OS HW1 Programming projects

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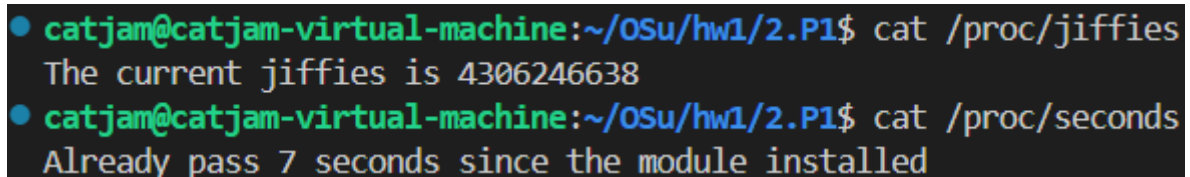分工: $\frac{1}{3}$ for each

Environment
- OS: Ubuntu 22.04
- Kernel: 6.5.0-26-generic
- Compiler: gcc 12.3.9

Ch2 project 1
Commands

```
cd 2.P1
make
make install # for install module
cat /proc/jiffies
cat /proc/seconds
make remove # for remove module
make clean
```

Result image

Figure 1: The result for `cat /proc/jiffies` and `cat /proc/jiffies`

Ch3 project 1
Commands

```
gcc 3.P1/osh.c -o osh
./osh
ls -l > out.txt
sort < out.txt
cat in.txt | sort -h --parallel=4
!!
rm out.txt
exit
```

Result image

```
catjam@catjam-virtual-machine:~/OSu/hw1$ ./osh
osh> ls -l > out.txt
osh> sort < out.txt
drwxrwxr-x 2 catjam catjam    4096 ⎓  20 16:32 3.P3
drwxrwxr-x 2 catjam catjam    4096 ⎓  21 00:36 3.P2
drwxrwxr-x 2 catjam catjam    4096 ⎓  22 01:12 3.19
drwxrwxr-x 2 catjam catjam    4096 ⎓  22 01:23 3.21
drwxrwxr-x 2 catjam catjam    4096 ⎓  22 01:27 2.24
drwxrwxr-x 2 catjam catjam    4096 ⎓  22 01:55 3.P1
drwxrwxr-x 2 catjam catjam    4096 ⎓  22 02:01 3.27
drwxrwxr-x 2 catjam catjam    4096 ⎓  22 23:24 2.P1
drwxrwxr-x 4 catjam catjam    4096 ⎓  21 02:03 3.P4
-rw-r--r-- 1 catjam catjam    1001 ⎓  22 23:28 out.txt
-rw-r--r-- 1 catjam catjam 5294520 ⎓  17 16:20 cat.gif
-rw-rw-r-- 1 catjam catjam 1171910 ⎓  22 23:31 project_docs.pdf
-rw-rw-r-- 1 catjam catjam 1377365 ⎓  22 02:07 problem_docs.pdf
-rw-rw-r-- 1 catjam catjam    1651 ⎓  22 02:07 problem_docs.typ
-rw-rw-r-- 1 catjam catjam      41 ⎓  19 10:05 in.txt
-rw-rw-r-- 1 catjam catjam     737 ⎓  22 23:31 project_docs.typ
-rwxrwxr-x 1 catjam catjam   16816 ⎓  22 23:25 osh
total 7740
osh> cat in.txt | sort -h --parallel=4
April
2e-4
3.13
344
34213
45K
98K
12M
1G
osh> !!
April
2e-4
3.13
344
34213
45K
98K
12M
1G
osh> rm out.txt
osh> exit
```
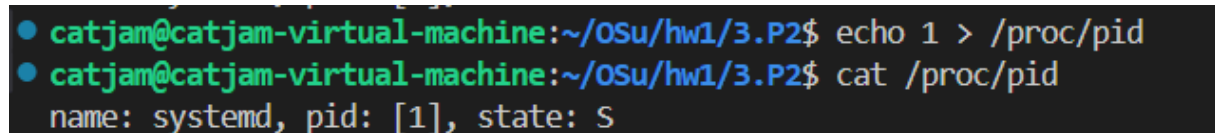
Figure 2: The result for `ls -l > out.txt`, `sort < out.txt`, `cat in.txt | sort -h --parallel=4`, `!!`, `rm out.txt`, `exit`

Ch3 project 2

Commands

```
cd 3.P2
make
make install # install module
echo 1 > /proc/pid
cat /proc/pid
make remove # remove module
```
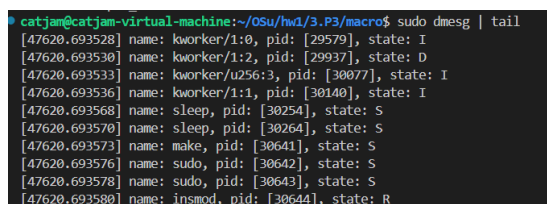
Result image

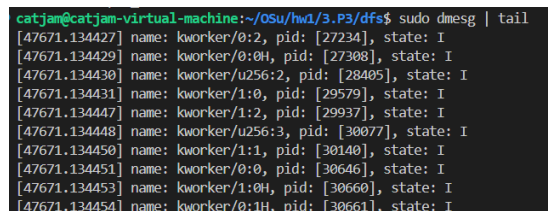Figure 3: The result for `echo 1 > /proc/pid` and `cat /proc/pid`

Ch3 project 3

Commands

```
cd 3.P3/macro
make
make install
sudo dmesg | tail
make remove
cd ../dfs
make
make install
sudo dmesg | tail
make remove
```

Result image

Figure 4: The result for `sudo dmesg | tail` after `make install` in 3.P3/macro

Figure 5: The result for `sudo dmesg | tail` after `make install` in 3.P3/dfs

Ch3 project 4

Commands

```
cd 3.P4/1
make
make install
sudo dmesg | tail
make remove
cd ../2
make
sudo insmod ./collatz.ko start=40
```

```
sudo dmesg | tail
sudo rmmod collatz
```

Result image

Figure 6: The result for `sudo dmesg | tail` after `make install` in 3.P4/1

Figure 7: The result for `sudo dmesg | tail` after `sudo insmod ./collatz.ko start=40` in 3.P4/2