

Programming Assignment 2
CS550 - Advanced OS
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README

The server and client program are implemented using default modules from python3.8.3. There are no additional requirements. No separate scripts for deployment need to be executed to start the program, executing the python Distributed Hash Table server and Nodes will do the work.

Executing the program in any python3.6+ shall work. Although a virtual environment 'venv' used for development has been included in the code directory. To activate the environment execute the following command in the terminal from the 'code' directory.

```
$source ./venv/bin/activate
```

(venv) Before the user is an indicator of active environment.

To deactivate after the execution is over, simply enter: \$deactivate

DHT Server

To start the Distributed Hash Table Server, server_dht.py python script needs to be executed:

```
$python3 server_dht.py
```

You can manually pass arguments to specify Port number and host IP address to the DHT Server during the time of initialization as follows:

```
$python3 server_dht.py --ip 192.168.1.25 --port 8000
```

--port is used to pass port number as argument. (default:9000)

--ip is used to pass host IP Address manually (default: Self Host)

--help use this for any problems with flags.

It is advised to not use --ip if running the DHT server on same host machine.

After the DHT server starts, events are logged to server_dht.log in the code directory. If it doesn't exist, it will be created upon execution.

To shutdown an active server, Keyboard Interrupt the server by pressing 'ctrl' + 'c' keys.

NOTE: IF ANY ACTIVE NODES ARE CONNECTED, THE SERVER WILL WARN ABOUT THE SAME IN LOGS. IT IS ADVISED TO CLOSE THE NODES BEFORE CLOSING THE SERVER TO AVOID PORT BLOCKING.

NODE

To start the Node, node.py python script needs to be executed:

\$python3 node.py

You can manually pass arguments to the Node during the time of initialization to specify Host IP Address, Port Number, hosted file directory, Name of the Node, IP address of the DHT Server and Port Number of the DHT Server as follows:

\$python3 node.py --ip <IP Address> --port <PORT> --dir <Directory> --name <name> --dht_ip <DHT Address> --dht_port <DHT Port>

--ip is used to pass IP Address manually (default: Self Host)

--port is used to pass port number to bind to as argument. (default:9001)

--dir is used to declare the hosted files directory. (default: ./hosted_files)

--name is used to give the node a name, output is stored as <name>.log (default: Node)

--dht_ip is used to pass the DHT Server's IP address as argument (default: Self Host)

--dht_port is used to pass the DHT Server's Port Number as argument (default: 9000)

--help this to check the flags.

It is advised to not use --ip and --dht_ip if running the Node and DHT Server on the same machine.

After the Node starts, events are logged at “./logs/<name>.log” in code directory. Node will need user interaction from time to time. Instructions for interaction are mentioned in the program and printed in console.

To shutdown the Node, close from within the Node program or Keyboard Interrupt the Node by pressing ‘ctrl’ + ‘c’ keys.