DRIO-4302B IoT Prototyping
Report Lab 3

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DataBase

running the database

```
U:\IOT\Lab-20190319\resources\influxdb-1.7.3_windows_amd64\influxdb-1.7.3-1>influxd run -config influxdb.conf

 8888888           .d888 888                   8888888b.  888888b.
   888            d88P"  888                   888  "Y88b 888  "88b
   888            888    888                   888    888 888  .88P
   888   88888b.  888888 888 888  888 888  888 888    888 8888888K.
   888   888 "88b 888    888 888  888  888  Y8bd8P' 888    888 888  "Y88b
   888   888  888 888    888 888  888  888   X88K   888    888 888    888
   888   888  888 888    888 Y88b 888 .d8""8b. 888  .d88P 888   d88P
 8888888 888  888 888    888  "Y88888 888  888 8888888P"  8888888P"

2019-03-19T12:39:53.571658Z     info    InfluxDB starting       {"log_id": "0EHVH~tW000", "version": "1.7.3", "branch":
"1.7", "commit": "698dbc789aff13c2678357a6b93ff73dd7136571"}
2019-03-19T12:39:53.574656Z     info    Go runtime      {"log_id": "0EHVH~tW000", "version": "go1.11", "maxprocs": 8}
2019-03-19T12:39:54.076369Z     info    Using data dir  {"log_id": "0EHVH~tW000", "service": "store", "path": "/var/lib/
influxdb/data"}
2019-03-19T12:39:54.085363Z     info    Compaction settings     {"log_id": "0EHVH~tW000", "service": "store", "max_concu
rrent_compactions": 4, "throughput_bytes_per_second": 50331648, "throughput_bytes_per_second_burst": 50331648}
2019-03-19T12:39:54.085363Z     info    Open store (start)      {"log_id": "0EHVH~tW000", "service": "store", "trace_id"
: "0EHVI1uG000", "op_name": "tsdb_open", "op_event": "start"}
2019-03-19T12:39:54.117357Z     info    Open store (end)        {"log_id": "0EHVH~tW000", "service": "store", "trace_id"
: "0EHVI1uG000", "op_name": "tsdb_open", "op_event": "end", "op_elapsed": "31.995ms"}
2019-03-19T12:39:54.183320Z     info    Opened service  {"log_id": "0EHVH~tW000", "service": "subscriber"}
2019-03-19T12:39:54.184308Z     info    Starting monitor service        {"log_id": "0EHVH~tW000", "service": "monitor"}
2019-03-19T12:39:54.185306Z     info    Registered diagnostics client   {"log_id": "0EHVH~tW000", "service": "monitor",
"name": "build"}
2019-03-19T12:39:54.185306Z     info    Registered diagnostics client   {"log_id": "0EHVH~tW000", "service": "monitor",
"name": "runtime"}
2019-03-19T12:39:54.186306Z     info    Registered diagnostics client   {"log_id": "0EHVH~tW000", "service": "monitor",
"name": "network"}
2019-03-19T12:39:54.186306Z     info    Registered diagnostics client   {"log_id": "0EHVH~tW000", "service": "monitor",
"name": "system"}
```

Command interface to the database

Create database – create new database
Show databases – display on databses
Use – we work on this database
Drop database – remove the databse

```
U:\IOT\Lab-20190319\resources\influxdb-1.7.3_windows_amd64\influxdb-1.7.3-1>influx -host localhost -port 8086
Connected to http://localhost:8086 version 1.7.3
InfluxDB shell version: 1.7.3
Enter an InfluxQL query
>
```

```
> show databases
name: databases
name
----
_internal
> create database myDBname
> show databases
name: databases
name
----
_internal
myDBname
> use mydbname
ERR: Database mydbname doesn't exist. Run SHOW DATABASES for a list of existing databases.
DB does not exist!
> use myDBname
Using database myDBname
>
```

```
> drop database myDBname
> show databases
name: databases
name
----
_internal
>
```

Data access commands

We create our database and insert values on it

```
----
_internal
> create database testDBIOT
> use testDBIOT
Using database testDBIOT
> insert weather,location=france,town=paris temperature=17,humidity=80
> insert weather,location=france,town=lille temperature=18,humidity=75
>
```

In order to insert data in our database we will see that use post method with write to do this job

```
[httpd] 127.0.0.1 - - [19/Mar/2019:13:50:29 +0100] "POST /query?db=&epoch=ns&q=SHOW+DATABASES HTTP/1.1" 200 124 "-" "InfluxDBShe
ll/1.7.3" 935cace5-4a45-11e9-800a-a0d3c1275cc7 1987
[httpd] 127.0.0.1 - - [19/Mar/2019:13:53:09 +0100] "POST /write?consistency=all&db=testDBIOT&precision=ns&rp= HTTP/1.1" 204 0 "-
" "InfluxDBShell/1.7.3" f2ac7812-4a45-11e9-800b-a0d3c1275cc7 5686455
[httpd] 127.0.0.1 - - [19/Mar/2019:13:55:40 +0100] "POST /write?consistency=all&db=testDBIOT&precision=ns&rp= HTTP/1.1" 204 0 "-
" "InfluxDBShell/1.7.3" 4ca20500-4a46-11e9-800c-a0d3c1275cc7 14145
```

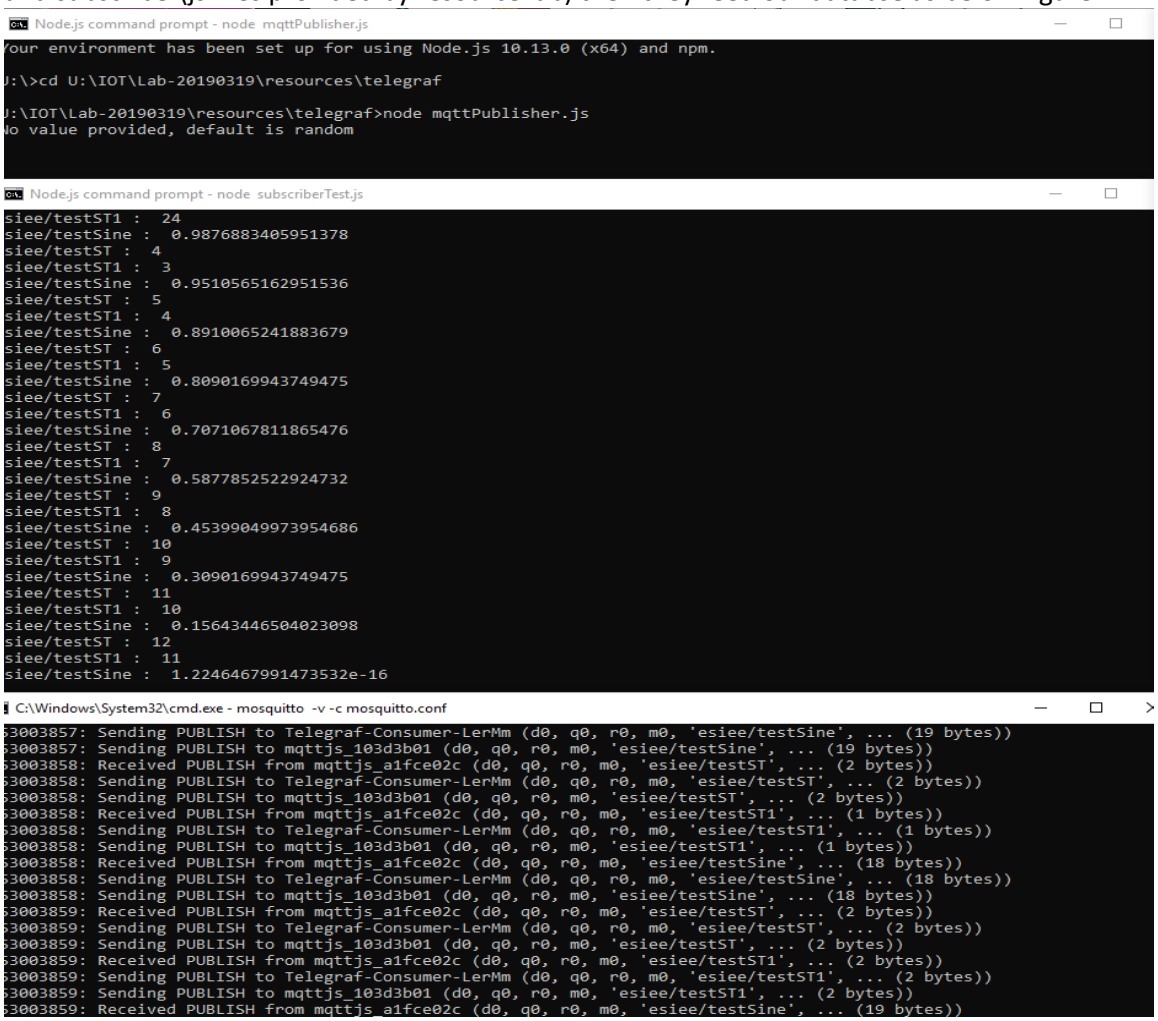
How many series are there ? why ?

Each row in measurment call setries so first we have 2 row with the twon name paris, As we have seen th etimstap field add automatically. Then we changed the condition of query and as below figure we could see the result.

```
name: weather
time                humidity location temperature town
----                -------- -------- ----------- ----
1552999989609883400 80       france   17          paris
1553000491959885700 80       france   17          paris
> insert weather,location=france,town=paris temperature=17,humidity=80
> select * from measurment where location='paris' and time>=now()-10s
> select * from weather where town='paris' and time>=now()-40s
name: weather
time                humidity location temperature town
----                -------- -------- ----------- ----
1553000569128081200 80       france   17          paris
> select * from weather where location='france' and time>=now()-40s
> select * from weather where location='france'
name: weather
time                humidity location temperature town
----                -------- -------- ----------- ----
1552999989609883400 80       france   17          paris
1553000140536345600 75       france   18          lille
1553000491959885700 80       france   17          paris
1553000569128081200 80       france   17          paris
>
```

MQTT IOT Storage Pipe

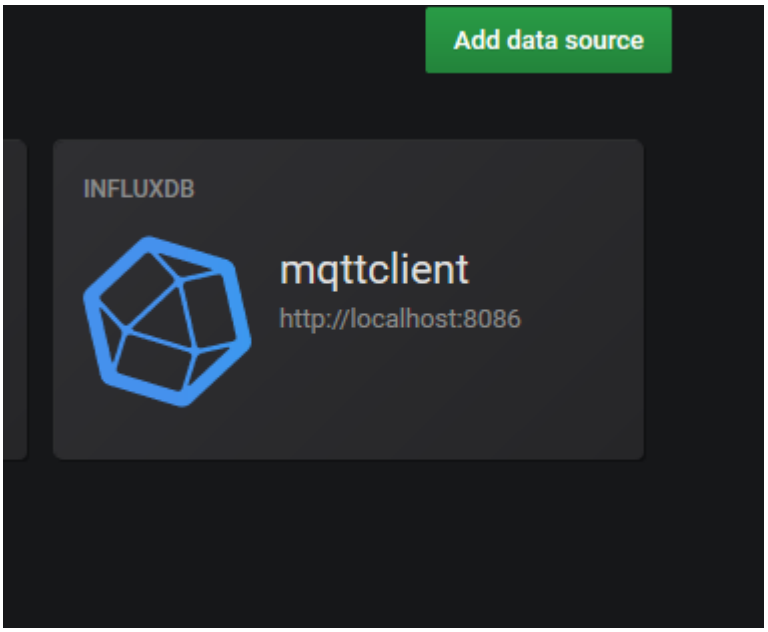
After configuaring the telegraf and ru nit we run the broker (mosquitto) then we run the publisher and subscriber(js files provided by resource lab) then they feed our databse as below figure



```
> select * from weather
name: weather
time                host    humidity location temperature topic          town  value
----                ----    -------- -------- ----------- -----          ----  -----
1552999989609883400         80       france   17                         paris
1553000140536345600         75       france   18                         lille
1553000491959885700         80       france   17                         paris
1553000569128081200         80       france   17                         paris
1553003641238590400 PC1001H                               esiee/testST         19
1553003641242556300 PC1001H                               esiee/testST1        18
1553003641247572800 PC1001H                               esiee/testSine       0.15643446504023087
1553003642231582400 PC1001H                               esiee/testST         20
1553003642235567100 PC1001H                               esiee/testST1        19
1553003642243565800 PC1001H                               esiee/testSine       0.3090169943749474
1553003643225766900 PC1001H                               esiee/testST         21
1553003643226766700 PC1001H                               esiee/testST1        20
1553003643231766000 PC1001H                               esiee/testSine       0.45399049973954675
1553003644228400700 PC1001H                               esiee/testST         22
1553003644231375300 PC1001H                               esiee/testST1        21
1553003644234388600 PC1001H                               esiee/testSine       0.5877852522924731
1553003645226673700 PC1001H                               esiee/testST         23
1553003645228672100 PC1001H                               esiee/testST1        22
1553003645233667100 PC1001H                               esiee/testSine       0.7071067811865475
1553003646231485800 PC1001H                               esiee/testST         24
1553003646236508700 PC1001H                               esiee/testST1        23
1553003646244478900 PC1001H                               esiee/testSine       0.8090169943749475
1553003647232666100 PC1001H                               esiee/testST         25
1553003647237663900 PC1001H                               esiee/testST1        24
1553003647243658200 PC1001H                               esiee/testSine       0.8910065241883678
1553003648232377300 PC1001H                               esiee/testST         26
1553003648236386700 PC1001H                               esiee/testST1        25
1553003648238386300 PC1001H                               esiee/testSine       0.9510565162951535
```

Dashboard setup

First we add our database with the configuartion server and name and add dashboard



Then we add graph in panel for each topic testST, testST1, testSine with some query like town=paris , host name.


test
mars 19, 2019 15:22:04 to mars 19, 2019 15:43:41
Panel Title
1.5
1.0
0.5
0
-0.5
-1.0
-1.5
15:24
15:26
15:28
15:30
15:32
15:34
15:36
15:38
15:40
15:42
weather.mean
Panel Title
30
25
20
15
10
5
0
15:25
15:30
15:35
15:40
weather.mean
Panel Title
30
25
20
15
10
5
0
15:25
15:30
15:35
15:40
weather.mean
weather.mean_1