

Details :

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- Section : D
- SRN : PES2UG20CS237

Task 1 :

- Installing pyenv and changing to 3.8.11 (3.6.8 gave errors) :

```
→ ~ pyenv shell 3.8.11
→ ~ python --version
Python 3.8.11
→ ~ builtin cd -- PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4
→ EXPERIMENT-4 git:(main) ×;s
zsh: command not found: s
→ EXPERIMENT-4 git:(main) ×cd CC_E4_PES2UG20CS2367
→ CC_E4_PES2UG20CS2367 git:(main) ×_
```

Task 2 :

- First we start all the nodes with tails running on the right side. nodes running on the left side (The errors seen in node 2 are simply future/promise error, the node is still very much alive).

[2a].

<pre>570, in run_forever self._run_once() File "/home/navin/.pyenv/versions/3.8.11/lib/python3.8/asyncio/base_events.py", line 1823, in _run_once event_list = self._selector.select(timeout) File "/home/navin/.pyenv/versions/3.8.11/lib/python3.8/selectors.py", line 468, in s elect fd_event_list = self._selector.poll(timeout, max_ev) KeyboardInterrupt → raftos git:(master) ×python node.py --node 1 j</pre>	<pre>→ raftos git:(master) ×ls build examples node.py README.md start_terminals.sh dist LICENSE raftos requirements.txt tests docs MANIFEST.in raftos.egg-info setup.py → raftos git:(master) ×rm -r MANIFEST.in → raftos git:(master) ×touch node1_CUSTOMLOG.log node2_CUSTOMLOG.log node3_CUSTOMLOG G.log → raftos git:(master) ×tail -f node1_CUSTOMLOG.log Leader is now: 127.0.0.1:8000 Done writing BEST_HACKATHON Check the .log and .state_machine files!</pre>
<pre>0CS2367/raftos/raftos/network.py", line 33, in datagram_received self.request_handler(data) File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/server.py", line 73, in request_handler self.state.request_handler(data) File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/state.py", line 534, in request_handler getattr(self.state, 'on_receive_{}'.format(data['type']))(data) File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/state.py", line 53, in wrapped except (asyncio.futures.InvalidStateError, AttributeError): AttributeError: module 'asyncio.futures' has no attribute 'InvalidStateError' -</pre>	<pre>→ CC_E4_PES2UG20CS2367 git:(main) ×cd raftos → raftos git:(master) ×python --version Python 3.8.11 → raftos git:(master) ×j zsh: command not found: j → raftos git:(master) ×tail -f node2_CUSTOMLOG.log Leader is now: 127.0.0.1:8000 ^C → raftos git:(master) ×tail -f node2_CUSTOMLOG.log Leader is now: 127.0.0.1:8000</pre>
<pre>File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/state.py", line 534, in request_handler getattr(self.state, 'on_receive_{}'.format(data['type']))(data) File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/state.py", line 53, in wrapped except (asyncio.futures.InvalidStateError, AttributeError): AttributeError: module 'asyncio.futures' has no attribute 'InvalidStateError'</pre>	<pre>→ CC_E4_PES2UG20CS2367 git:(main) ×cd raftos → raftos git:(master) ×tail -f node3_CUSTOMLOG.log Leader is now: 127.0.0.1:8000 ^C → raftos git:(master) ×tail -f node3_CUSTOMLOG.log Leader is now: 127.0.0.1:8000</pre>

- We can see the first node elected as the leader!
- Next we stop the node that is currently elected as the leader, this will get the any one of the other node to run out on its timer. This gets the 3rd node to become a candidate and elect itself as the leader. We also see the second value being replicated [2b]
- Now we can start the old leader which was intentionally killed off, on seeing a higher term from a new leader, it immediately falls back to follower mode and replicates the new log entries (If the log is very old and wrong in theory the leader should have enter a **log rebuilding phase** where is gradually rolls back its **latest index posistion** usinf appendRPC calls).

[2c]

<pre>self.request_handler(data) File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/server.py", line 73, in request_handler self.state.request_handler(data) File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/state.py", line 534, in request_handler getattr(self.state, 'on_receive_{}'.format(data['type']))(data) File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/state.py", line 53, in wrapped except (asyncio.futures.InvalidStateError, AttributeError): AttributeError: module 'asyncio.futures' has no attribute 'InvalidStateError'</pre>	<pre>dist LICENSE raftos requirements.txt tests docs MANIFEST.in raftos.egg-info setup.py → raftos git:(master) ×rm -r MANIFEST.in → raftos git:(master) ×touch node1_CUSTOMLOG.log node2_CUSTOMLOG.log node3_CUSTOMLO G.log → raftos git:(master) ×tail -f node1_CUSTOMLOG.log Leader is now: 127.0.0.1:8000 Done writing BEST_HACKATHON Check the .log and .state_machine files!tail: node1_CUSTOMLOG.log: file truncated Leader is now: 127.0.0.1:8002</pre>
<pre>0CS2367/raftos/raftos/network.py", line 33, in datagram_received self.request_handler(data) File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/server.py", line 73, in request_handler self.state.request_handler(data) File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/state.py", line 534, in request_handler getattr(self.state, 'on_receive_{}'.format(data['type']))(data) File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/state.py", line 53, in wrapped except (asyncio.futures.InvalidStateError, AttributeError): AttributeError: module 'asyncio.futures' has no attribute 'InvalidStateError'</pre>	<pre>→ CC_E4_PES2UG20CS2367 git:(main) ×cd raftos → raftos git:(master) ×python --version Python 3.8.11 → raftos git:(master) ×j zsh: command not found: j → raftos git:(master) ×tail -f node2_CUSTOMLOG.log Leader is now: 127.0.0.1:8000 ^C → raftos git:(master) ×tail -f node2_CUSTOMLOG.log Leader is now: 127.0.0.1:8000 Leader is now: None Leader is now: 127.0.0.1:8002</pre>
<pre>File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/state.py", line 534, in request_handler getattr(self.state, 'on_receive_{}'.format(data['type']))(data) File "/home/navin/PersonalGithub/UE20CS35X-Assignments/CC/EXPERIMENT-4/CC_E4_PES2UG2 0CS2367/raftos/raftos/state.py", line 53, in wrapped except (asyncio.futures.InvalidStateError, AttributeError): AttributeError: module 'asyncio.futures' has no attribute 'InvalidStateError'</pre>	<pre>Leader is now: 127.0.0.1:8000 ^C → raftos git:(master) ×tail -f node3_CUSTOMLOG.log Leader is now: 127.0.0.1:8000 Leader is now: None Leader is now: 127.0.0.1:8002 Done writing BEST_HACKATHON Check the .log and .state_machine files!</pre>

[CC] 0:zsh 1:zsh- "zsh" 08:44 17-Mar-23

```
127.0.0.1_8000.state_machine × |
{"BEST_HACKATHON": "HashCode 11.0; Go register!"}
```

2nd replicated value