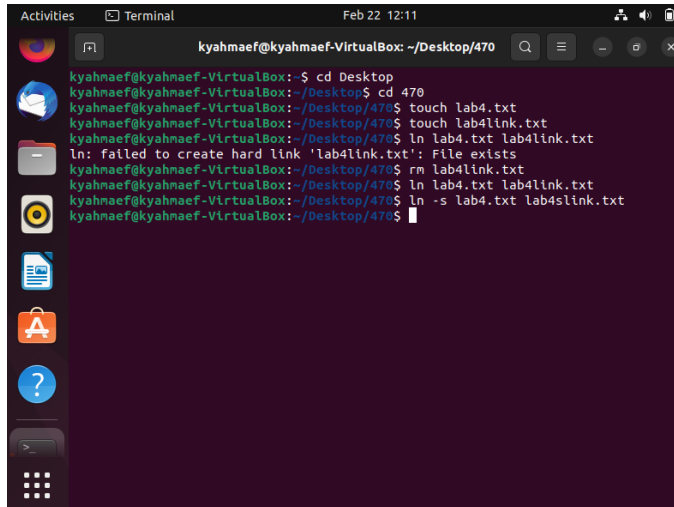


## Lab 4

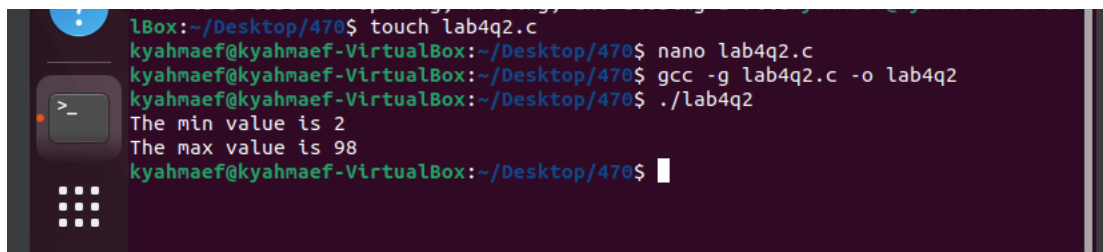
### Question 1

A terminal window titled 'kyahmaef@kyahmaef-VirtualBox: ~/Desktop/470' showing a series of commands to create and link files. The user navigates to the Desktop directory and then to a subdirectory named 470. They create two text files, lab4.txt and lab4link.txt, using the 'touch' command. An attempt to create a hard link with 'ln lab4.txt lab4link.txt' fails with the message 'ln: failed to create hard link 'lab4link.txt': File exists'. The user then removes lab4link.txt with 'rm lab4link.txt' and successfully creates a hard link with 'ln lab4.txt lab4link.txt'. Finally, they create a soft link with 'ln -s lab4.txt lab4slink.txt'.

```
kyahmaef@kyahmaef-VirtualBox: ~/Desktop/470
kyahmaef@kyahmaef-VirtualBox:~$ cd Desktop
kyahmaef@kyahmaef-VirtualBox:~/Desktop$ cd 470
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ touch lab4.txt
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ touch lab4link.txt
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ ln lab4.txt lab4link.txt
ln: failed to create hard link 'lab4link.txt': File exists
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ rm lab4link.txt
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ ln lab4.txt lab4link.txt
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ ln -s lab4.txt lab4slink.txt
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$
```

First is a hard link of the lab4.txt to the lab4link and then I did a soft link of the same.

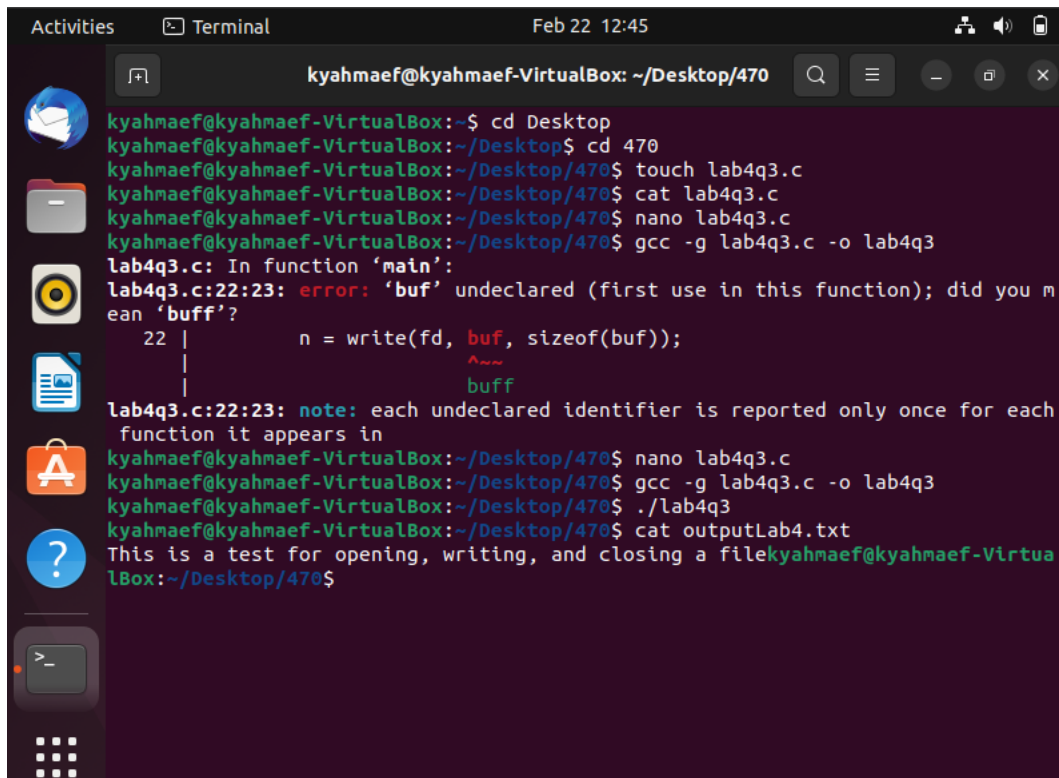
### Question 2

A terminal window showing the execution of a program. The user creates a file lab4q2.c with 'touch lab4q2.c', opens it with 'nano lab4q2.c', compiles it with 'gcc -g lab4q2.c -o lab4q2', and runs it with './lab4q2'. The program outputs 'The min value is 2' and 'The max value is 98'.

```
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ touch lab4q2.c
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ nano lab4q2.c
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ gcc -g lab4q2.c -o lab4q2
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ ./lab4q2
The min value is 2
The max value is 98
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$
```

Here is a multithread program that runs through an array in order to find the min number and the max number. To code this I made two functions and used two threads to search for these numbers.

### Question 3



```
kyahmaef@kyahmaef-VirtualBox: ~/Desktop/470
kyahmaef@kyahmaef-VirtualBox:~$ cd Desktop
kyahmaef@kyahmaef-VirtualBox:~/Desktop$ cd 470
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ touch lab4q3.c
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ cat lab4q3.c
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ nano lab4q3.c
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ gcc -g lab4q3.c -o lab4q3
lab4q3.c: In function 'main':
lab4q3.c:22:23: error: 'buff' undeclared (first use in this function); did you mean 'buff'?
    22 |         n = write(fd, buff, sizeof(buff));
       |                        ^~~
       |                        buff
lab4q3.c:22:23: note: each undeclared identifier is reported only once for each function it appears in
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ nano lab4q3.c
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ gcc -g lab4q3.c -o lab4q3
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ ./lab4q3
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$ cat outputLab4.txt
This is a test for opening, writing, and closing a file
kyahmaef@kyahmaef-VirtualBox:~/Desktop/470$
```

This program was a test for reading and writing to a file. First go around I had one small typo error that the gcc compiler found but afterwards we could read the file that the program wrote to and it had the information that was in the program in that txt file.