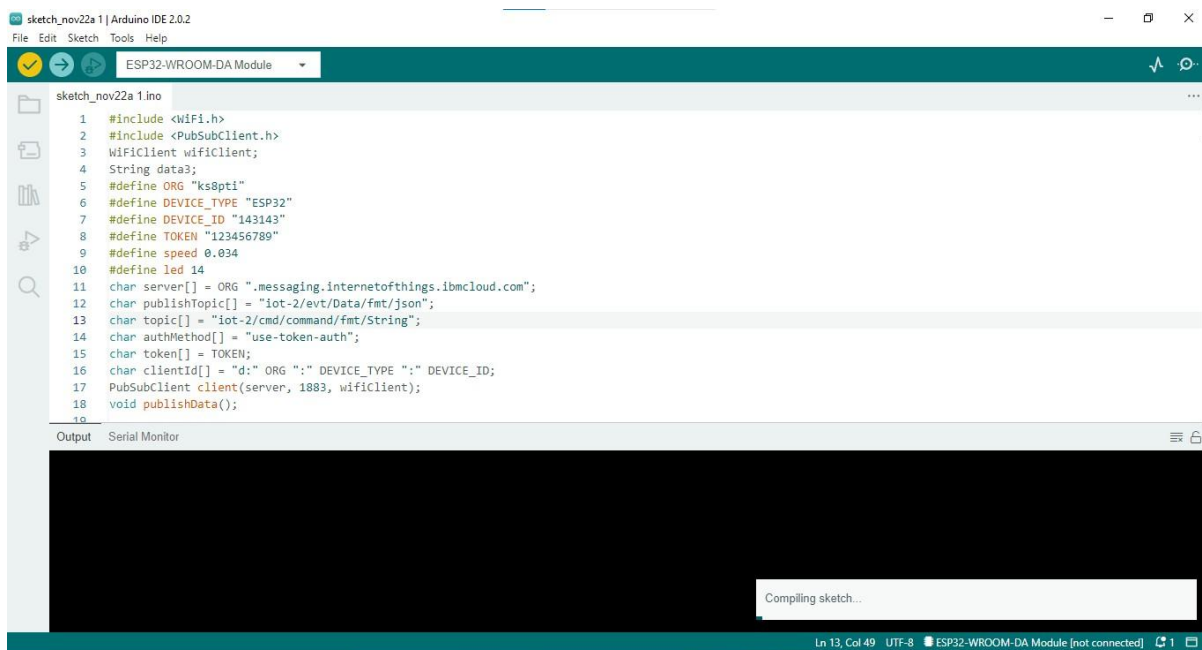


# Coding and Solution

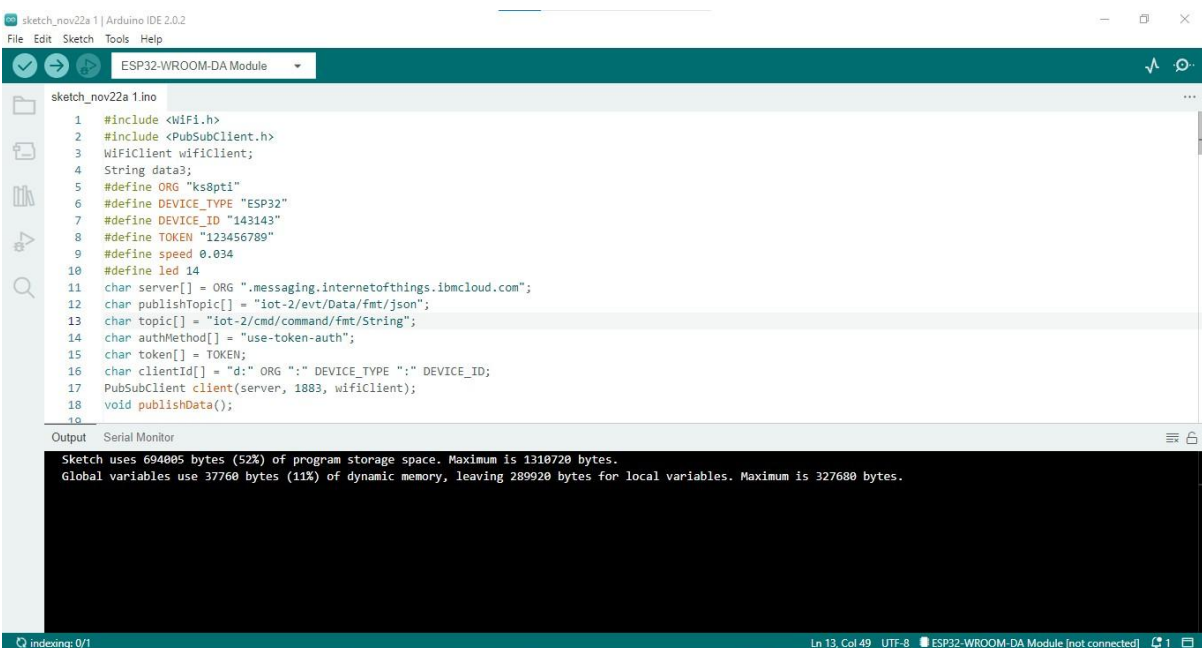
Team ID	PNT2022TMID38427
Project Name	Real-time river water quality monitoring and control system

## Debugging and Traceability



The screenshot shows the Arduino IDE interface with the file 'sketch\_nov22a 1.ino' open. The code is for an ESP32-WROOM-DA module and includes libraries for WiFi and PubSubClient. It defines various constants like ORG, DEVICE\_TYPE, DEVICE\_ID, TOKEN, speed, and led. The main function sets up a WiFi client and a PubSubClient, then publishes data to a specific topic. The status bar at the bottom indicates 'Ln 13, Col 49' and 'ESP32-WROOM-DA Module [not connected]'. The output window shows 'Compiling sketch...'.

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 WiFiClient wificlient;
4 String data3;
5 #define ORG "ks8pti"
6 #define DEVICE_TYPE "ESP32"
7 #define DEVICE_ID "143143"
8 #define TOKEN "123456789"
9 #define speed 0.034
10 #define led 14
11 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
12 char publishTopic[] = "iot-2/evt/Data/fmt/json";
13 char topic[] = "iot-2/cmd/command/fmt/String";
14 char authMethod[] = "use-token-auth";
15 char token[] = TOKEN;
16 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
17 PubSubClient client(server, 1883, wificlient);
18 void publishData();
```



The screenshot shows the same Arduino IDE interface, but the output window now displays memory usage information: 'Sketch uses 694085 bytes (52%) of program storage space. Maximum is 1310720 bytes. Global variables use 37760 bytes (11%) of dynamic memory, leaving 289920 bytes for local variables. Maximum is 327680 bytes.' The status bar at the bottom shows 'Ln 13, Col 49' and 'ESP32-WROOM-DA Module [not connected]'. The output window also shows 'indexing: 0/1'.

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 WiFiClient wificlient;
4 String data3;
5 #define ORG "ks8pti"
6 #define DEVICE_TYPE "ESP32"
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17 PubSubClient client(server, 1883, wificlient);
18 void publishData();
```

We are debug everything through the Arduino IDE

