

Introduction

Perforce HelixCore is an enterprise-grade version control and content collaboration platform that accommodates thousands of concurrent users and thousands of changes per day. Due to its concurrency, bad use practices from a few could easily affect everyone else in the same system.

At AMD, CMT Infrastructure team is tasked to maintain day-to-day performance of this system. One way that we could identify and monitor the ever-changing user behaviors are through P4 server log where errors are being written into.

Interview Question

Please submit your best work through email

Create P4Info class to represent Perforce server log file (partial code and sample data attached)

1. How to interpret log file:

- a. <https://community.perforce.com/s/article/2525?ui-force-components-controllersrecordGlobalValueProvider.RecordGvp.getRecord=1&r=4>

P4Info class

1. Stores P4 lock information in **__db_lock** attribute as a list of *Lock* namedtuple
2. Contains **__get_db_locks** method which return parse p4.log file into Lock namedtuple list
3. Contains **__get_info_blocks** method which filter & split p4.log file into *str* block of info
4. Contains **__str2dblock** method which convert *str* block into *Lock* namedtuple
5. Contains **get_max_wait_read** method which return *str* of highest wait read
6. Contains **get_max_wait_write** method which return *str* of highest wait write
7. Contains **get_max_held_read** method which return *str* of highest held read
8. Contains **get_max_held_write** method which return *str* of highest held write

```

37 Perforce server info:
38 2020/01/21 04:43:46 pid 105302 completed 142s 0+2us 0+288io 0+0net 5612k 0pf
39 Perforce server info:
40 2020/01/21 04:41:23 pid 105302 james@james+proj_delta+var2+1050 123.12.111.001/123.12.111.010 [Unnamed P4Perl script/v76
41 ] 'dm-CommitSubmit'
42 --- lapse 142s
43 --- db.integed
44 --- total lock wait+held read/write 0ms+0ms/0ms+142087ms
45 --- db.archmap
46 --- total lock wait+held read/write 0ms+0ms/0ms+142086ms
47 --- db.revdx
48 --- total lock wait+held read/write 0ms+0ms/142087ms+0ms
49 Perforce server info:
50 2020/01/21 08:04:39 pid 83550 uma@123_12_111_007~pm-98274 123.12.111.001/123.12.111.105 [pm/Linux/2.6/x86_64/39359\F304F
51 AC485BA0EEE4E133FFED27B7599/v84] 'user-change -o'
52 Perforce server error:
53 date 2020/01/21 08:04:39:
54 Pid 83468
55 Connection from 123.12.111.987:48572 broken.
56 Partner exited unexpectedly.
57 Perforce server info:
58 2020/01/21 08:04:39 pid 83553 james@james+proj_delta+var3+643 123.12.111.001/123.12.111.055 [icmanage/Linux/2.6/x86_64/3
59 9359/v84] 'user-fstat all_cell/layout/layout.oa'
60 Perforce server info:
61 2020/01/21 08:04:39 pid 83554 amy@amyhost 123.12.111.240 [icmp4/Linux/2.6/x86_64/39359/v84] 'user-login -s'
62 Perforce server info:
63 2020/01/21 08:02:03 pid 79007 uma@123_12_111_123~pm-126700 123.12.111.001/123.12.111.45 [pm/Linux/2.6/x86_64/39359\5B32b
64 0CFEE957D7DA98DE045CDB10AA6/v84] 'dm-SubmitChange'
65 --- lapse 155s
66 --- db.integed
67 --- total lock wait+held read/write 155791ms+1ms/0ms+0ms
68 --- max lock wait+held read/write 155791ms+1ms/0ms+0ms
69 Perforce server info:
70 2020/01/22 02:35:20 pid 176840 completed 218s 195201+11518us 0+5008io 0+0net 1177060k 0pf
71 Perforce server info:
72 2020/01/22 02:31:41 pid 176840 isaac@isaac+proj_alpha+var1+48 123.12.111.001/123.12.111.093 [icmp4/Linux/2.6/x86_64/3935
73 9/2018.1/LINUX/39359] 'user-sync isaac1/... isaac2/... isaac3/... isaac3/... isaac4/... isaac5/... isaac6/... documentation/
74 ...'
75 --- lapse 218s
76 --- usage 195201+11518us 0+5008io 0+0net 1177060k 0pf
77 --- db.have
78 --- pages reordered internal+leaf 1+40
79 --- locks read/write 0/11 rows get+pos+scan put+del 0+18+1223768 885+215
80 --- peek count 18 wait+held total/max 0ms+29054ms/0ms+9588ms
81 --- db.revdx
82 --- locks read/write 18/0 rows get+pos+scan put+del 0+18+1005232 0+0

```

info_block --- section after "Perforce server info:" line

Lock(james, dm-CommitSubmit, 0, 0, 142087, 142087) --- based on "total lock wait+held read/write" line

not info_block --- not section after "Perforce server info:"

Lock(uma, dm-SubmitChange, 155791, 1, 0, 0)

38,77-80 42%

Most Valued Candidates

Candidate's ability in this assignment would be judged based on the following; ordered from the most valued to some of the good to have traits

1. Ability to understand and to focus on resolving the problem
2. Self-motivated in research and to acquire additional knowledge in resolving the issue
3. Ability to provide Python script able to parse sampled data which print expected output
4. Ability to provide Python script with specified methods
5. Ability to write Pythonic codes
6. Most ideal candidates may even provide script with better Object-Oriented Programming design pattern and methods to improve class performances

Required script output based on p4.log sample

```
csh> python3.4 scan_p4log_answer.py p4.log  
LongWaitRead: uma,dm-SubmitChange,155791,1,0,0  
LongWaitWrite: isaac,user-sync isaac1/... isaac2/... isaac3/... isaac3/... isaac4/... isaac5/...  
isaac6/... documentation/...,0,179838,0,0  
LongHeldRead: michel,dm-CommitSubmit,0,0,156698,156698  
LongHeldWrite: deepak,user-clean,0,10829,0,4078896
```