $(KDIR) M=$(shell pwd) modules  clean:      $(MAKE) -C $(KDIR) M=$(shell pwd) clean      $(RM) Module.markers modules.order |

**Running of a hello.c**

Command used to build the module.

*sudo make*

Command used to insert the module into the running kernel

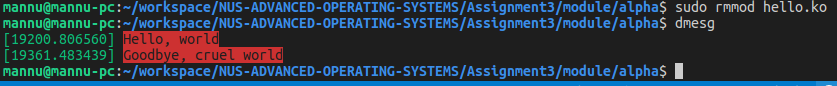
*sudo insmod hello.ko*

When the module is inserted the *dmseg* shows the output ofthe *printk().*



Command used to remove the module from the running kernel.

*sudo rmmod hello.ko*

When the module is removed the *dmseg* shows the output ofthe *printk().*

APPENDIX

sudo apt-get install virtualbox

<https://www.cyberciti.biz/tips/compiling-linux-kernel-26.html>

<http://tldp.org/LDP/lkmpg/2.6/html/x279.html>