

Distributed Computing Lab3

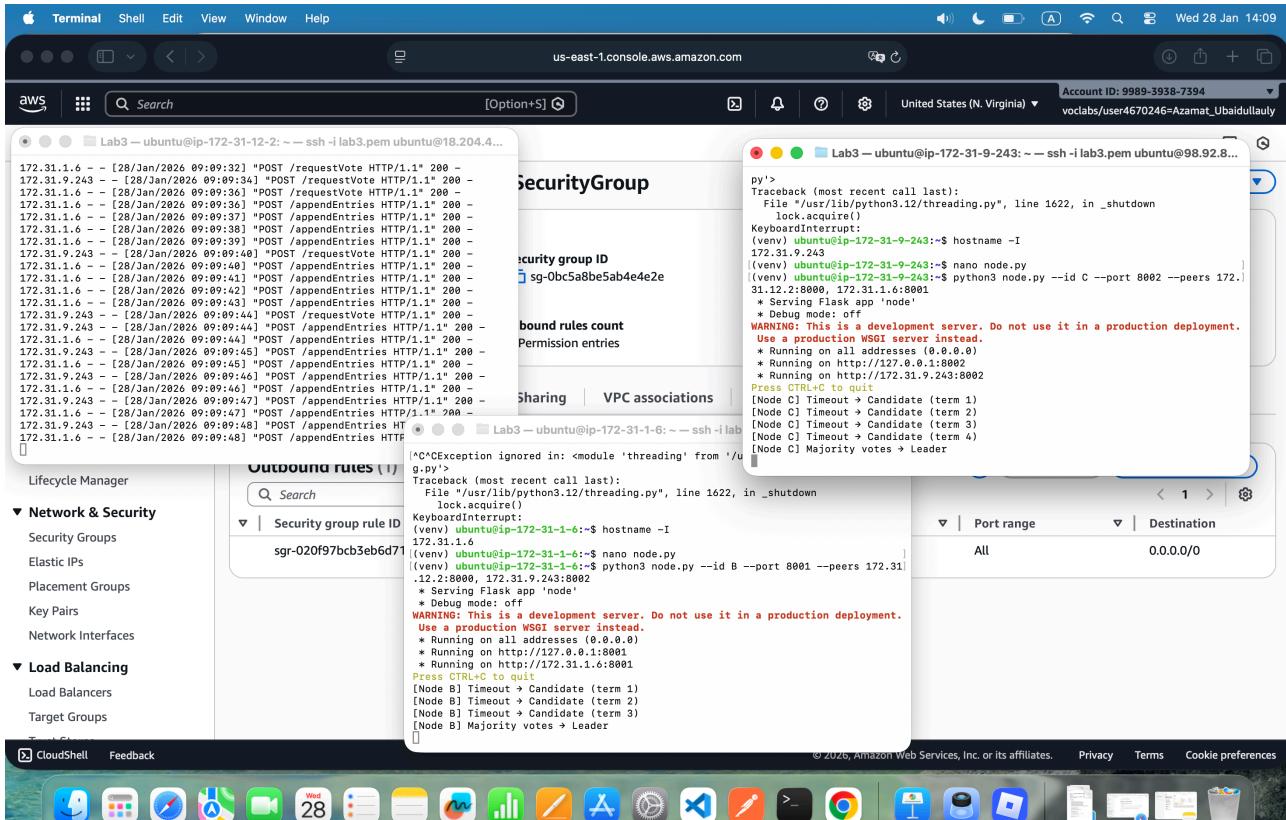
Student: Ubaidullauly Azamat
Group: IT-2305

The screenshot shows the AWS CloudShell interface. On the left, a sidebar navigation includes EC2, Instances, Images, and Elastic Block Store. The main area displays the 'Instances (3) Info' table with three entries: raft-node-B, raft-node-C, and raft-node-A, all in the 'Running' state. Below the table is a 'Select an instance' dropdown menu. The top right corner shows account information: Account ID: 9989-3938-7394, voclabs/user4670246=Azamat_Ubaidullauly, and the date Wed 28 Jan 13:36.

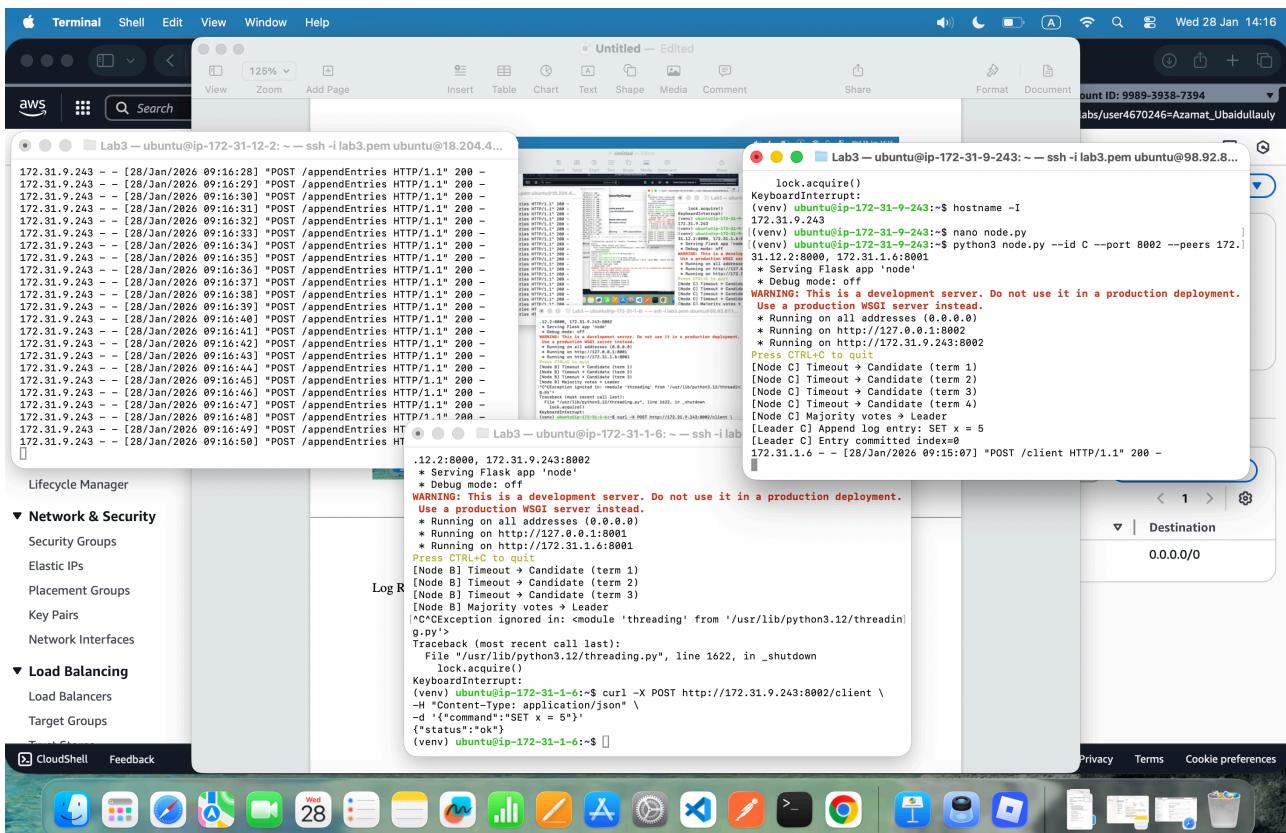
Successfully created 3 instances in EC2.

The screenshot shows the AWS CloudShell interface. The terminal window displays the output of a pip install command for several Python packages. The packages listed include certifi, charset_normalizer, click, idna, itsdangerous, Jinja2, markupsafe, urllib3, werkzeug, and Werkzeug. The output shows the download of each package from PyPI and the successful installation of the collected packages. The terminal prompt is at the bottom: (venv) ubuntu@ip-172-31-1-6:~\$

Installed all needed Python dependencies.



Leader Election Process.



Log Replication + Majority Commit.

The screenshot shows a Mac desktop environment with three terminal windows open and a sidebar on the left.

Terminal 1 (Left): Shows log entries from Node A (IP 172.31.9.243) at port 8002. It lists multiple "POST /appendEntries HTTP/1.1" requests from various clients over time, indicating log replication.

```
172.31.9.243 - [28/Jan/2026 09:21:41] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:42] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:43] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:44] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:45] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:46] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:47] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:48] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:49] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:50] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:51] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:52] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:53] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:54] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:55] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:56] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:57] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:58] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:21:59] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:22:00] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:22:01] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:22:02] "POST /appendEntries HTTP/1.1" 200 -
172.31.9.243 - [28/Jan/2026 09:22:03] "POST /appendEntries HTTP/1.1" 200
```

Terminal 2 (Middle): Shows log entries from Node B (IP 172.31.1-6) at port 8001. It shows a "KeyboardInterrupt" exception and a warning about running on a development server.

```
[Node C] Timeout > Candidate (term 4)
^CException ignored in: <module 'threading' from '/usr/lib/python3.12/threading.py'>
Traceback (most recent call last):
  File "/usr/lib/python3.12/threading.py", line 1622, in _shutdown
    _lock.acquire()
KeyboardInterrupt:
(venv) ubuntu@ip-172-31-9-243:~$ python3 node.py --id C --port 8002 --peers 172.31.12.2:8000, 172.31.1.6:8001
  * Serving Flask app 'node'
  * Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment.
Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:8002
* Running on http://172.31.1.6:8002
* Running on http://172.31.9.243:8002
Press CTRL+C to quit
[Node C] Timeout > Candidate (term 1)
[Node C] Timeout > Candidate (term 2)
[Node C] Timeout > Candidate (term 3)
[Node C] Timeout > Candidate (term 4)
[Node C] Vote received from 172.31.12.2:8000
[Node C] Majority votes > Leader
```

Terminal 3 (Right): Shows log entries from Node C (IP 172.31.1-6) at port 8000. It shows a "KeyboardInterrupt" exception and a warning about running on a development server.

```
[Node B] Timeout > Candidate (term 1)
[Node B] Timeout > Candidate (term 2)
[Node B] Timeout > Candidate (term 3)
[Node B] Majority votes > Leader
^CException ignored in: <module 'threading' from '/usr/lib/python3.12/threading.py'>
Traceback (most recent call last):
  File "/usr/lib/python3.12/threading.py", line 1622, in _shutdown
    _lock.acquire()
KeyboardInterrupt:
(venv) ubuntu@ip-172-31-1-6:~$
```

Sidebar: Contains sections for Lifecycle Manager, Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), Load Balancing (Load Balancers, Target Groups), CloudShell, and Feedback.

Failure Test