

Assignment 2 DSCD Ankit Kumar Aryan Rohilla Dharani Kumar S

Google cloud setup

- Created 5 VMs, 4 in one region(upper limit is 4) and 1 in another region.

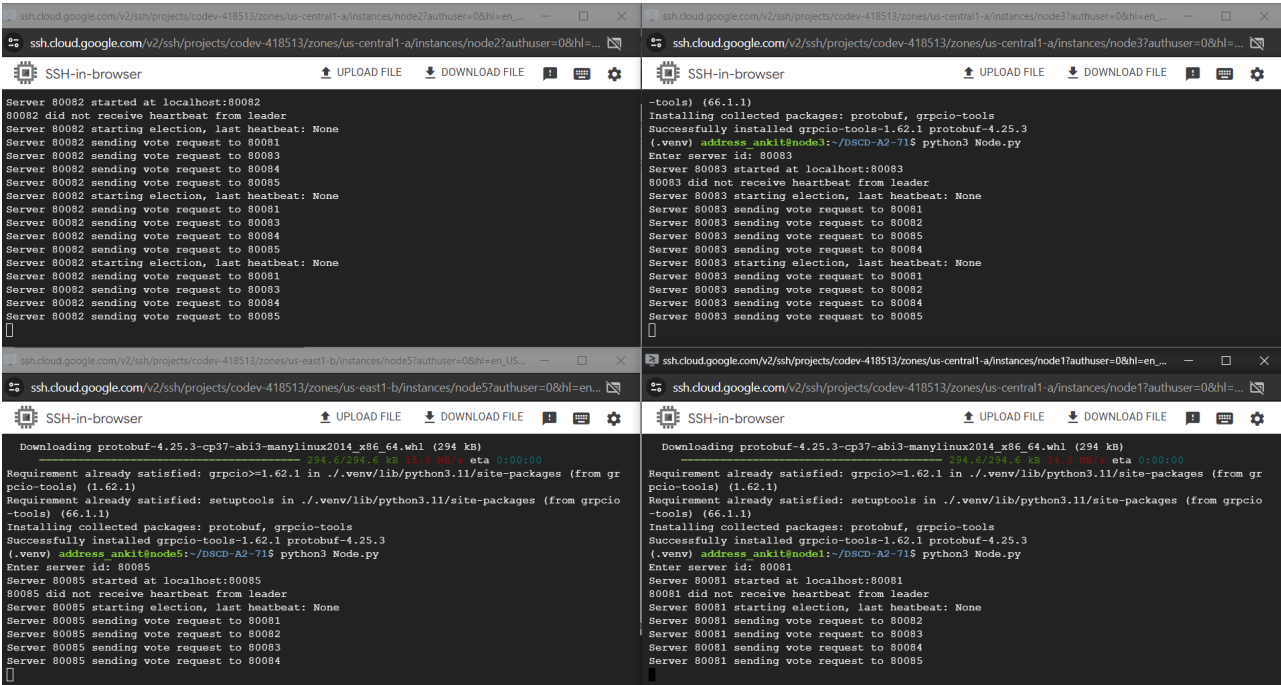
VM instances

Filter

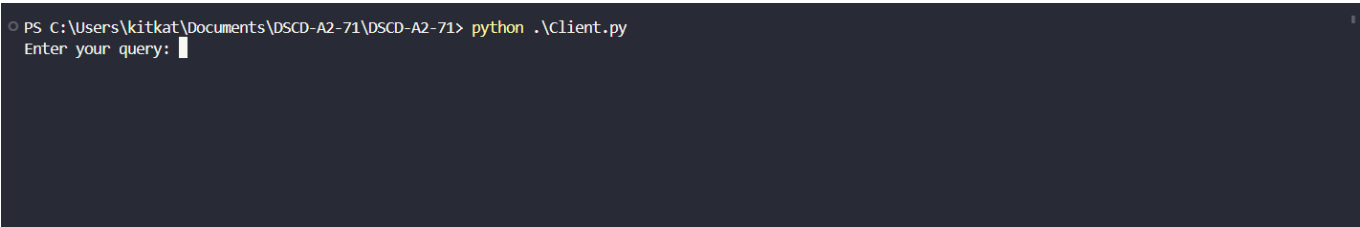
Enter property name or value

| <input type="checkbox"/> | Status | Name ↑                | Zone          | Recommendations | In use by | Internal IP       | External IP  | Connect |
|--------------------------|--------|-----------------------|---------------|-----------------|-----------|-------------------|--|---------|
| <input type="checkbox"/> | ✓      | <a href="#">node1</a> | us-central1-a |                 |           | 10.128.0.3 (nic0) | <a href="#">34.121.102.18</a> <a href="#">(nic0)</a>   | SSH ▾ ⋮ |
| <input type="checkbox"/> | ✓      | <a href="#">node2</a> | us-central1-a |                 |           | 10.128.0.4 (nic0) | <a href="#">34.29.248.186</a> <a href="#">(nic0)</a>   | SSH ▾ ⋮ |
| <input type="checkbox"/> | ✓      | <a href="#">node3</a> | us-central1-a |                 |           | 10.128.0.5 (nic0) | <a href="#">34.121.115.84</a> <a href="#">(nic0)</a>   | SSH ▾ ⋮ |
| <input type="checkbox"/> | ✓      | <a href="#">node4</a> | us-central1-a |                 |           | 10.128.0.6 (nic0) | <a href="#">34.170.127.189</a> <a href="#">(nic0)</a>  | SSH ▾ ⋮ |
| <input type="checkbox"/> | ✓      | <a href="#">node5</a> | us-east1-b    |                 |           | 10.142.0.2 (nic0) | <a href="#">104.196.206.133</a> <a href="#">(nic0)</a> | SSH ▾ ⋮ |

- Since IP addresses can change, I have to manually change the input IP addresses in the code.
- here is the setup where nodes are running on my google cloud



client running on the local machine vscode



# Modified Raft.py with Leader Lease using gRPC

Proto file can be found in the raft.proto

## Installation

- setup the environment

- install grpcio-tools and grpcio
- run the following command to generate the python files from the proto file

```
python3 -m grpc_tools.protoc -I. --python_out=. --grpc_python_out=. raft.proto
```

## Usage

- To start a Raft node:

```
python3 Node.py
```

- set up the server id in the code that is port and IP address
- Run the above command in 5 different terminals, and enter the following server id in each terminal:
- To start a Raft client:

```
python3 Client.py
```

- The client can send the following commands
- **SET key value** to set a key-value pair
- **GET key** to get the value of a key