

Lab Activity

JSON Data Acquisition to Node-Red

Scenario: Weather Station

Let's say we want to send weather data to Node-red, there are multiple ways of doing this. Assume that you have a 3-day forecast with the following information. JSON is one of the best ways of sending structured data.

```
Day1
Temp: 21°C
Wind: 15km/h
Conditions: Sunny
Temp across the day:
  Morning: 15°C
  Afternoon: 20°C
  Evening: 10°C
Humidity every hour: 22, 23, 25, 26, 27, 26, 25, 20
```

Upon closer inspection, you will see that the Temp across the day: is an object that consists of 3 key/values pairs so let's add this to our JSON:

```
Day = {"day":1,
"Temp":"21°C",
"Wind":"15km/h",
"Conditions":"Sunny",
"Temp_across":{"
  "Morning":"15°C",
  "Afternoon":"20°C",
  "Evening":"10°C"}
};
```

Looking at the humidity data, you notice a row of numbers that are posted every 3 hours. The data is sorted in some order and to preserve this, you can use an array. Arrays are enclosed in [...] brackets.

```
Day = {"day":1,
"Temp":"21°C",
"Wind":"15km/h",
"Conditions":"Sunny",
"Temp_across":{"
  "Morning":"15°C",
  "Afternoon":"20°C",
  "Evening":"10°C"},
"Humidity_every_hour":[22,23,25,26,27,26,25,20]
};
```

Lastly, the weather forecast would be part of a 3-day forecast. You know the arrays already, so you know what's gonna happen. Each day will be an entry inside the array:

```
weatherforecast ={  
  "Day":[  
    {"day":1, "Temp":"21°C", "Wind":"15km/h", "Conditions":"Sunny",  
     "Temp_across":{"Morning":"15°C", "Afternoon":"20°C", "Evening":"10°C"},  
     "Humidity_every_hour":[22,23,25,26,27,26,25,20]},  
    {"day":2, "Temp":"25°C", "Wind":"18km/h", "Conditions":"Sunny",  
     "Temp_across":{"Morning":"15°C", "Afternoon":"20°C", "Evening":"10°C"},  
     "Humidity_every_hour":[22,23,25,26,27,26,25,20]},  
    {"day":3, "Temp":"26°C", "Wind":"10km/h", "Conditions":"Sunny",  
     "Temp_across":{"Morning":"15°C", "Afternoon":"20°C", "Evening":"10°C"},  
     "Humidity_every_hour":[22,23,25,26,27,26,25,20]}  
  ]  
};
```

And accessing the morning temperature on the second day would be used with:

```
Day[1].Temp_across.Morning
```

This translates to accessing the position in the Day array inside the weather forecast object and providing you with the Morning value stored inside the Temp_across.

Please check if the data in JSON format is retrieved successfully in Node-red. Display the morning temperature on the second day using the Debug node.