Network Task

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Part 1 – Open-Ended Questions:
1. HTTP, MQTT, CoAP:

- HTTP → HyperText Transfer Protocol, follows the Server/Client model sending and reciving data over internet, a requist/response protocol as a communication protocol between web browser and web server.
Transport Layer: TCP
Not optomized for IoT apps or low-power network

- MQTT → Message Queing Telemetry Transport, Publish subscribe messgaing
Optomized for IoT application and low-power

-CoAP → Constraind application Protocol, Similar to HTTP, requist/ response protocol, but optomized for constrained devices like IoT, also in Trasport layer but UDP

2.1: Sending temperature data every second: MQTT for saving power, and frequent
2.2: Controlling a smart bulb (on/off): CoAP low power and supports multicast if exist multable bulbs
2.3:Uploading a large file: HTTP built for reliable file trasnfer

3. QoS levels (0, 1, 2) in MQTT and give one use case for each.
QoS 0: Send message at most once, no checking recived or not
EX:temprature readings if one lose no problem
QoS 1: Send message and chcecking for message reciving, try to send again if message sending failed, the may send message towice
EX:Detect motion in some place ths important in no problem is sent teice
: Smoke sensor

QoS 2: Send message and checking message recived or not and sent once no more or less
EX: credit card withdraw

4. TCP reliable and high power, but CoAP designed to IoT Devoces to be low power and fast becouse ths reason CoAP uses UDP, and UDP Supports multicast

5.widly used, scure, supported, large frameworks like Flask,
all networks allow HTTP, but may be block MQTT or CoAP