python Lab. 12

2012.6.11
Thread

~ summary

- Used to make more than 2-flows in one Program.
- Resources are shared among threads.
- Process ⊃ Thread
- For further information,

~ http://docs.python.org/library/threading.html?module-threading
Thread(2)
~ Relationships Process ~ Thread

Multi Tasking

Process-1
Process-2
...
Process-N

Multi Threading

Thread-1
Thread-2
...
Thread-N
Thread(3)

~ Lock

• Once a thread has acquired it, subsequent attempts to acquire it block, until it is released; any thread may release it.

• Lock.acquire()

• Lock.release()
Thread ~ Example (Locked)

```python
>>> import threading
>>> import time

g_count = 0;
lock = threading.Lock()

class ThreadClass(threading.Thread):
    def counter(self, ident, i):
        global g_count

        for j in range(i):
            lock.acquire()
            print('%.s, count = %d' % (ident, g_count))
            g_count = g_count + 1
            lock.release()

    def run(self):
        global g_count
        self.counter(self.getName(), 5)

for i in range(10):
    t = ThreadClass()
    t.start()
    time.sleep(3)
```
Thread ~ Example(Unlocked)

```python
import threading
import time

g_count=0;

lock = threading.Lock()

class ThreadClass(threading.Thread):
    def counter(self, ident, i):
        global g_count

        for j in range(i):
            #lock.acquire()
            print('%s, count = %d' % (ident, g_count))

            g_count = g_count+1
            #lock.release()

    def run(self):
        global g_count
        self.counter(self.getName(),5)

for i in range(10):
    t = ThreadClass()
    t.start()
    time.sleep(3)
```
Chatting Program

From B: Hello?
B: Hi?

From A: Hi?
A: Hello?
Chatting Protocol

Protocol

command|data

Command

0: User list request (client → server)
1: User list (server → client)
   1|Kim|Lee|Park|
2: Msg to another user (client → server)
   2|Kim|Hi ➔ send message ‘Hi’ to Kim
3: Msg from another user (server → client)
   3|Kim|How are you ➔ receive message ‘How are you’ from Kim
4: Server Msg (server → client)
   4|Enter your name
5: Register Msg (client → server)
   5|Moon
6: Error Msg (server → client)
   6|Invalid command ➔ receive error message ‘Invalid command’ from server
7: Logout (client → server)
Example

Client A

From B: Hello?

B: Hi?

Client B

From A: Hi?

A: Hello?
Python Project

• Due Date: 2012.6.24 23:59:59
• Requirement
  ▪ Report
  ▪ Source Code

▪ 모든 제출물은 ZIP 파일로 압축할 것
  • 이름_학번.zip