

IOT WITH AI PRACTICAL NO 5

SOURCE CODE:

```
#include <DHT.h>

#define DHTPIN A0          // Pin where the DHT11 is connected
#define DHTTYPE DHT11      // Define the type of sensor

DHT dht(DHTPIN, DHTTYPE); // Create a DHT object

// Variables to store temperature data
float temperatureF; // Current temperature in Fahrenheit
float maxTempF = -1000.0; // Maximum temperature
float minTempF = 1000.0; // Minimum temperature

const int resetPin = 2; // Digital pin 2 to reset min/max
                        // temperatures
unsigned long lastButtonPress = 0; // To manage debounce

void setup() {
    Serial.begin(9600);
    pinMode(resetPin, INPUT_PULLUP);

    dht.begin(); // Initialize the DHT sensor
    Serial.println("DHT11 Temperature Sensor Program
Initialized");
}

void loop() {
    readTemperature();
    checkReset();
    delay(2000); // Read temperature every 2 seconds
}

void readTemperature() {
```

```

    temperatureF = dht.readTemperature(true); // true for
Fahrenheit

    if (isnan(temperatureF)) {
        Serial.println("Failed to read from DHT sensor!");
        return;
    }

    updateMinMax();
    displayTemperatures();
}

void updateMinMax() {
    if (temperatureF > maxTempF) {
        maxTempF = temperatureF;
    }
    if (temperatureF < minTempF) {
        minTempF = temperatureF;
    }
}

void displayTemperatures() {
    Serial.print("Current Temperature (F): ");
    Serial.println(temperatureF);
    Serial.print("Max Temperature (F): ");
    Serial.println(maxTempF);
    Serial.print("Min Temperature (F): ");
    Serial.println(minTempF);
}

void checkReset() {
    if (digitalRead(resetPin) == LOW) {
        unsigned long currentMillis = millis();
        if (currentMillis - lastButtonPress > 500) { // 500ms
            // debounce

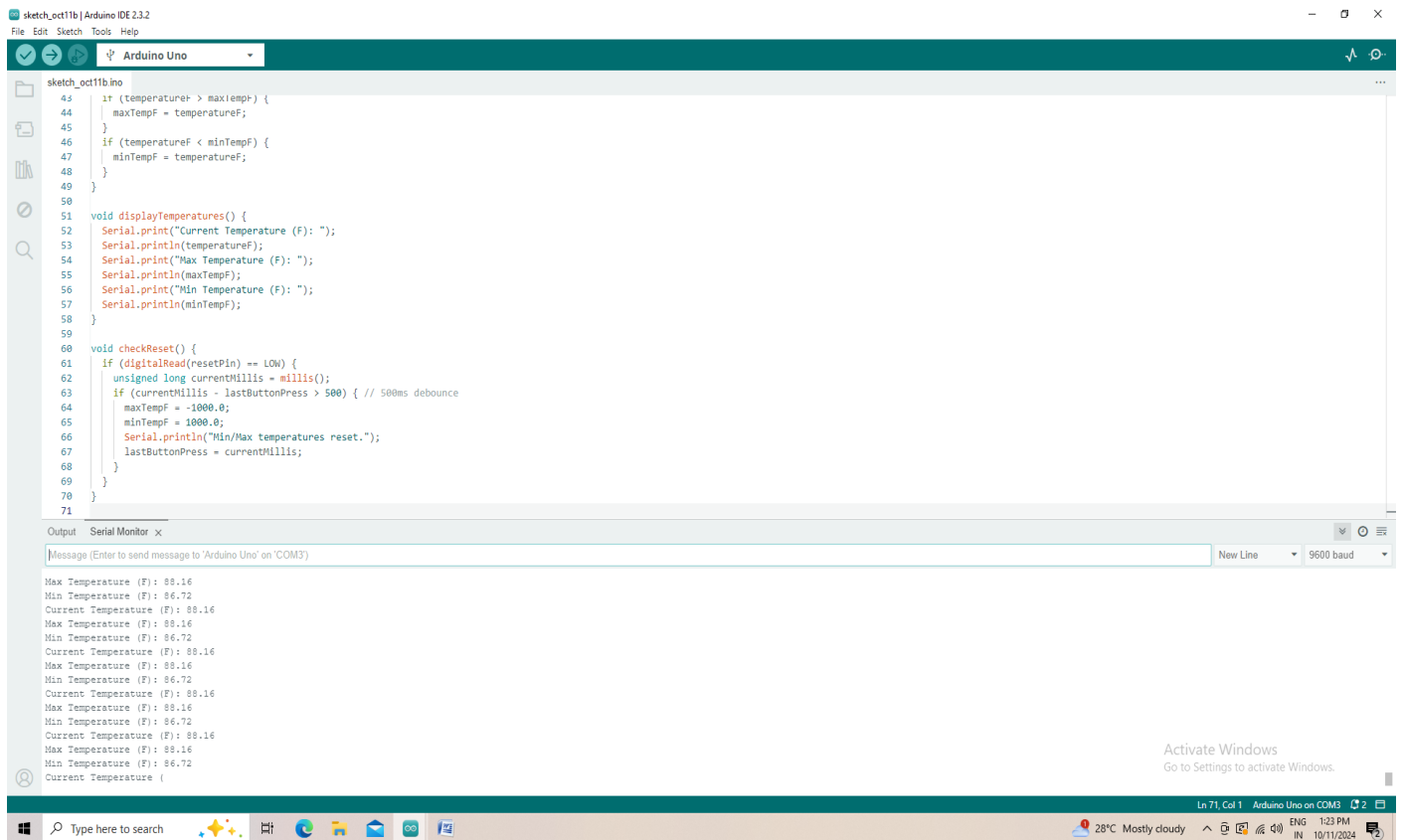
```

```

    maxTempF = -1000.0;
    minTempF = 1000.0;
    Serial.println("Min/Max temperatures reset.");
    lastButtonPress = currentMillis;
  }
}
}

```

OUTPUT:



The screenshot shows the Arduino IDE interface. The code editor displays the following code:

```

43  if (temperature > maxTempF) {
44    maxTempF = temperature;
45  }
46  if (temperature < minTempF) {
47    minTempF = temperature;
48  }
49  }
50
51  void displayTemperatures() {
52    Serial.print("Current Temperature (F): ");
53    Serial.println(temperatureF);
54    Serial.print("Max Temperature (F): ");
55    Serial.println(maxTempF);
56    Serial.print("Min Temperature (F): ");
57    Serial.println(minTempF);
58  }
59
60  void checkReset() {
61    if (digitalRead(resetPin) == LOW) {
62      unsigned long currentMillis = millis();
63      if (currentMillis - lastButtonPress > 500) { // 500ms debounce
64        maxTempF = -1000.0;
65        minTempF = 1000.0;
66        Serial.println("Min/Max temperatures reset.");
67        lastButtonPress = currentMillis;
68      }
69    }
70  }
71

```

The Serial Monitor shows the following output:

```

Max Temperature (F): 88.16
Min Temperature (F): 86.72
Current Temperature (F): 88.16
Max Temperature (F): 88.16
Min Temperature (F): 86.72
Current Temperature (F): 88.16
Max Temperature (F): 88.16
Min Temperature (F): 86.72
Current Temperature (F): 88.16
Max Temperature (F): 88.16
Min Temperature (F): 86.72
Current Temperature (F): 88.16
Max Temperature (F): 88.16
Min Temperature (F): 86.72
Current Temperature (F): 88.16

```

The bottom of the screenshot shows the Windows taskbar with the system clock at 1:23 PM on 10/11/2024.