

HW #6

=====start of the write-up=====

Part1:

Mutual Exclusion:

Every pair of chopstick between the philosophers are shared, therefore there is no mutual exclusion.

Hold and wait:

Each philosopher is holding onto one chopstick waiting for the second chopstick that the next philosopher is holding.

Preemption:

When one philosopher has a chopstick, no other philosopher can take it away until the philosopher willingly puts it down.

Circular Wait:

One philosopher is waiting on the next one for the next philosopher to put down their chopstick, so if all the philosophers have one chopstick, none of the philosophers will ever get to eat.

By eliminating hold and wait, each philosopher starts with no chopsticks and only takes it when the chopstick as a pair is available. This will eliminate the lack of resources because each program will start with zero resources and relies on an external factor to allocate which program will have how much resource.

Submitter: dereky1(Yang,Derek)

Part2: banker.c

```
dereky1@elke-huebsch:~/143a/hw/hw6
Script started on Wed 09 Nov 2016 04:43:05 PM PST
^[[0;dereky1@elke-huebsch:~/143a/hw/hw6^G^[[?1034hdereky1@elke-huebsch 16:43:05 ~/143a/hw/hw6 ^M^
M
$ make clean^M
rm banker^M
^[[0;dereky1@elke-huebsch:~/143a/hw/hw6^Gdereky1@elke-huebsch 16:43:08 ~/143a/hw/hw6 ^M^M
$ make^M
gcc -o banker banker.c -I.^M
^[[0;dereky1@elke-huebsch:~/143a/hw/hw6^Gdereky1@elke-huebsch 16:43:09 ~/143a/hw/hw6 ^M^M
$ make run^M
banker < test_safe.txt^M
Process 2 has been granted resources^M
Process 4 has been granted resources^M
Process 0 has been granted resources^M
Process 1 has been granted resources^M
Process 3 has been granted resources^M
The system is in a safe state^M
^[[0;dereky1@elke-huebsch:~/143a/hw/hw6^Gdereky1@elke-huebsch 16:43:12 ~/143a/hw/hw6 ^M^M
$ banker < test_unsafe.txt^M
The system is in an unsafe state^M
^[[0;dereky1@elke-huebsch:~/143a/hw/hw6^Gdereky1@elke-huebsch 16:43:23 ~/143a/hw/hw6 ^M^M
$ python test.py^M
gcc -o banker banker.c -I.^M
Your program outputs that script test_safe.txt is a safe state!^M
Your program outputs that script test_unsafe.txt is an unsafe state!^M
^[[0;dereky1@elke-huebsch:~/143a/hw/hw6^Gdereky1@elke-huebsch 16:43:29 ~/143a/hw/hw6 ^M^M
$ exit^M
exit^M
Script done on Wed 09 Nov 2016 04:43:31 PM PST
29,46 All
```

=====end of the write-up=====