

Develop the python Script

Develop a python script

Date	18 November 2022
Team Id	PNT2022TMID19670

```
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 "97654321" // 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 subscribeTopic[] = "iot-2/cmd/test/fmt/string"; // cmd REPRESENT 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();
... }
```

IDLE Shell 3.10.7 - C:/Users/AMARTHAVALLI/AppData/Local/Programs/Python/Python310/ibm python file.py (3.10.7)

```
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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 form JSON to update the data to ibm cloud
   */
  String payload = "{\"Temperature\":";
  payload += temp;
  payload += ",";
  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("Attempting client to ");
    Serial.println(server);
    while (!client.connect(clientId, authMethod, token)) {
      Serial.print(".");
      delay(500);
    }
  }
}
```

Ln: 12 Col: 0

26°C
Mostly sunny



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IDLE Shell 3.10.7 - C:/Users/AMARTHAVALLI/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("Wokwi-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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IDE Shell 3.10.7 - C:/Users/AMARTHAWALLI/AppData/Local/Programs/Python/Python310/bm 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=="lighton")
...     {
...         Serial.println(data3);
...         digitalWrite(LED,HIGH);
...     }
...     else
...     {
...         Serial.println(data3);
...         digitalWrite(LED,LOW);
...     }
...     data3="";
... }
... }
```

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26°C
Satisfactory air



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