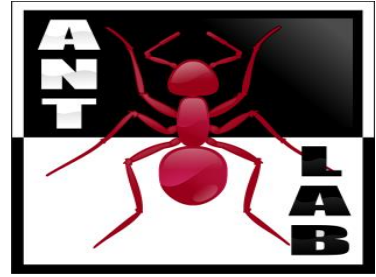




Politecnico di Milano

Advanced **N**etwork **T**echnologies **L**aboratory



Challenge

Home challenge #2: Node-RED

Home Challenge #2



- The goal of this challenge is to **generate messages from a CSV files to be sent to your own ThingSpeak channel through Node-Red**
- Input data is in the file «iot-feeds.csv». It contains the list of messages to be sent to the ThingSpeak channel **using MQTT**

Message selection

Consider **ONLY 100** entries:
Take the **PERSON CODE** of
the first team member and
consider the last **4 numbers**

```
code,field1,field2,field3,field4,field5,field6,field7
0,24.0,40.9,3.071,11242,-56,9,2
1,24.1,41.0,3.075,11243,-55,9,2
2,24.2,41.5,3.071,11244,-70,9,3
3,24.3,41.5,3.075,11245,-76,9,2
4,24.4,41.5,3.075,11246,-55,9,2
5,24.4,41.5,3.075,11247,-55,10,2
6,24.4,41.4,3.075,11248,-56,9,2
7,24.5,41.4,3.075,11249,-55,10,2
8,24.5,41.5,3.071,11250,-56,10,2
9,24.5,41.5,3.071,11251,-56,9,3
10,24.5,41.5,3.075,11252,-56,10,3
```

Consider only message having **code** EQUAL to the **4 numbers** and
the following 99 messages in the list (so 100 in total)

Consider only **field1**, **field2** and **field5**

N.B. the message selection must be done in Node-Red, not in text file

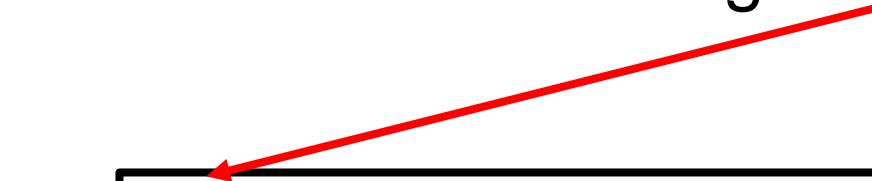
Example of message selection

Team members: **10692911**, **10692912**

(filename: 10692911_10692912.zip)

First team member is **10692911** → Last 4 digits: **2911**

Hence generate
messages only for rows
having code from 2911
(100 rows in total!)



2911	, 24.0	, 43.6	, 3.075	, 3253	, -77	, 9	, 2
2912	, 24.0	, 43.6	, 3.075	, 3254	, -78	, 9	, 2
2913	, 24.0	, 43.5	, 3.075	, 3255	, -65	, 9	, 2
2914	, 24.0	, 43.6	, 3.075	, 3256	, -75	, 9	, 2
2915	, 24.0	, 43.5	, 3.075	, 3257	, -66	, 10	, 2

N.B. If last 4 digits are of the type 0xyz or 00xy or 000x then do not consider the 0s
(treat 0005 as 5, 0043 as 43....)

- Node-red application must
 - Read the **iot-feeds.csv** file
 - **For each ONE of the 100 selected messages** (those satisfying the 4 digits person code constraint just said) do:
 - **Send a MQTT message** with the **field1**, **field2** and **field5** values of the message to the ThingSpeak channel
 - **Generate a Node-Red chart** (with the ui) with the 100 messages with only the **field5 values** (title the chart "**RSSI**")
 - Set the things in a way to send to ThingSpeak **2 messages per minute**
-

- Create a ThingSpeak channel with the following **fields**:
 - **Field1** (name it Temperature)
 - **Field2** (name it Humidity)
 - **Field5** (name it RSSI)

 - The channel should contain one **chart** and one **lamp** per field:
 - Lamp 1 turns ON when value ≥ 23
 - Lamp 2 turns ON when value ≥ 40
 - Lamp 5 turns ON when value ≤ -70
-

Home Challenge #2 (hints)



- If you're not familiar with javascript use the function node only when necessary
 - Debug node is your friend! -> **check what you are doing**
 - Google is your friend 😊
-

FILL THE FORM!



- ☐ We ask you to send us the values being published in your channel fields:
 - Take each field values separately and send it in the form

 - ☐ Fill the following form with the list of obtained values: **(Only 1 per team)**
 - <https://forms.office.com/Pages/ResponsePage.aspx?id=K3EXCvNtXUKAjjCd8ope66eUdgO8tuRGvfMQgaEs3MVUMlpXM09LNjAxVzVYVFRONetBMUNWT0dVSi4u>
 - **Comma separated** (e.g.: 1,2,3,4,5,6)
 - **First question for field1** values (e.g. 23,24,21....)
 - **Second question for field2** values
 - **Third question for field5** values
-

Challenge deliverable



After filling the form, upload in the WeBeep Challenge#2 folder the files you used:

☐ A .zip file with:

- Node-RED **code export** (json format)
- Thingspeak **channel link** (make it **public**)
- **Small project report** (max 1 page) **INSERT YOUR NAME AND PERSONCODE**

ZIP file name:

- **2-team:** <personcode1>_<personcode2>.zip e.g. 10692911_10692912.zip
- **Single:** <personcode>.zip e.g. 10692911.zip

!!!! If the filename provided is not in the correct format, we will not correct your challenge !!!!

Homework Deadline



- ❑ Deadline: April 25th, 2021 @23:59
- ❑ Max 2 people
- ❑ Use the folder Consegne-> Challenge #2 on WeBeep

Max 2 people means MAX 2 PEOPLE!

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Good Luck!
