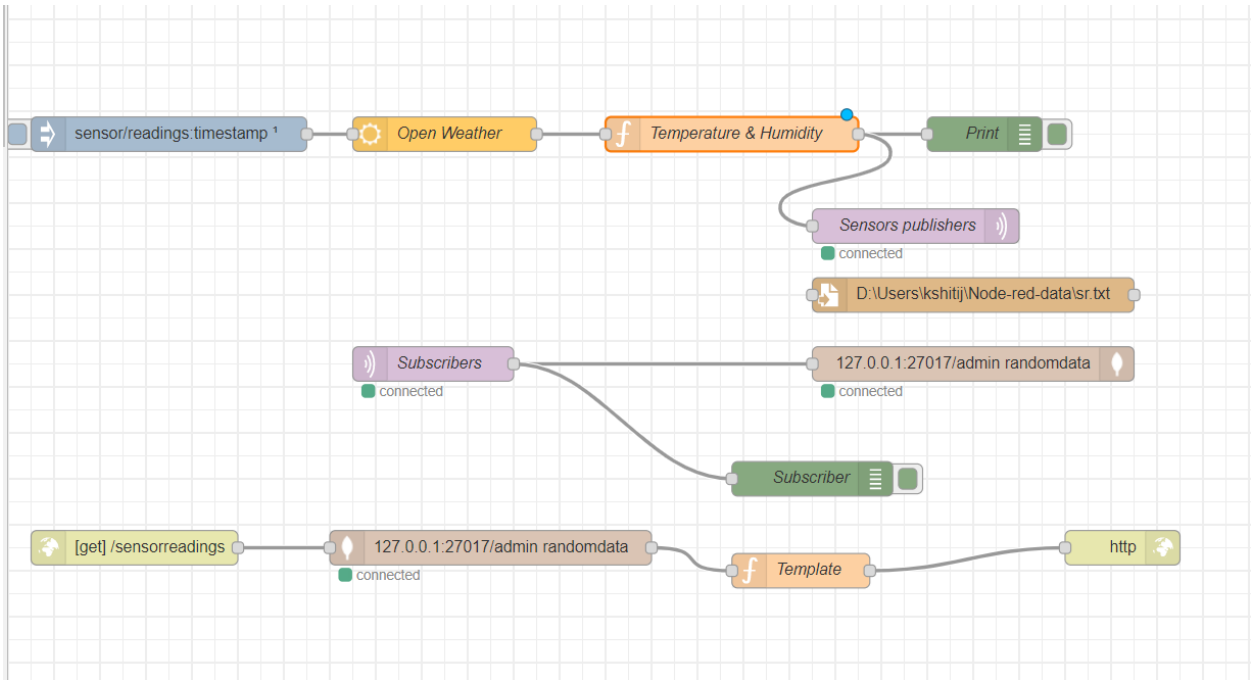
NodeRed based MQTT Client Server DB simulation

i) The simulation looks as follows.



ii) Here, Openweather API is used to fetch the readings for a given location. The API key has to be fed which is provided when you create an account.

iii) The timestamp (inject node) is provided to get values at every interval. It is configured as shown below.

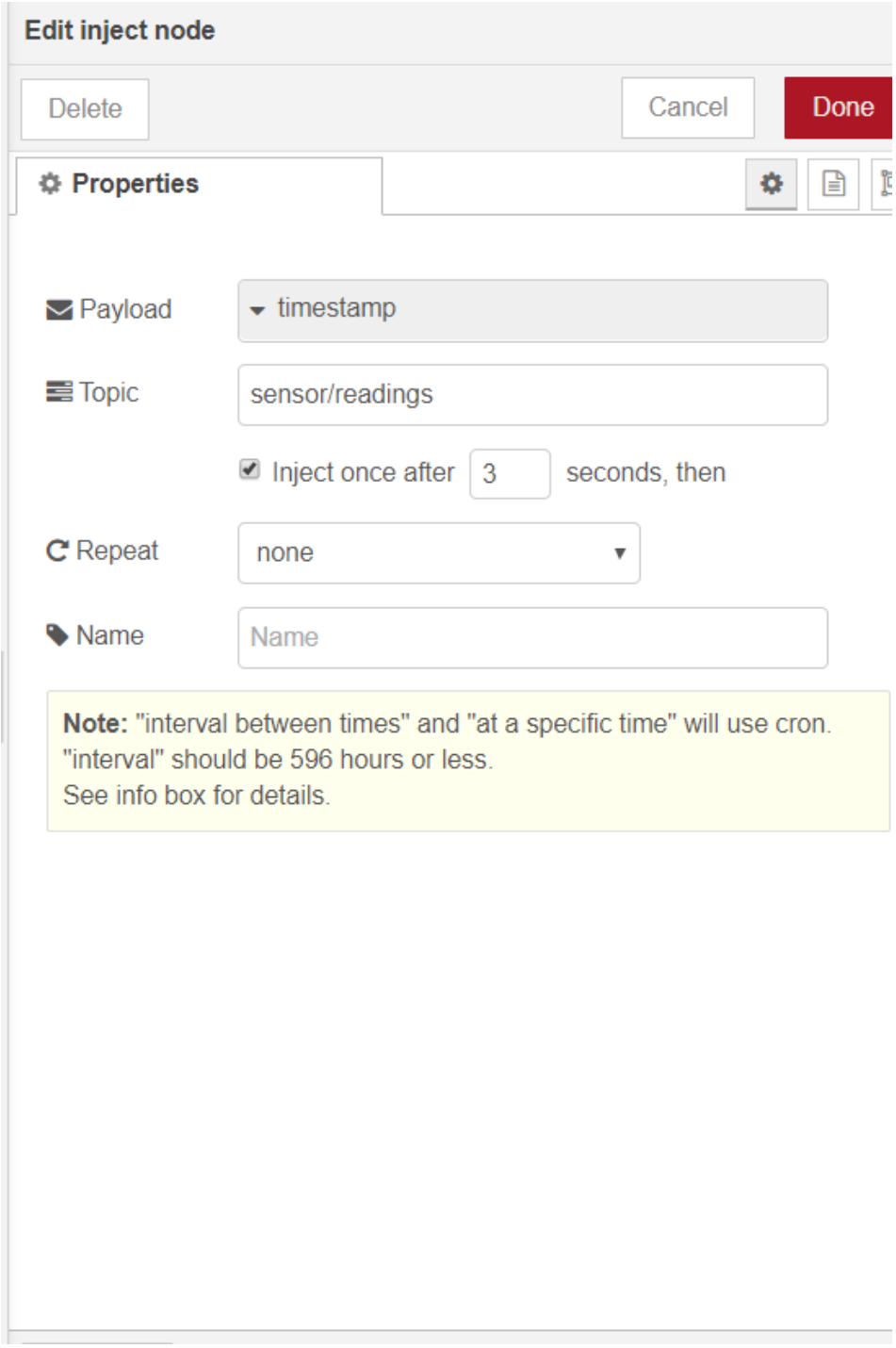


Figure 2: Inject node

iv) The topic given in inject node is sensor/readings from which the subscriber will fetch the readings of temperature and humidity.

v) Next in the function node, we set the value of payload obtained from openweather API such that we obtain only the temperature and humidity values.

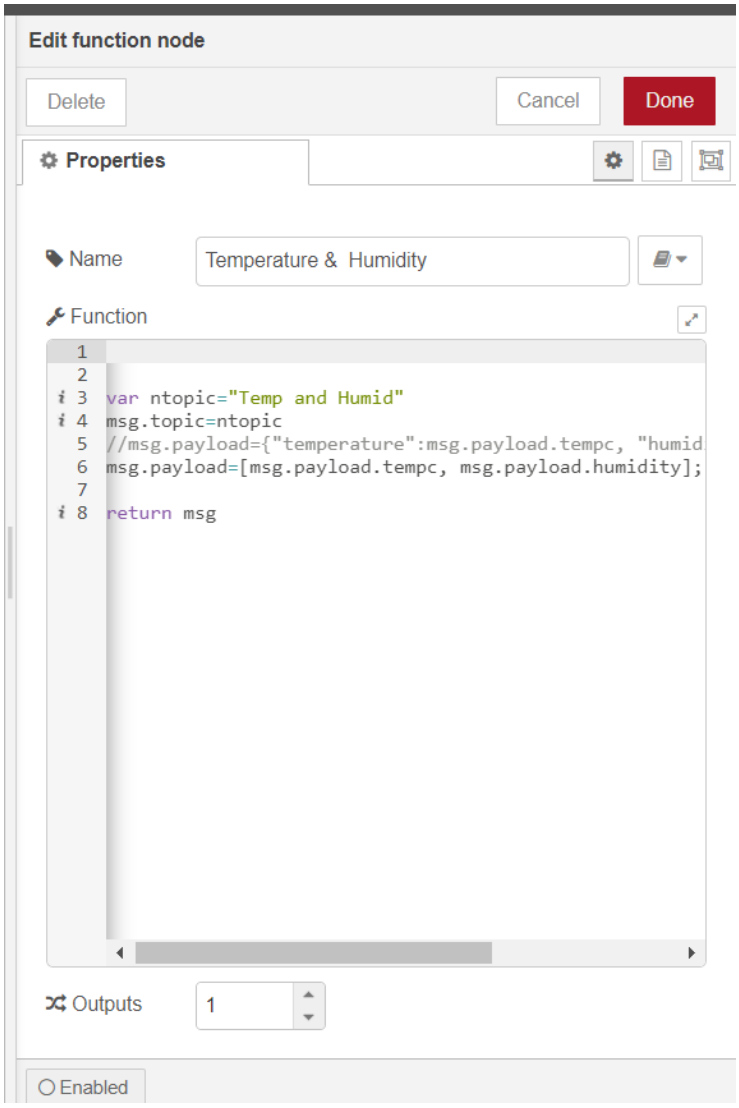


Figure 3: Function node

vi) The publishers are configured as shown below in figure 4 and 5.

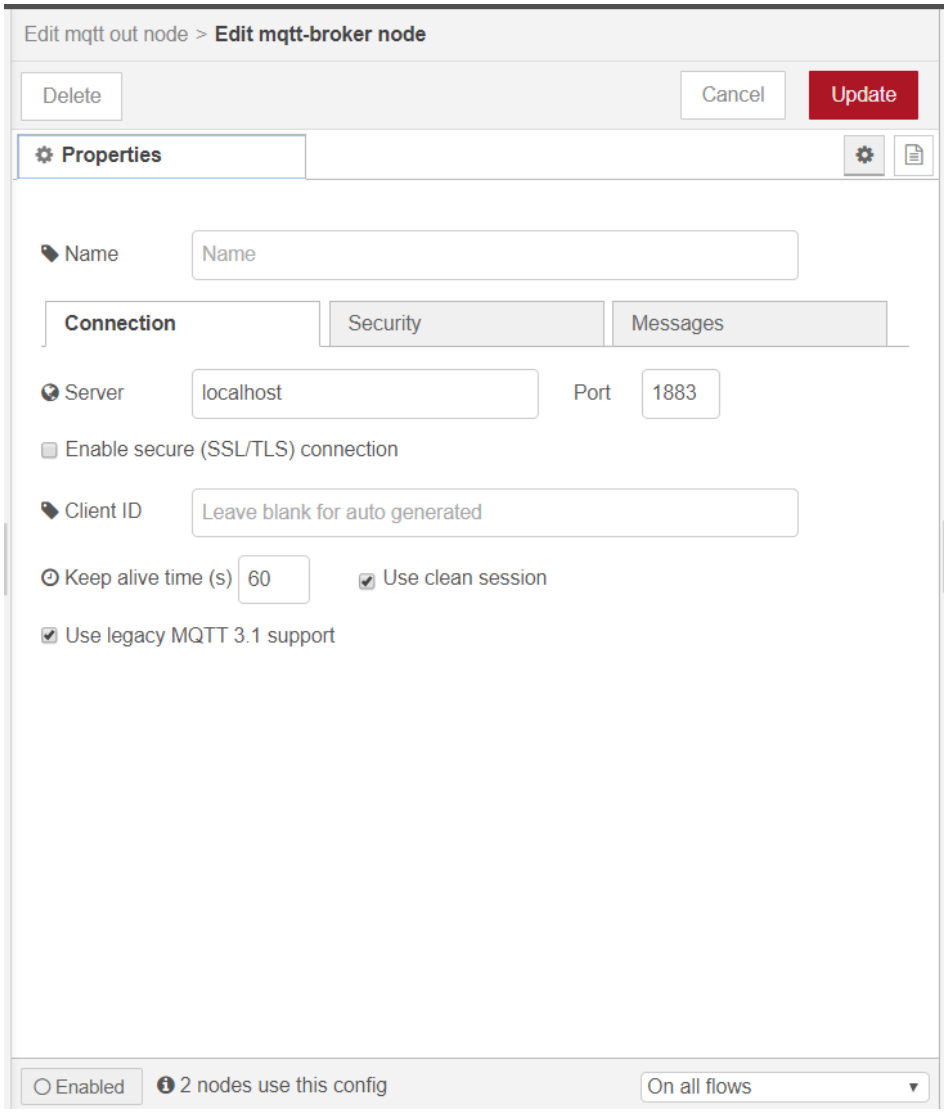


Figure 4: MQTT-broker node

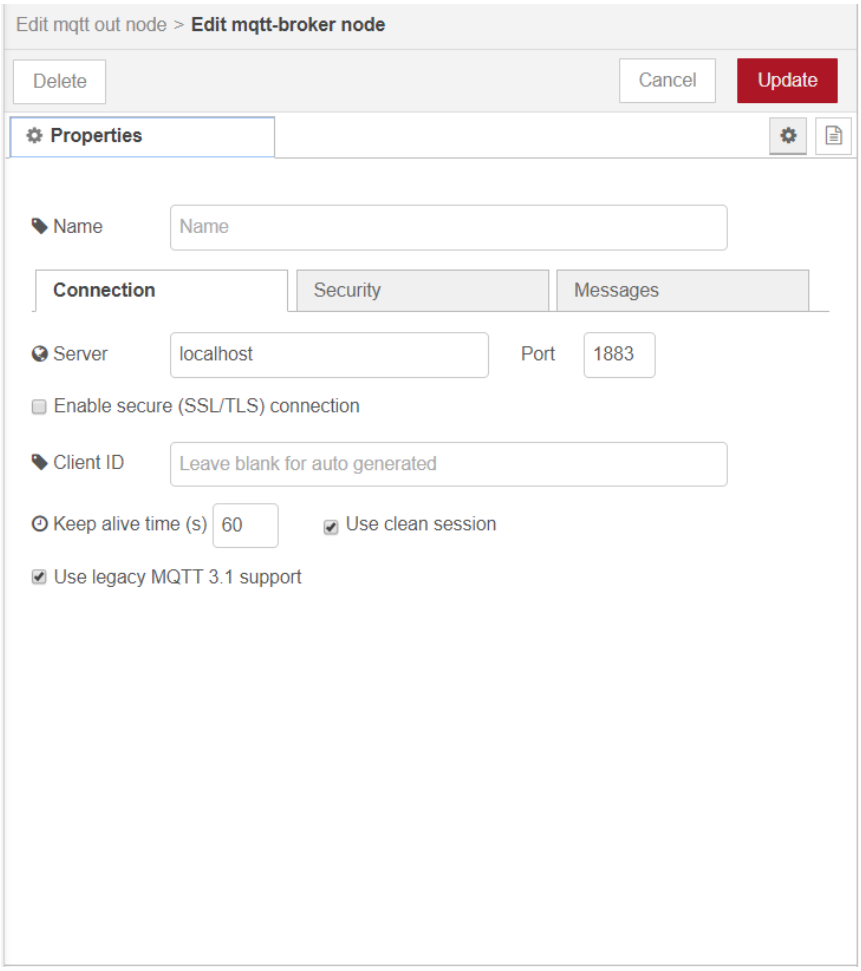


Figure 5: MQTT-out node (publisher)

vii) We made use of Mosquitto broker running on local machine on default port 1883.

viii) Similarly, the subscribers were configured as shown below.

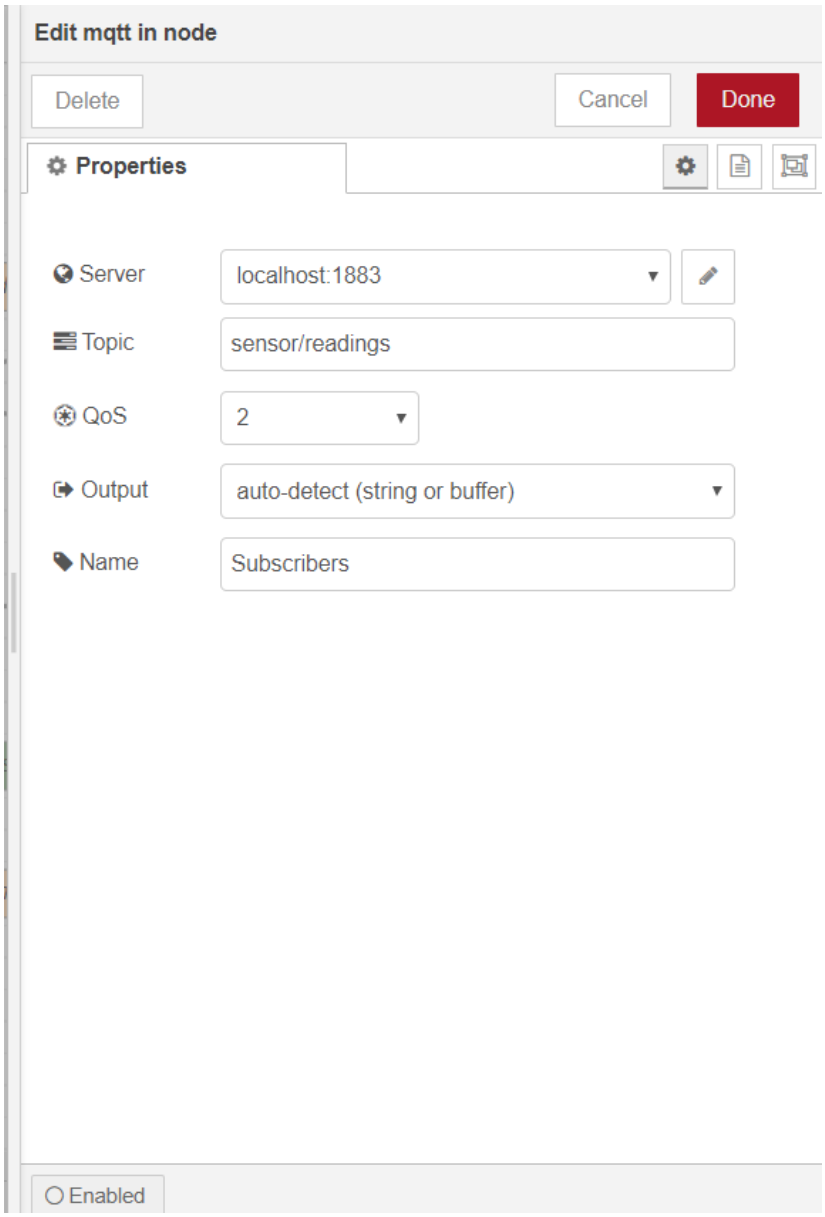


Figure 6: MQTT in node

ix) The subscribers were now subscribed to topic called as sensors/readings and the publishers published the data (temperature and humidity) and was available to all the users subscribed to the topic.

x) The data at the subscriber's side was also stored on a mongoDB server. The database name in this experiment was "admin" and collection name was "randomdata". The mongoDB node configurations are shown in figure 7 and 8.

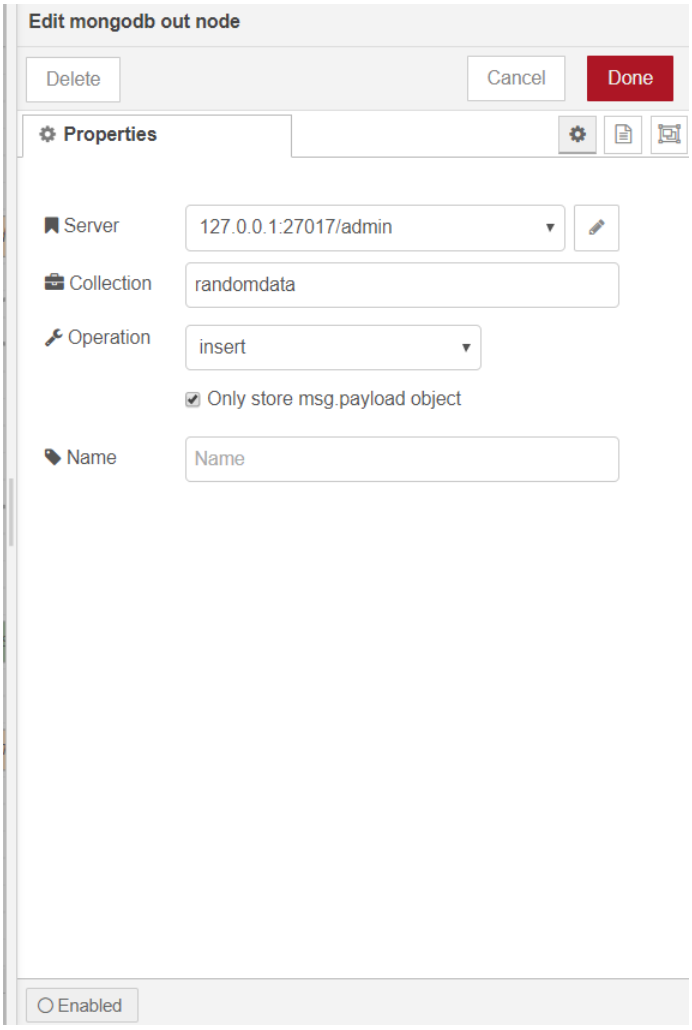


Figure 7: MongoDB out node(1)

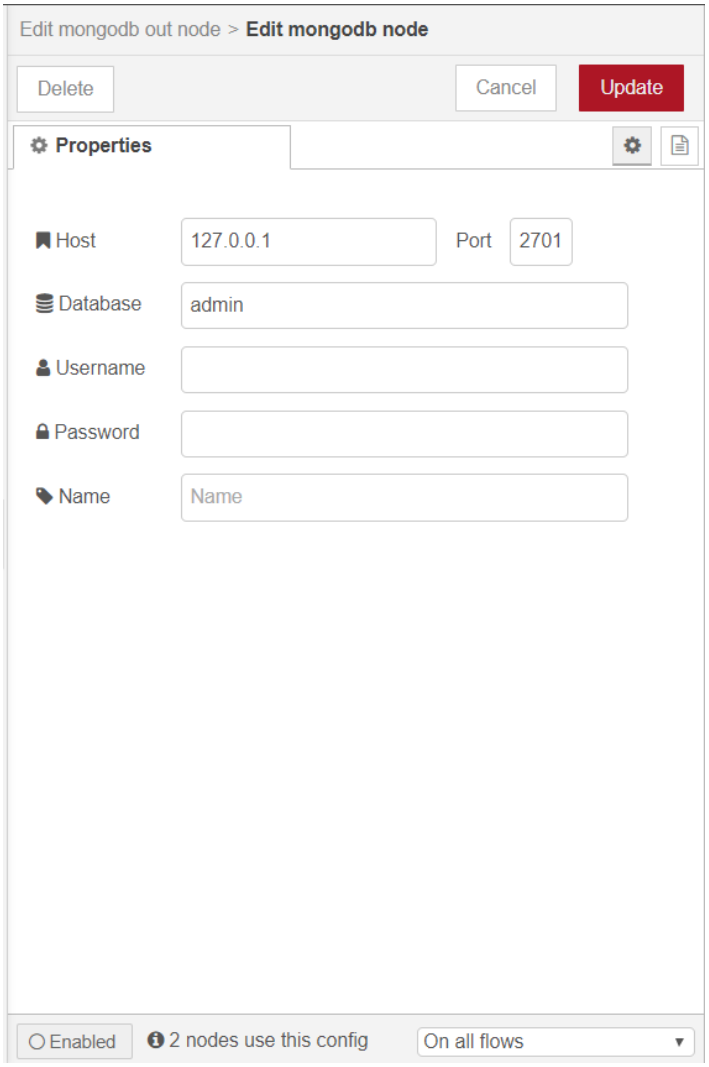


Figure 8: MongoDB out node(2)

xi) The username and password fields were left blank as no authorization credentials was given for database admin.

xii) HTTP endpoints like input node (GET request) and response node were used.

xiii) The get input node was given an URL where a user could see the temperature and humidity readings which were actually fetched from mongodb database. The response node is responsible for sending back the responses to requests received from HTTP input node. The configurations for input and response displayed back to user at the URL "http://127.0.0.1:1880/sensorreadings" are shown in figure 9 and 10 respectively.

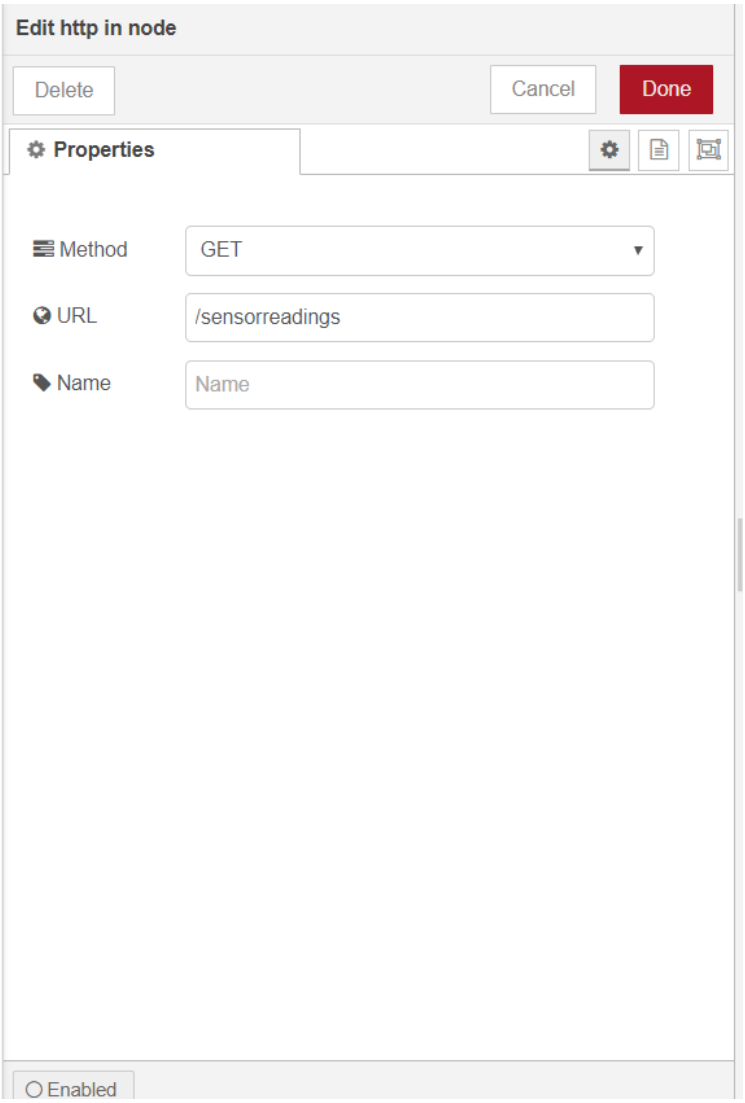
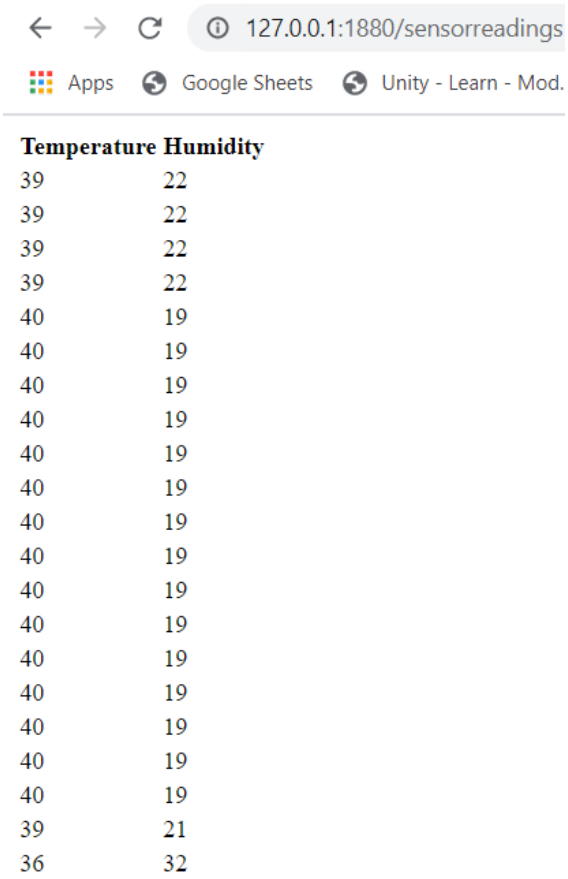


Figure 9: HTTP input node



Temperature	Humidity
39	22
39	22
39	22
39	22
40	19
40	19
40	19
40	19
40	19
40	19
40	19
40	19
40	19
40	19
40	19
40	19
40	19
40	19
39	21
36	32

Figure 10: Client request to the server