CLOUD COMPUTING - UE20CS351

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Experiment 4: The Raft Consensus Algorithm

➤ 1a: Pyenv installed and local Python version changed to 3.6.8

```
[03/18/23]seed@VM:~/CC_E4_PES1UG20CS825$ ls -a
.  ..  .python-version  raftos
[03/18/23]seed@VM:~/CC_E4_PES1UG20CS825$ python -V
Python 3.6.8
[03/18/23]seed@VM:~/CC_E4_PES1UG20CS825$ pyenv versions
  system
* 3.6.8 (set by /home/seed/CC_E4_PES1UG20CS825/.python-version)
[03/18/23]seed@VM:~/CC_E4_PES1UG20CS825$ pyenv local 3.6.8
[03/18/23]seed@VM:~/CC_E4_PES1UG20CS825$ python -V
Python 3.6.8
[03/18/23]seed@VM:~/CC_E4_PES1UG20CS825$ ls -a
.  ..  .python-version  raftos
[03/18/23]seed@VM:~/CC_E4_PES1UG20CS825$
```

➤ 2a: Initial leader election has occurred, and first value has replicated.

```
[03/18/23]seed@VM:~/.../raftos$ python node.py --     [03/18/23]seed@VM:~/.../raftos$ tail -f node1_CU
node 1                                                STOMLOG.log
                                                      Leader is now: 127.0.0.1:8001



[03/18/23]seed@VM:~/.../raftos$ python node.py --     [03/18/23]seed@VM:~/.../raftos$ tail -f node2_CU
node 2                                                STOMLOG.log
                                                      Leader is now: 127.0.0.1:8001
                                                      Done writing VARIABLE
                                                       Check the .log and .state_machine files!


[03/18/23]seed@VM:~/.../raftos$  python node.py -     [03/18/23]seed@VM:~/.../raftos$  tail -f node3_C
-node 3                                               USTOMLOG.log
PES1UG20CS825                                         Leader is now: 127.0.0.1:8001



[6] 0:python*                                                              "VM" 04:15 18-Mar-23
```

- ➢ **2b: Leader crashed, new leader elected, and second value replicated.**

```
[03/18/23]seed@VM:~/.../raftos$ python node.py --    [03/18/23]seed@VM:~/.../raftos$ tail -f node1_CU
node 1                                              STOMLOG.log
                                                    Leader is now: 127.0.0.1:8001
                                                    Leader is now: 127.0.0.1:8000
                                                    Done writing VARIABLE
    event_list = self._selector.select(timeout)     Check the .log and .state_machine files!
  File "/home/seed/.pyenv/versions/3.6.8/lib/pyth
on3.6/selectors.py", line 445, in select
    fd_event_list = self._epoll.poll(timeout, max   [03/18/23]seed@VM:~/.../raftos$ tail -f node2_CU
_ev)                                                STOMLOG.log
KeyboardInterrupt                                   Leader is now: 127.0.0.1:8001
[03/18/23]seed@VM:~/.../raftos$ clea                Done writing VARIABLE
                                                     Check the .log and .state_machine files!


                                                    [03/18/23]seed@VM:~/.../raftos$  tail -f node3_C
                                                    USTOMLOG.log
[03/18/23]seed@VM:~/.../raftos$  python node.py -    Leader is now: 127.0.0.1:8001
-node 3                                             Leader is now: 127.0.0.1:8000
PES1UG20CS825

[6] 0:bash*                                                                  "VM" 04:21 18-Mar-23
```

- ➢ **2c: Old leader comes back online, but becomes a follower instead and updates its old state to its new state.**

```
[03/18/23]seed@VM:~/.../raftos$ python node.py --    [03/18/23]seed@VM:~/.../raftos$ tail -f node1_CU
node 1                                              STOMLOG.log
                                                    Leader is now: 127.0.0.1:8001
                                                    Leader is now: 127.0.0.1:8000
                                                    Done writing VARIABLE
    event_list = self._selector.select(timeout)     Check the .log and .state_machine files!
  File "/home/seed/.pyenv/versions/3.6.8/lib/pyth
on3.6/selectors.py", line 445, in select
    fd_event_list = self._epoll.poll(timeout, max   Leader is now: 127.0.0.1:8001
_ev)                                                Done writing VARIABLE
KeyboardInterrupt                                    Check the .log and .state_machine files!tail: n
[03/18/23]seed@VM:~/.../raftos$ python node.py --   ode2_CUSTOMLOG.log: file truncated
node 2                                              Leader is now: 127.0.0.1:8000


                                                    [03/18/23]seed@VM:~/.../raftos$  tail -f node3_C
                                                    USTOMLOG.log
[03/18/23]seed@VM:~/.../raftos$  python node.py -    Leader is now: 127.0.0.1:8001
-node 3                                             Leader is now: 127.0.0.1:8000
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[6] 0:python*                                                                "VM" 04:23 18-Mar-23
```

Note : I'm using Seed Ubuntu so I was not able to view the full path of working directory since it's truncated.I have printed the working directory after the completion of the task

```
[03/18/23]seed@VM:~/.../raftos$ pwd          [03/18/23]seed@VM:~/.../raftos$ tail -f node1_CU
/home/seed/CC_E4_PES1UG20CS825/raftos        STOMLOG.log
[03/18/23]seed@VM:~/.../raftos$              Leader is now: 127.0.0.1:8001
                                             Leader is now: 127.0.0.1:8000
                                             Done writing VARIABLE
                                              Check the .log and .state_machine files!


                                             Leader is now: 127.0.0.1:8001
[03/18/23]seed@VM:~/.../raftos$ pwd          Done writing VARIABLE
/home/seed/CC_E4_PES1UG20CS825/raftos         Check the .log and .state_machine files!tail: n
[03/18/23]seed@VM:~/.../raftos$              ode2_CUSTOMLOG.log: file truncated
                                             Leader is now: 127.0.0.1:8000


                                             [03/18/23]seed@VM:~/.../raftos$  tail -f node3_C
                                             USTOMLOG.log
[03/18/23]seed@VM:~/.../raftos$ pwd          Leader is now: 127.0.0.1:8001
/home/seed/CC_E4_PES1UG20CS825/raftos        Leader is now: 127.0.0.1:8000
[03/18/23]seed@VM:~/.../raftos$ █

[6] 0:bash*                                                          "VM" 04:27 18-Mar-23
```

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