**Total Points: 100**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

# Objectives

In this lab, we are going to experiment by sending data from a sensor to the Cloud. The vast majority of sensors capture stream data, this is, data that consists of a value and a timestamp. For example, a temperature sensor captures temperature during a specific timestamp. See example

|  |  |
| --- | --- |
| **Timestamp** | **Temperature** |
| 1/11/2022 10:12:00 | 73 |
| 1/11/2022 10:12:01 | 75 |
| 1/11/2022 10:12:02 | 78 |
| …. | …. |

We are going to use InfluxDB () a Cloud stream database that allows us to visualize data from sensors and multiple sources. In this lab, you will:

* Run InfluxDB Cloud database for importing sensor data
* Configure InfluxDB to receive sensor data
* Send data from a sample file
* Visualize data from a water sensor

## Due Date and Submission Procedure

* Due Date: **Sunday, April 9th, 11:30 pm**
* Submit your video and report to D2L in the assignment Week11-Lab4-Submission

## Instructions

1. You must create a FREE account in InfluxDB Cloud Platform
   1. Go to <https://www.influxdata.com/influxdb-cloud-iot/>
   2. Click on “Get Started Free”
   3. Follow the instructions to create the account. You may need to have a google account in order to create the account
   4. Select AWS as your cloud provider and provide information that is required.
2. Once you have created your account, you will see the InfluxDB interface as follows:

Graphical user interface, application

Description automatically generated

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**ADD HERE YOUR REPORT**

**PART 1 - Data from air sensors**

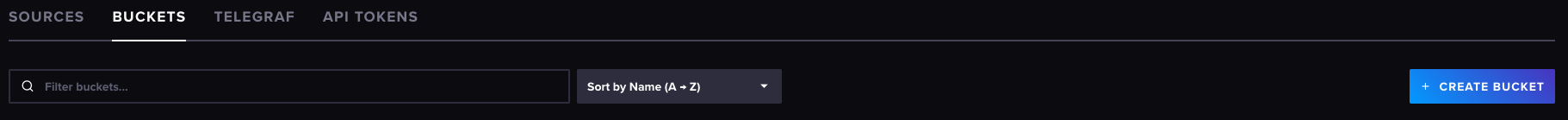
We will upload data from several air sensors and we will visualize them on InfluxDB

1. In InfluxDB Cloud, click on left menu with the sign of upper arrow

A picture containing text, outdoor

Description automatically generated

1. In the submenu, click on “Buckets”
2. In the right, click on “Create Bucket”



1. Write a name to the bucket. The name can be any mane. In this case, we are going to use “NewDataSensor”
2. ***Add a screenshot of the new Bucket created (5 points)***
3. Now, we are going to upload to that Bucket a file that contains the information of several air sensors.
4. To download the air sensors’ data, please download this file
5. <https://drive.google.com/file/d/1CWGpVIq5mdJ2WbaFxyPZxVZBzUisgghn/view?usp=share_link>
6. Once the file has been downloaded, go to “Add Data” in the bucket

Graphical user interface, application, Teams

Description automatically generated

1. Click on “Line Protocol”
2. Select the file that you just downloaded and click on “Write Data”
3. A confirmation message indicating that the data was written successfully should appear

***B) Add a screenshot of the confirmation message (5 points)***

1. Now click on Data Explorer 
2. Select the bucket “NewDataSensor”
3. Select the measurements “airSensors”
4. Replace the SELECT that is there by default for this

Graphical user interface, text, application

Description automatically generated

***C) Add a screenshot of the new Data that you visualize (10 points)***

1. Replace the SELECT that is there by default for this
2. SELECT \*
3. FROM "airSensors"
4. WHERE
5. time >= now() - interval '1 hour'
6. AND
7. "sensor\_id" IN ('TLM0100')

***D) Add a screenshot of the new Data that you visualize (10 points)***

1. Answer the following question.

***E) What do these data means? (10 points)***

1. Can you modify the SELECT that you just did to see the data of the sensor\_id named TML0200?

***F) Add a screenshot of the new Data that you visualize (5 points)***

1. Can you modify the SELECT that you just did to see the data of the sensor\_id named TML0201 and TML0202 together?

***G) Add a screenshot of the new Data that you visualize (10 points)***

1. Zoom in into the data (please check how to do it directly on the graph) HINT: drag and drop

***H) Add a screenshot of the new Data that you visualize (10 points)***

***I) Record a short video of your screen, place your cursor over the data and explain what you did. Upload the video as a separate file in D2L (30 points)***

***Write a reflection of this lab. What did you learn? What challenges did you face? What did you learn? (5 points)***