

```
miguel@miguel-Standard-PC-Q35-ICH9-2009: ~  
miguel@miguel-Standard-PC-Q35-ICH9-2009:~$ ln ./Pictures thisgoeshard  
ln: ./Pictures: hard link not allowed for directory  
miguel@miguel-Standard-PC-Q35-ICH9-2009:~$ ln ./program.c thisgoeshard  
miguel@miguel-Standard-PC-Q35-ICH9-2009:~$ ln -s ./Pictures thisgoessoft  
ln: failed to access 'thisgoessoft': No such file or directory  
miguel@miguel-Standard-PC-Q35-ICH9-2009:~$ ln -s ./Pictures thisgoessoft  
miguel@miguel-Standard-PC-Q35-ICH9-2009:~$ ls  
Desktop  ht          Music      program.c  Templates  Videos  
Documents lab3        Pictures   Public      thisgoeshard  
Downloads lab-assignments program  snap       thisgoessoft  
miguel@miguel-Standard-PC-Q35-ICH9-2009:~$
```

```
Activities Terminal Feb 22 20:46  
miguel@miguel-Standard-PC-Q35-ICH9-2009:~/lab4$ ./multithread 2 20 25 5 70 90 98  
The min is 2.  
The max is 98.  
miguel@miguel-Standard-PC-Q35-ICH9-2009:~/lab4$ ./files; cat outputLab4.txt  
This is a test for opening, writing, and closing a file!  
miguel@miguel-Standard-PC-Q35-ICH9-2009:~/lab4$ ./matrix  
neo:  
[1, 2, 3, 4,  
5, 6, 7, 8,  
9, 10, 11, 12, ]  
morpheus:  
[12, 43, 4, 55,  
1, 27, 8, 9,  
28, 10, 35, 3, ]  
trinity:  
[21, 21, 5,  
1, 7, 63,  
2, 4, 9,  
32, 6, 24, ]  
-----  
neo + morpheus:  
[13, 45, 7, 59,  
6, 33, 15, 17,  
37, 20, 43, 15, ]  
neo - morpheus:  
[-11, -41, -1, -51,  
4, -21, -1, -1,  
-19, 0, -21, 9, ]  
neo * trinity:  
[157, 71, 254,  
381, 223, 658,  
605, 375, 1062, ]  
miguel@miguel-Standard-PC-Q35-ICH9-2009:~/lab4$
```

In `./multithread`, the program takes an input of numbers and finds the minimum and maximum of the inputs. The program creates two threads, one responsible for finding the min, and the other responsible for finding the max.

`./files` creates and writes to a file called `outputLab4.txt`. It writes the string “This is a test for opening, writing, and closing a file!”

In `./matrix`, the program creates three matrices: `neo`, `morpheus`, and `trinity`. These matrices were created to add, subtract, and multiply. Three threads are created, one for adding, one for subtracting, and one for multiplying.

Multithread program: <https://github.com/KingOfSpadesJFK/CS-OS-470-labs/blob/main/lab4/multithread.c>

Files program: <https://github.com/KingOfSpadesJFK/CS-OS-470-labs/blob/main/lab4/files.c>

Matrix program: <https://github.com/KingOfSpadesJFK/CS-OS-470-labs/blob/main/lab4/matrix.c>