Setting up the Arduino IDE to program an ESP8266:

**Step 1:** Click on **File > Preferences** and add the following URL in the textbox labelled **Additional Boards Manager URLs**.

URL to add: <http://arduino.esp8266.com/stable/package_esp8266com_index.json>

Graphical user interface, text, application

Description automatically generated

**Step 2:** Go to **Tools > Boards > Boards Managers** and search the word esp8266. Select install when the option shows up.

Graphical user interface, text, application

Description automatically generated

**Step 3:** After these steps the ESP8266 boards can be found in the Arduino Board list. Select **Boards > ESP8266 Boards** and then select **Generic ESP8266 Board**

Graphical user interface, application

Description automatically generated

Select the correct comport, and the ESP8266 will be ready to program.

Installing libraries for Communications:

To be able to communicate with the server over WebSocket connection, the following libraries need to be installed:

* ArduinoJson à by Benoit Blanchon
* WebSockets\_Generic à by Khoi Hoang --> When prompted to install with or without dependencies press **install without**

Note: To install libraries, go to **Tools > Manage Libraries** and then type the name of the library in the search.

Setting up the Client Code:

The basic code for each client to be able to communicate with the server can be found at the following GitHub repository: <https://github.com/NicholasVrzovski/PythonWebsocketServer_NodeMCUClient/tree/main>

This code can be copy and pasted into the Arduino console and run. If the steps above were follow then the client should run, connect to the Wi-Fi, connect to the server, and start listening for a simulation date to be sent.