WEEK 2 ASSIGNMENT

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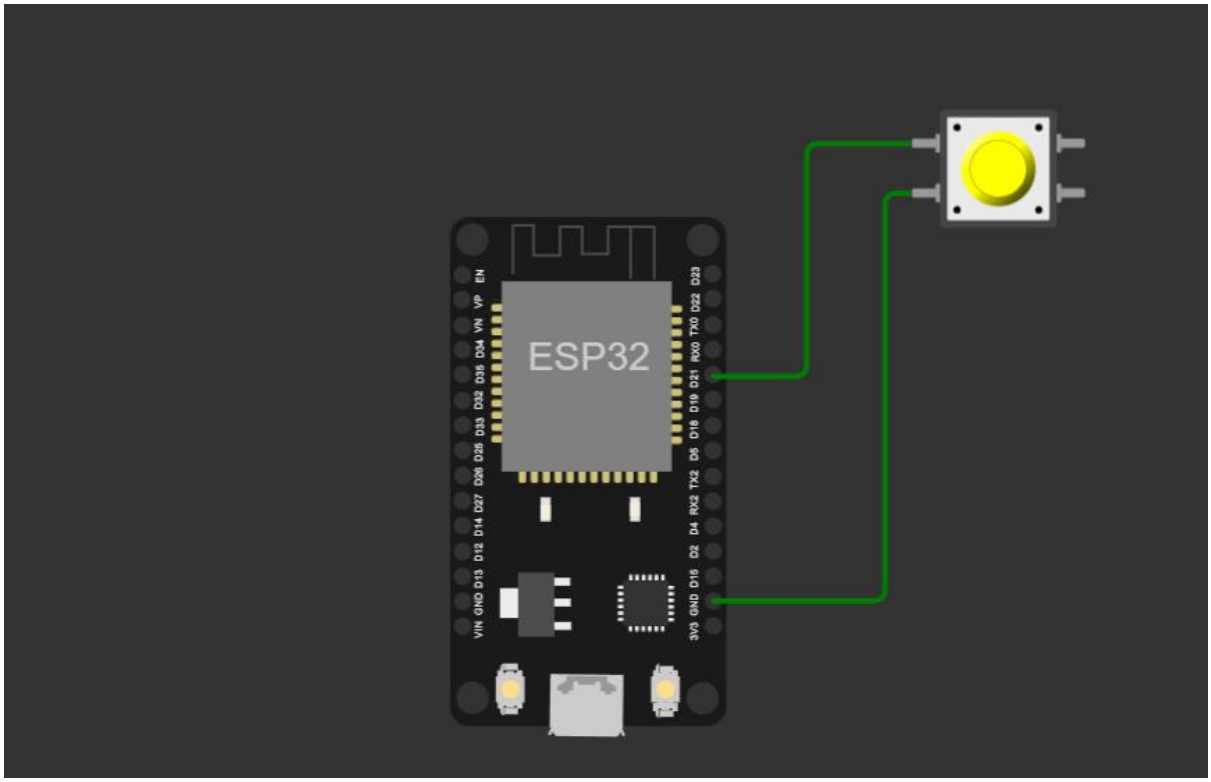
INTERN DOMAIN: IOT

TASK: In Wokwi connect push button and upload 0 and 1 to IBM cloud

WOKWI LINK:

https://wokwi.com/projects/365803332271672321

CIRCUIT DIAGRAM:



CODE:

```
#include <WiFi.h>//library for wifi

#include <PubSubClient.h>//library for MQtt

#define  button 21

#define LED 33


void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);


//-------credentials of IBM Accounts------

#define ORG "axcdx6"//IBM ORGANITION ID

#define DEVICE_TYPE "abcd"//Device type mentioned in ibm watson IOT Platform

#define DEVICE_ID "1234"//Device ID mentioned in ibm watson IOT Platform

#define TOKEN "12345678"     //Token

String data3;

int b;


//-------- 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);
  pinMode(LED,OUTPUT);
  pinMode(button,INPUT);
  delay(10);
  Serial.println();
  wificonnect();
  mqttconnect();
}

void loop()// Recursive Function
{
  b=digitalRead(button);
  Serial.print("Buttonstate is :");
  Serial.println(b);
  PublishData(b);
  delay(1000);
  if (!client.loop()) {
    mqttconnect();
  }
}
```

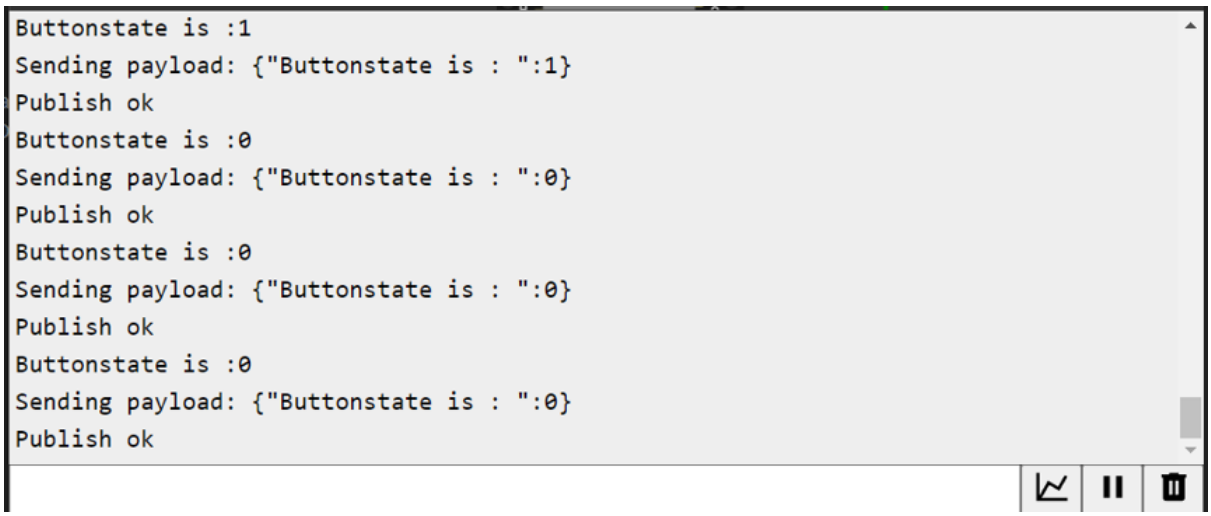
```
/*.....retrieving to Cloud.....*/


void PublishData(int b) {
  mqttconnect();//function call for connecting to ibm
  /*
     creating the String in in form JSon to update the data to ibm cloud
  */
  String payload = "{\"Buttonstate is : \":";
  payload += b;
  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");
  }
}
```

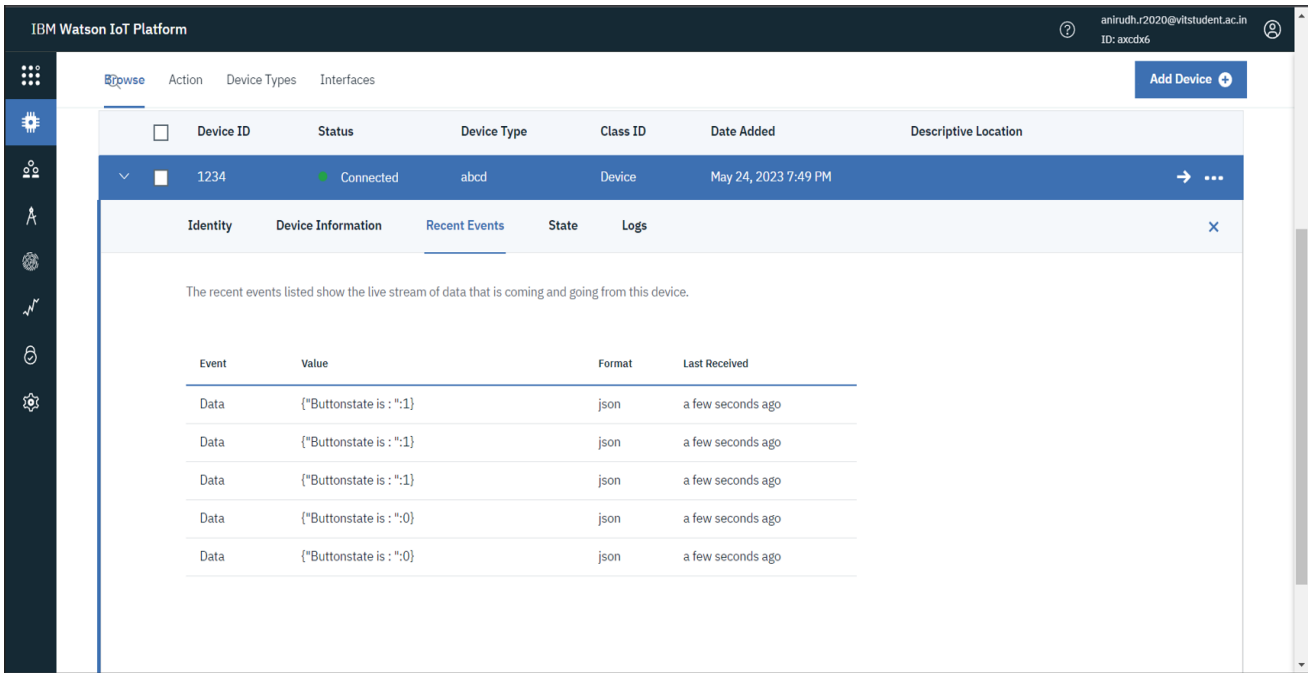
```
void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)
{

  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="";
}
```

OUTPUTS:

1. Serial Monitor of Wokwi



2. IBM cloud platform



Event	Value	Format	Last Received
Data	{"Buttonstate is : ":1}	json	a few seconds ago
Data	{"Buttonstate is : ":1}	json	a few seconds ago
Data	{"Buttonstate is : ":1}	json	a few seconds ago
Data	{"Buttonstate is : ":0}	json	a few seconds ago
Data	{"Buttonstate is : ":0}	json	a few seconds ago

RESULT:

Given task was carried out successfully and the button state was printed in the serial monitor and in the cloud platform.