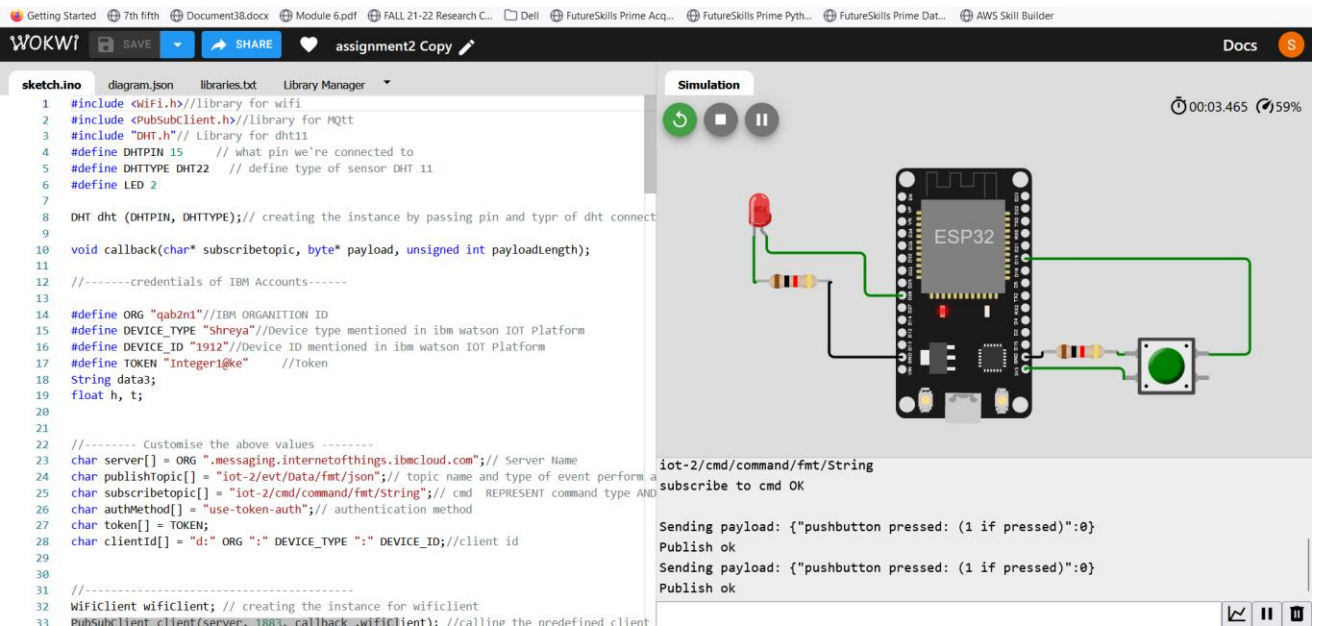


2023

ASSIGNMENT 2

Upload 0 and 1 of pushbutton to IBM cloud





CODE:

```

#include <WiFi.h>//library for wifi
#include <PubSubClient.h>//library for MQTT
#include "DHT.h"// Library for dht11
#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 "qab2n1"//IBM ORGANITION ID
#define DEVICE_TYPE "Shreya"//Device type mentioned in ibm watson IOT Platform
#define DEVICE_ID "1912"//Device ID mentioned in ibm watson IOT Platform
#define TOKEN "Integer1@ke" //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() {
    // put your setup code here, to run once:
    Serial.begin(9600);
    pinMode(19,INPUT);
    pinMode(26,OUTPUT);
    dht.begin();
    Serial.println();
    wificonnect();
    mqttconnect();
}

void loop() {
    // put your main code here, to run repeatedly:
    delay(10); // this speeds up the simulation
    int ans=digitalRead(19);
    if(ans==1)
        digitalWrite(26,HIGH);
    else
        digitalWrite(26,LOW);
    PublishData(ans);
    delay(1000);
    if (!client.loop()) {
        mqttconnect();
    }
}

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

void PublishData(int ans) {
    mqttconnect();//function call for connecting to ibm
    /*
        creating the String in in form JSon to update the data to ibm cloud
    */
    String payload = "{\"pushbutton pressed: (1 if pressed)\":";
    payload += ans;
    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="";  
}
```

OUTPUT:

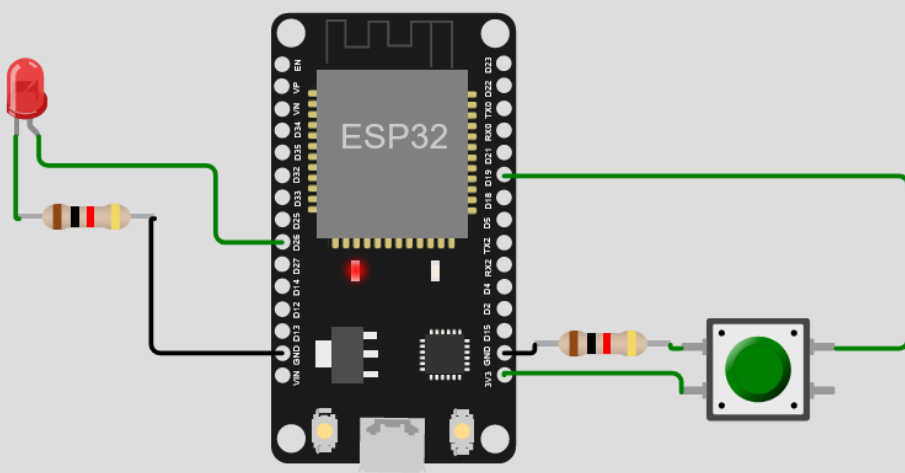
(LED off if pushbutton not pressed)

Acq... FutureSkills Prime Pyth... FutureSkills Prime Dat... AWS Skill Builder

Docs S

Simulation

00:13.456 75%



Reconnecting client to qab2n1.messaging.internetofthings.ibmcloud.com
iot-2/cmd/command/fmt/String
subscribe to cmd OK

Sending payload: {"pushbutton pressed: (1 if pressed)":0}
Publish ok
Sending payload: {"pushbutton pr

IBM Watson IoT Platform

shreya.gupta2020@vitstudent.ac.in ID: qab2n1

Browse Action Device Types Interfaces

Search by Device ID

Device Simulator

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
1912	Connected	Shreya	Device	May 25, 2023 1:05 PM	

Identity Device Information **Recent Events** State Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
Data	{"pushbutton pressed: (1 if pressed)":0}	json	a few seconds ago

Items per page 50 | 1-1 of 1 item

1 of 1 page

1 Simulation running

(LED on when pushbutton pressed)

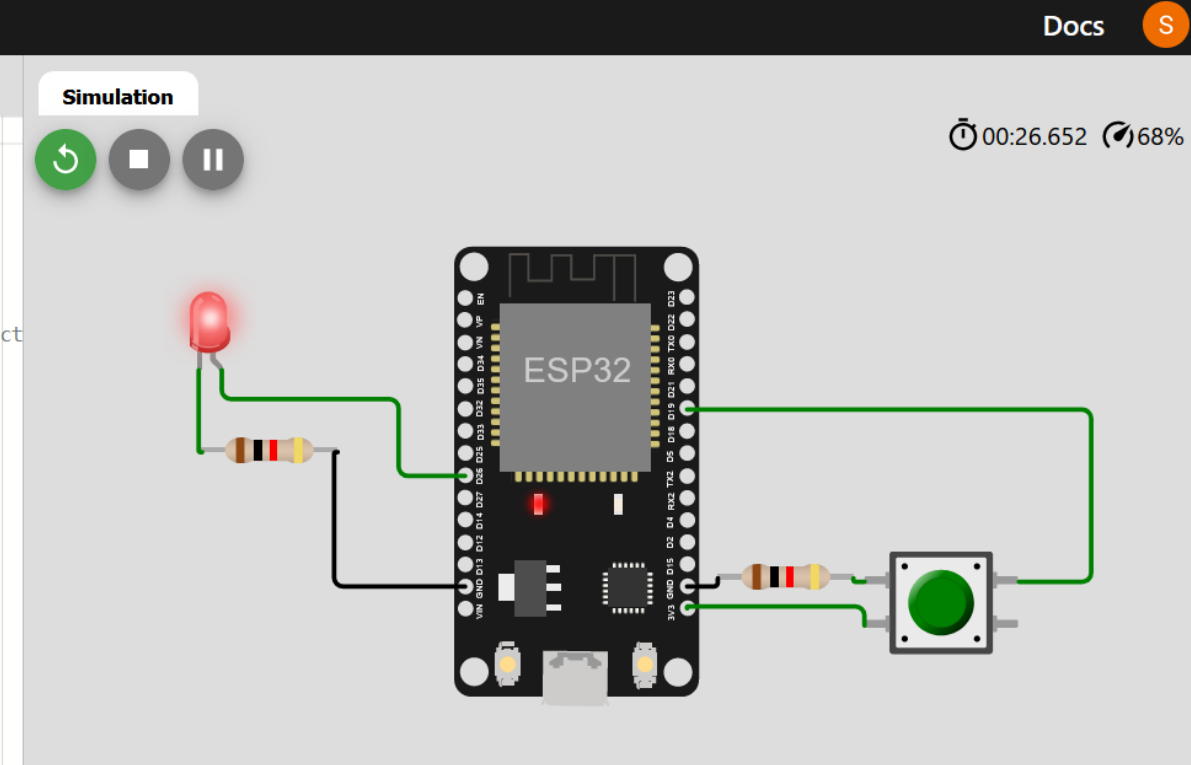
Docs

S

Simulation

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68%



```
Publish ok
Sending payload: {"pushbutton pressed: (1 if pressed)":1}
Publish ok
Sending payload: {"pushbutton pressed: (1 if pressed)":1}
Publish ok
Sending payload: {"pushbutton pressed: (1 if pressed)":1}
Publish ok
```

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IBM Watson IoT Platform

shreya.gupta2020@vitsstudent.ac.in
ID: qab2n1

Browse

Action

Device Types

Interfaces

Add Device

Identity

Device Information

Recent Events

State

Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
Data	{"pushbutton pressed: (1 if pressed)":1}	json	a few seconds ago
event_1	{"randomNumber":93}	json	a few seconds ago
Data	{"pushbutton pressed: (1 if pressed)":1}	json	a few seconds ago
Data	{"pushbutton pressed: (1 if pressed)":1}	json	a few seconds ago
Data	{"pushbutton pressed: (1 if pressed)":1}	json	a few seconds ago

Items per page 50 | 1-1 of 1 item

1 of 1 page

1 Simulation running

Link to project:

<https://wokwi.com/projects/365905984655083521>