

Develop the python Script

Date	17 th November 2022
Team Id	PNT2022TMID21831

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IDLE Shell 3.10.7 - C:/Users/AMARTHAVALLI/AppData/Local/Programs/Python/Python310/ibm python file.py (3.10.7)
File Edit Shell Debug Options Window Help
... #include <PubSubClient.h> //library for mqtt
... #include "DHT.h" // Library for dht11
... #define DHTPIN 4 // what pin we're connected to
... #define DHTTYPE DHT11 // define type of sensor DHT 11
... #define LED 5
... DHT dht (DHTPIN, DHTTYPE); // creating the instance by passing pin and type of dht connected
... void callback(char* topic, byte* payload, unsigned int payloadLength):
... //-----credentials of IBM Accounts-----
... #define ORG "0jjs12" //IBM ORGANIZATION ID
... #define DEVICE_TYPE "aajd" //Device type mentioned in ibm watson IOT Platform
... #define DEVICE_ID "aajd12345" //Device ID mentioned in ibm watson IOT Platform
... #define TOKEN "87654321" //Token
... String data3;
... float h, t;
... //----- Customise the above values -----
... char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; // Server Name
... char publishTopic[] = "iot-2/evt/Data/fmt/json"; // topic name and type of event perform and format in which data to be send
... char subscribTopic[] = "iot-2/cmd/test/fmt/String"; // cmd RSPRESENT command type AND COMMAND IS TEST OF FORMAT STRING
... char authMethod[] = "use-token-auth"; // authentication method
... char token[] = TOKEN;
... char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID; //client id
... //-----
... WiFiClient wifiClient; // creating the instance for wifiClient
... PubSubClient client(server, 1883, callback, wifiClient); //calling the predefined client id by passing parameter like server id, port and wifi credential
... void setup() // configuring the ESP32
... {
...   Serial.begin(115200);
...   dht.begin();
...   pinMode(LED, OUTPUT);
...   delay(10);
...   Serial.println();
...   wifiConnect();
...   mqttConnect();
... }
... void loop() // Recursive Function
... {
...   h = dht.readHumidity();
...   t = dht.readTemperature();
... }
```

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... t = dht.readTemperature();
... Serial.print("Temperature:");
... Serial.println(t);
... Serial.print("Humidity:");
... Serial.println(h);
...
... PublishData(t, h);
... delay(1000);
... if (!client.loop()) {
...     mqttconnect();
... }
...
... /*.....retrieving to Cloud.....*/
...
void PublishData(float temp, float humid) {
    mqttconnect();//function call for connecting to ibm
    /*
    creating the String in in form JSON to update the data to ibm cloud
    */
    String payload = "{\"Temperature\":\"";
    payload += temp;
    payload += "\", \"Humidity\":\"";
    payload += humid;
    payload += "\"}";

    Serial.print("Sending payload: ");
    Serial.println(payload);

    if (client.publish(publishTopic, (char*) payload.c_str())) {
        Serial.println("Publish ok");// if it successfully upload data on the cloud then it will print publish ok in Serial monitor or else it will print publish failed
    } else {
        Serial.println("Publish failed");
    }
}

void mqttconnect() {
    if (!client.connected()) {
        Serial.print("Reconnecting client to ");
        Serial.println(server);
        while (!client.connect(clientId, authMethod, token)) {
            Serial.print(".");
            delay(500);
        }
    }
}

```

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IDLE Shell 3.10.7 - C:/Users/AMARTHAVALLU/AppData/Local/Programs/Python/Python310/ibm python file.py (3.10.7)
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... }
... initManagedDevice();
... Serial.println();
... }
... void wificonnect() //function definition for wificonnect
... {
...     Serial.println();
...     Serial.print("Connecting to ");
...     WiFi.begin("Wekwi-GUEST", "", 6);//passing the wifi credentials to establish the connection
...     while (WiFi.status() != WL_CONNECTED) {
...         delay(500);
...         Serial.print(".");
...     }
...     Serial.println("");
...     Serial.println("WiFi connected");
...     Serial.println("IP address: ");
...     Serial.println(WiFi.localIP());
... }
... void initManagedDevice() {
...     if (client.subscribe(subscribetopic)) {
...         Serial.println(subscribetopic);
...         Serial.println("subscribe to cmd OK");
...     } else {
...         Serial.println("subscribe to cmd FAILED");
...     }
... }
... void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)
... {
...     Serial.print("callback invoked for topic: ");
...     Serial.println(subscribetopic);
...     for (int i = 0; i < payloadLength; i++) {
...         //Serial.print((char)payload[i]);
...         data3 += (char)payload[i];
...     }
...     Serial.println("data: " + data3);
...     if (data3=="lighton")
...     {
...         Serial.println(data3);
...         digitalWrite(LED,HIGH);
...     }
... }

```

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IDLE Shell 3.10.7 - C:/Users/AMARTHAVALLI/AppData/Local/Programs/Python/Python310/lib/python file.py (3.10.7)
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... while (WiFi.status() != WL_CONNECTED) {
...     delay(500);
...     Serial.print(".");
... }
... Serial.println("");
... Serial.println("WiFi connected");
... Serial.println("IP address: ");
... Serial.println(WiFi.localIP());
... }
...
... void initManagedDevice() {
...     if (client.subscribe(subscribetopic)) {
...         Serial.println(subscribetopic);
...         Serial.println("subscribe to cmd OK");
...     } else {
...         Serial.println("subscribe to cmd FAILED");
...     }
... }
...
... void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)
... {
...     Serial.print("callback invoked for topic: ");
...     Serial.println(subscribetopic);
...     for (int i = 0; i < payloadLength; i++) {
...         //Serial.print(char(payload[i]));
...         data3 += (char)payload[i];
...     }
...     Serial.println("data: " + data3);
...     if (data3=="lighten")
...     {
...         Serial.println(data3);
...         digitalWrite(LED,HIGH);
...     }
...     else
...     {
...         Serial.println(data3);
...         digitalWrite(LED,LOW);
...     }
...     data3="";
... }
... }

```

28°C
Satisfactory air



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