Operating Systems

Project 1
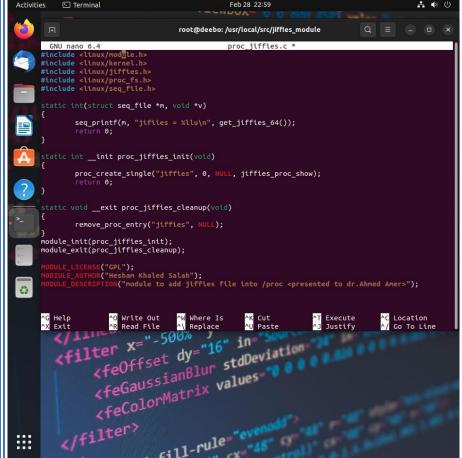
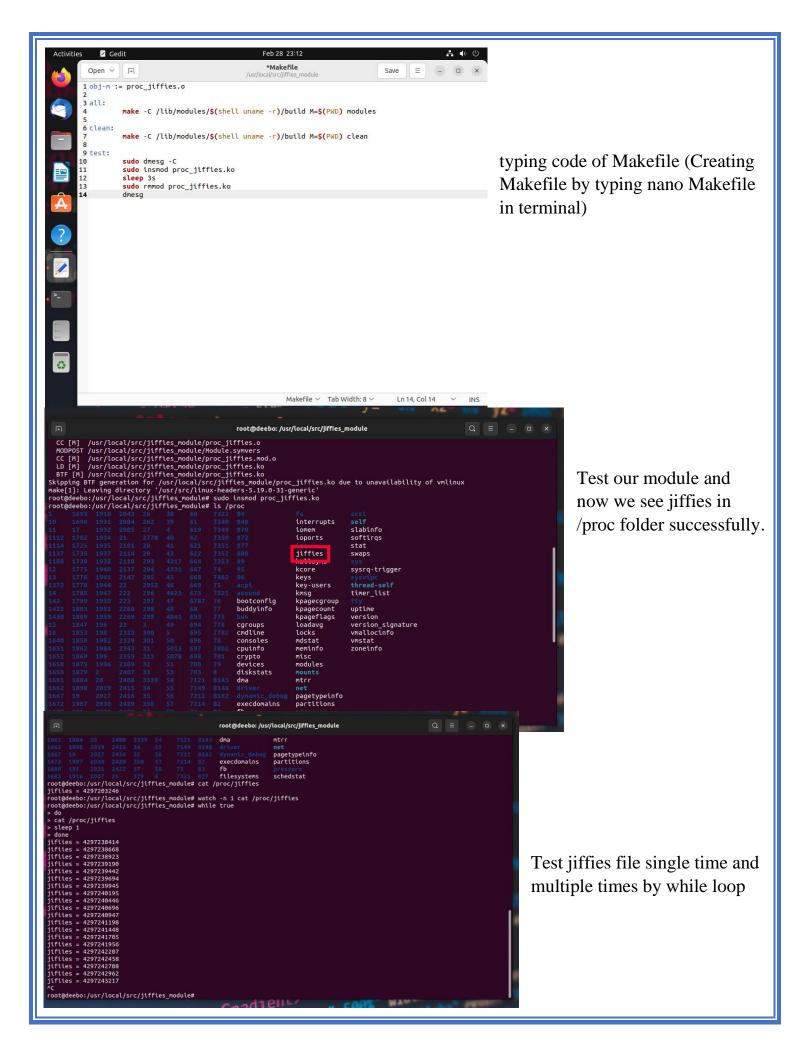| الاسم	هشام خالد صلاح محمد عبدالهادى
الفصل	4
الكود	20812019100121

First Module (Jiffies Module):
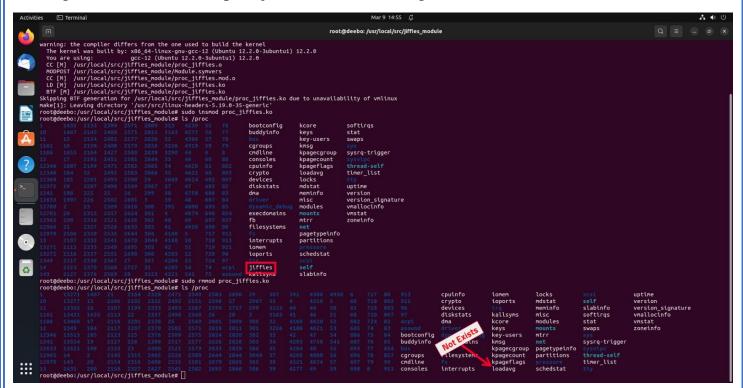
Screenshots and steps:

making folder in /local/src and making new C file (our kernel module).

Typing code of our module
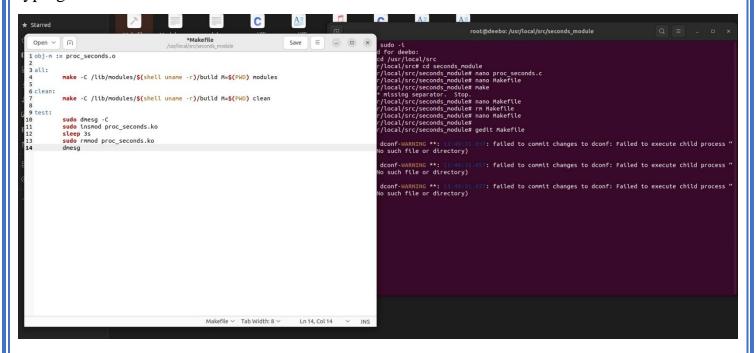And giving it an author name and description.

typing code of Makefile (Creating Makefile by typing nano Makefile in terminal)

```
1 obj-m := proc_jiffies.o
2
3 all:
4        make -C /lib/modules/$(shell uname -r)/build M=$(PWD) modules
5
6 clean:
7        make -C /lib/modules/$(shell uname -r)/build M=$(PWD) clean
8
9 test:
10       sudo dmesg -C
11       sudo insmod proc_jiffies.ko
12       sleep 3s
13       sudo rmmod proc_jiffies.ko
14       dmesg
```


Test our module and now we see jiffies in /proc folder successfully.

Test jiffies file single time and multiple times by while loop

Making sure to remove the /proc/jiffies when removing the module

Second Module (Seconds Module):

Screenshots and steps:

typing code of Makefile


```
1 obj-m := proc_seconds.o
2
3 all:
4       make -C /lib/modules/$(shell uname -r)/build M=$(PWD) modules
5
6 clean:
7       make -C /lib/modules/$(shell uname -r)/build M=$(PWD) clean
8
9 test:
10      sudo dmesg -C
11      sudo insmod proc_seconds.ko
12      sleep 3s
13      sudo rmmod proc_seconds.ko
14      dmesg
```
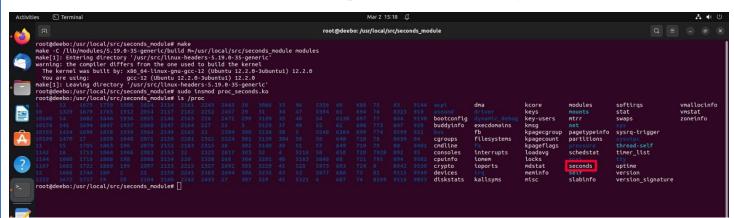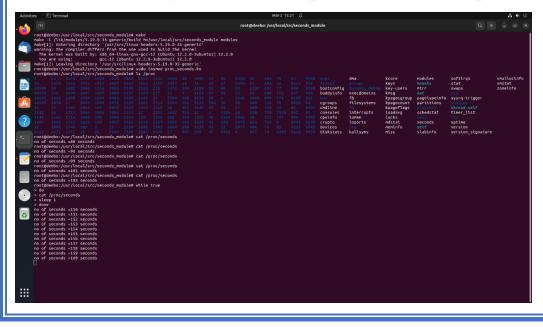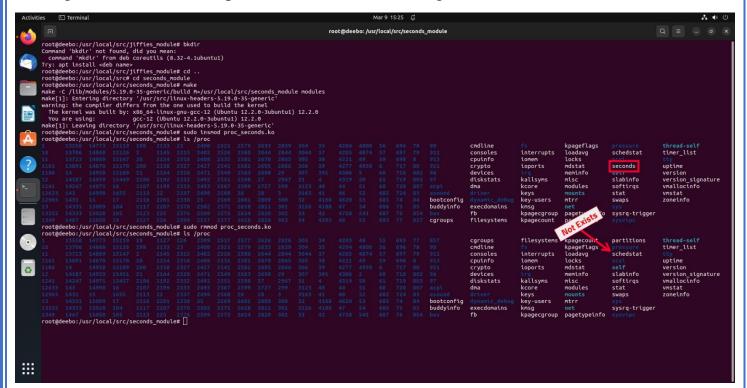
Running the module (without errors)

Test our module and now we see seconds in /proc folder successfully.

Test seconds file single times and multiple times by while loop

Making sure to remove the /proc/seconds when removing the module

What I learned from the project:

1. Some shortcuts and commands in terminal.
2. Creating Linux module.
3. Creating Makefile and linking other files together.
4. Searching and dealing with errors.
5. Improving my skills.