

系統程式 HW14

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1.請撰寫應用程式，使用蒙特卡羅法計算pi，應用程式可以有二個參數，第一個參數是總共打多少個點，第二個參數是使用多少thread做運算

```
~/De/h/Sy/hw14 > ./pi 20000000 3
@buffer = 0x55d98ffbb040
thread0's seed = 0.388038
@buffer = 0x55d98ffbb880
thread1's seed = 0.979820
@buffer = 0x55d98ffbbba40
thread2's seed = 0.848673
hit = 5236208
hit = 5237555
hit = 5237319
pi = 3.14221640
```

2.當按下ctr-c的時候，顯示截至目前計算出來的pi是多少

```

~/De/h/SystemProgramming/hw14 > ./pi 100000000 4
@buffer = 0x556252fcc040
thread0's seed = 0.388038
@buffer = 0x556252fcc880
thread1's seed = 0.979820
@buffer = 0x556252fcc40
thread2's seed = 0.848673
@buffer = 0x556252fccbc0
thread3's seed = 0.276070
^C pi = 3.99999926
pi = 3.99999926
hit = 19634749
hit = 19635702
hit = 19637326
hit = 19635555
pi = 3.14173328

```

3.當在一秒內連續按下二次ctr-c的時候，顯示截至目前計算出來的pi是多少，並結束程式

```

pi = 3.14173328
~/De/homework/SystemProgramming/hw14 > ./pi 100000000 4
@buffer = 0x56113a82e040
thread0's seed = 0.388038
@buffer = 0x56113a82e880
thread1's seed = 0.979820
@buffer = 0x56113a82ea40
thread2's seed = 0.848673
@buffer = 0x56113a82ebc0
thread3's seed = 0.276070
^C pi = 3.99999966
pi = 3.99999966
^C pi = 3.99999971
~/De/homework/SystemProgramming/hw14 > ./pi 100000000 4

```

4.請說明你的應用程式比授課老師所給的範例程式快或者是慢，並『具體』說明變快或者變慢的原因

自己的程式碼:

```
~/De/h/SystemProgramming/hw14 > time ./pi 2000000000 4
@buffer = 0x55ebf9169040
thread0's seed = 0.388038
@buffer = 0x55ebf9169880
thread1's seed = 0.979820
@buffer = 0x55ebf9169a40
thread2's seed = 0.848673
@buffer = 0x55ebf9169bc0
thread3's seed = 0.276070
hit = 392698309
hit = 392710724
hit = 392702374
hit = 392698972
pi = 3.14162076

=====
CPU      387%
user     2:17.50 s
system   0.010 s
total    35.501 s
~/De/h/SystemProgramming/hw14 > gcc nit.c -o nit
```

老師的程式碼:

```
~/De/homework/SystemProgramming/hw14 > time ./pit 2000000000 4
@buffer = 0x55c7a1d95040
thread0's seed = 0.388038
@buffer = 0x55c7a1d95880
thread1's seed = 0.979820
@buffer = 0x55c7a1d95a40
thread2's seed = 0.848673
@buffer = 0x55c7a1d95bc0
thread3's seed = 0.276070
hit = 392702374
hit = 392710724
hit = 392698972
hit = 392698309
pi = 3.14162076

=====
CPU      378%
user     2:03.52 s
system   0.003 s
total    32.626 s
~/De/homework/SystemProgramming/hw14 >
```

實際上沒有差太多

註: 有參考學長姐的作業