

In this code include many header file for different general purpose like this

```
#include <linux/init.h>      // kernel module initialization and cleanup functions.
#include <linux/module.h>    // defining and managing kernel modules
#include <linux/sched.h>     // this include scheduling related process
#include <linux/kernel.h>    // macros and kernel-related function
#include <linux/syscalls.h>  // system call-related functionality
```

module-related macros and information

```
MODULE_LICENSE("GPL");
MODULE_AUTHOR("roshan_kshitij");
MODULE_DESCRIPTION("this kernel program list task running process");
```

This is a static init function and this function list_taks process and count totalprocess_count and initial is zero and count total running process if running then count in totalprocess_count and print task name which process running and pid number

And after for loop return total running process

```
static int process_running(void) {
    struct task_struct *task;
    int totalprocess_count = 0;
    for_each_process(task) {
        if (task->__state == TASK_RUNNING) {
            printk(KERN_INFO "Task name: %s, PID: %d\n", task->comm, task->pid);
            totalprocess_count++;
        }
    }
    printk(KERN_INFO "total number of running process : %u\n", totalprocess_count);
    return 0;
}
```

And use __init to macros to compile and for initialization for the function and macro also like a function and in this function call process_running how many currently running process print total process

And after this close the module to use exit function call and this module exit a function call and terminate the call

Command to run this make file

make

Sudo insmod question3.ko

Sudo rmmod question3.ko

Sudo insmod question3.ko

Sudo dmesg

And make clean after running process

This is screen shot for the ans

```
1397.123800] total number of running process : 1
2470.211235] wlp0s20f3: deauthenticated from aa:eb:e7:2a:b8:7d (Reason: 3=DEAUTH_LEAVING)
2487.210363] wlp0s20f3: authenticate with 30:86:2d:78:5f:21
2487.225253] wlp0s20f3: send auth to 30:86:2d:78:5f:21 (try 1/3)
2487.285794] wlp0s20f3: authenticated
2487.290253] wlp0s20f3: associate with 30:86:2d:78:5f:21 (try 1/3)
2487.296293] wlp0s20f3: RX AssocResp from 30:86:2d:78:5f:21 (capab=0x411 status=0 aid=4)
2487.299869] iwlwifi 0000:00:14.3: Got NSS = 4 - trimming to 2
2487.304483] wlp0s20f3: associated
2487.334245] iwlwifi 0000:00:14.3: Got NSS = 4 - trimming to 2
2487.353991] IPv6: ADDRCONF(NETDEV_CHANGE): wlp0s20f3: link becomes ready
2713.880856] task list kernel module uploaded
2713.880896] Task name: cinnamon, PID: 1705
2713.880915] Task name: insmod, PID: 8303
2713.880915] total number of running process : 2
```