Politecnico di Torino

Machine Learning for IoT——HW3

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Exercise 1 - Data Collection, Communication, and Storage

The reason why MQTT is a better choice than REST as the communication protocol for this application is because MQTT can send and receive data with very low processing power and devices can communicate with each other even with poor internet connection. Furthermore, MQTT is the preferable choice as it has a lower latency compared to REST.

We developed the MQTT's Subscriber in order to keep track of the received mac_addresses of the devices, if it was never found before we try to create the timeseries (only the first time, to avoid congestion) and then we add the value received.

This allowed us to run ex_1_1 in multiple devices, and a single instance of ex_1_2 was run in deepnote, able to send the data correctly to redis.

Exercise 2 - Data Management & Visualization

Method	**Endpoint**	**Description**
GET	**/devices**	Retrieve the list of MAC addresses of the monitored devices.
GET	**/device/{mac_address}**	Retrieve battery status information of the device with the specified MAC address in the specified time range
DELETE	**/device/{mac_address}**	Delete the timeseries associated to the specified MAC address.

- We used the Get method for the 1st query, because we are retrieving MAC addresses from the redis server and we are not editing any data there. For this task we decided to save the mac_addresses as a set while going over the redis keys, in order to automatically delete the duplicate thanks to the properties of sets.
- For the 2nd query we used Get method again, because like the 1st query we are retrieving some data from redis server. The difference being we are sending query details which include time range.
- For the 3rd query where we should delete the timeseries associated to the specified MAC address we chose the DELETE method.