1. Create a flow that Subscribes to the **json** format topic and prints the JSON data to the debug window.  In the "MQTT In" block, make sure that you set it to convert the incoming data to a JSON Object. Take a screen shot of this working. **5 points**

Timeline

Description automatically generated

1. Create a flow that Subscribes to the csv format topic and prints the Comma Separated Values data to the debug window.  In the "MQTT In" block, make sure that it leaves the data as simple text.  Take a screen shot of this working.  **5 points**

**Diagram

Description automatically generated**

1. Use your JSON Object Flow: Implement a **simple** d**ashboard**that displays the current value of air temperature, air humidity, soil moisture, and soil temp as Text. Screenshots of course.  **10 points - you will only get maximum points if the dashboard look nice, has logical headings, unit values, etc.  Zero points if it looks like this:**

**Timeline

Description automatically generated**

**Graphical user interface, application, website

Description automatically generated**

1. Use the CSV Flow:  Save each group of CSV values to a file on your computer.  Use a "file" block in Node Red. Make sure you demonstrate in a screenshot(s) this is working.  **10 points**

**Diagram, schematic

Description automatically generated**

**Graphical user interface, application

Description automatically generated**

1. Save the JSON formatted data in the MongoDB located at 10.43.10.10 (no authentication required).  Save only the payload data.  **10 points**

**Graphical user interface, text, application, email

Description automatically generated**

Timeline

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated with medium confidence

**Question 28**

1. **First, write an opening paragraph in which you explain, in general, the role HTML plays in a web document (5 pts), the role JavaScript plays in a web document (5 pts), and how they work together to create dynamic/interactive web pages.  (5pts)**

HTML is a markup language that is used to structure a webpage. JavaScript on the other hand is a scripting language that allows users to make dynamic web page content. Browsers have built in interpreters that read the JavaScript and will then execute this code. JavaScript and HTML work together to display images and graphics onto a browser. HTML handles the presentation of the web page, and JavaScript handles the functionality, or the behavior of the webpage.

1. **Second, write another paragraph in which explain what will be displayed when the browser loads the above page (5pts).  Just describe in general what the user will see. Then go on to further explain how the html buttons are used to manipulate the images to make it appear that the light bulb is on or light bulb is off. (5pts)**

When the user displays the code mentioned in this question, they will be directed to a webpage that shows the lightbulb picture, headers, textual details, and buttons located below the light bulb. This webpage is displayed by using HTML to present this display. When the user clicks on the two buttons the lightbulb will either appear to turn on or off. This is done by using a button event called an ‘OnClick()’ which is adding interactivity to the webpage by providing instructions for what is to happen when the user hits the button. Behind the scenes of this button the code is telling the webpage to swap between two overlaying pictures of a lightbulb that is on and a lightbulb that is off.

**Sources**

How does JavaScript work and how can I build simple calculators with it? (N.D.) Retrieved from: <https://computer.howstuffworks.com/javascript.htm#:~:text=The%20way%20JavaScript%20works%20is,the%20page%20and%20runs%20it>.

Niekerk, J. (May 11th, 2017th) How Do HTML, CSS and JavaScript Work Together? Retrieved from: <https://www.itonlinelearning.com/blog/how-do-html-css-and-javascript-work-together/#:~:text=The%20same%20way%20the%20internet,and%20interactivity%20of%20a%20site>.