Assignment_1: -

1.Explore the Python SDK for AWS Iot to implement Pub-Sub via MQTT Protocol, Store the Message Data in Dynamo DB

Assignment_2: -

1.Explore the following tools
a) ftp, telnet, ssh, scp, mail, finger
b) hostname, ifconfig, ping, netstat, tcpdump
2.Implement simple client and server using TCP protocol, server may be designed for echo
service (simply send back same string sent by client)
3.Implement simple file transfer over TCP protocol
4.Implement simple sender, receiver using UDP protocol
5.Implement Time of the Day service using UDP protocol

Useful tools, techniques for debugging: -

1.netstat
eg: - netstat --inet -a -n
netstat --inet -l -n
2.tcpdump
eg: - tcpdump -i lo -n
tcpdump “tcp port 5000 or tcp port 6000” -n
3./etc/services
4. /proc/net/tcp, /proc/net/udp
5.lsof #list of open files (file descriptors)
eg: - lsof -i TCP:5000
6. /proc/<pid>/fd # replace <pid> with process id of tcp/udp node, check entries
#for sockets in fd table
7.strace #tracing system calls

Assignment_3: -
Web Sockets using WiFi

1.Interface DHT11/DHT22 to ESP32 and Display Temperature and Humidity data on web browser data on Client Device via Web sockets

Assignment_4: -
BLE Server

1.Interface DHT11/DHT22 to ESP32 via Bluetooth Low Energy and Display Temperature and Humidity data on BLE Scanner App/NRF Connect App using BLE Characteristics