FINAL CODE:

WOKWI CODE FOR DTH22 SENSOR:

```
#include <WiFi.h>//library for wifi
#include <PubSubClient.h>//library for MQtt
#include "DHT.h"// Library for dht22
#define DHTPIN 15 // what pin we're connected to
#define DHTTYPE DHT22 // define type of sensor DHT 11
#define LED 2
DHT dht (DHTPIN, DHTTYPE);// creating the instance by passing pin and typr
of
dht connected
void callback(char* subscribetopic, byte* payload, unsigned int
payloadLength);
//-------credentials of IBM Accounts------
#define ORG "97mai0"//IBM ORGANITION ID
#define DEVICE_TYPE "Sivamadhavan23"//Device type mentioned in ibm
watson
IOT Platform#define DEVICE_ID "Sivamadhavanece"//Device ID mentioned
in ibm
watson IOT Platform #define TOKEN "I)&NoyRn-DUOO(*4yn" //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/command/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,portand
wificredential

void setup()// configureing 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();
Serial.print("temp:");
Serial.println(t);
Serial.print("Humid:");
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 = "{\"temp\":";
payload += temp;
payload += "," "\"Humid\":";
payload += humid;
payload += "}";

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

if (client.publish(publishTopic, (char*) payload.c_str())) {
Serial.println("Publish ok");// if it sucessfully 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);
}
initManagedDevice();
Serial.println();
}
```

```
}
void wificonnect() //function defination 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);
}
else
{
Serial.println(data3);
digitalWrite(LED,LOW);
}
data3="";
}
```