n-NODE AND LOCKING DISTRIBUTED SYSTEM

01. Program Details:

(i) Date: 11th November 2022

(ii) Language: Python

02. Pre-requisites:

1. Make sure you are working on Windows 10 OS. If not, please install Windows 10 using VMWare.
2. Install PyCharm IDE in windows.
3. As program is written using Python, Install Python jdk files and import required pakages(json, socket, time, traceback, FileLock, Thread, numpy, os).
4. Copy the text file test.txt provided in zip file to the desktop location.

04. Code Execution:

Assignment-1 (Lamports Clock):

1. Copy client1.py, client2.py, client3.py, Server.py code files from folder Assignment\_1.
2. Run Server code (Server.py) followed by clients (client1.py, client2.py, client3.py) code respectively in PyCharm IDE.
3. At one client end, provide a message to be sent across the other clients. For Example, Type “Hi I’m client\_1” from client1, the message will be displayed in the other two clients with its respective clock.
4. To exit the connection click stop.

Assignment-2 (Vector Clock):

1. Copy client1.py, client2.py, client3.py code files from folder Assignment\_2.
2. Run client1.py, client2.py, client3.py in PyCharm IDE.
3. Provide the client number to which you need to communicate. For example, to communicate from client1 to client 3, press 3 in client1.
4. Enter the message to be sent to that client.
5. The message with initial and updated vector clock will be displayed at the receiver terminal.
6. To exit the connection click stop.

Assignment-3 (Decentralized File locking schema):

1. Copy client1.py, client2.py, fileLockServer1.py, fileLockServer2.py, fileLockServer3.py code files from folder Assignment\_3.
2. Run fileLockServer1.py, fileLockServer2.py, fileLockServer3.py followed by client1.py, client2.py in PyCharm IDE.
3. Copy test.txt file (attached in zip file) to Desktop Location (Since the path is hardcoded to path C:\Users\”Username”\OneDrive\Desktop).
4. Client1 and client2 will be requesting for file access.
5. To give File access to client1, press 1 from all the three servers. Similarly, to give access to client2, press 2 from all three servers.
6. To exit the connection click stop.

Note:

* wait for 10 seconds if the file is accessed by client1 earlier.
* Client needs acknowledgement from all the servers in order to access the file.
* Copy the text file test.txt provided in zip file to the desktop location.