WEEK-3 ASSIGNMENT

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INTERN DOMAIN: IOT

AIM:

In Wokwi, add a LED and switch it ON and OFF from Node-Red.

WOKWI LINK:

https://wokwi.com/projects/367036522277931009

CODE:

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

#define LED 33

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

//-------credentials of IBM Accounts------
#define ORG "zjq3ca"//IBM ORGANITION ID
#define DEVICE_TYPE "wokwi"//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;
```

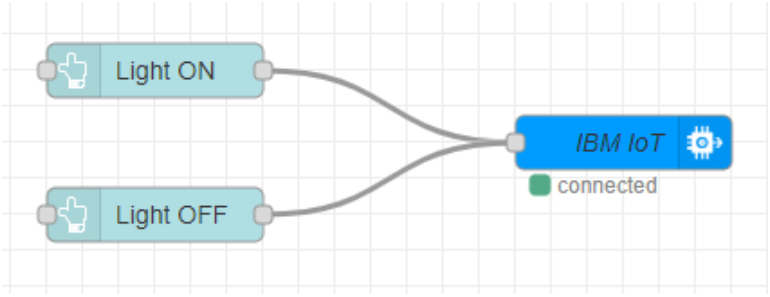
```
//-------- Customise the above values --------
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of event perform and format in which data to be send
char subscribetopic[] = "iot-2/cmd/command/fmt/String";// 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() {
  Serial.begin(115200);
  pinMode(LED,OUTPUT);
  delay(10);
  Serial.println();
  wificonnect();
```

```
  mqttconnect();
}

void loop() {
  delay(1000);
  if (!client.loop()) {
    mqttconnect();
  }
}

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);
```

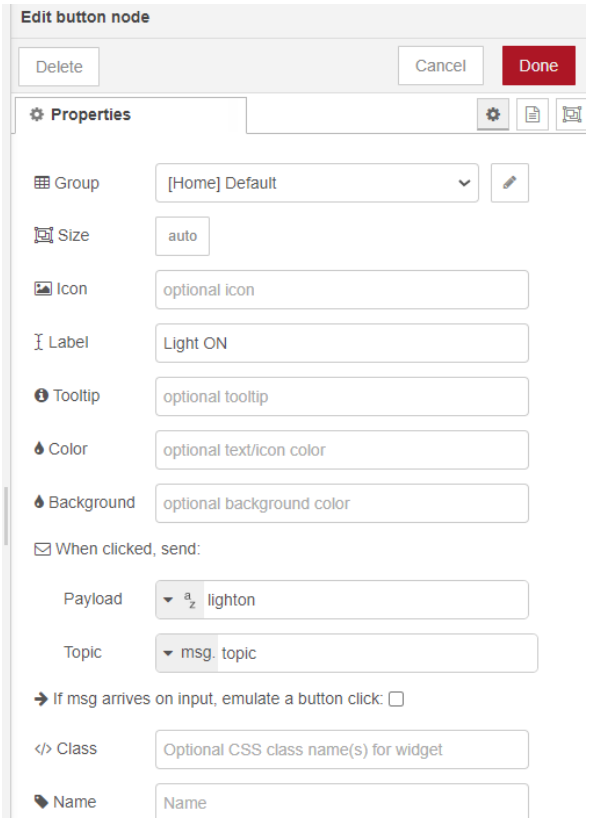
```
    Serial.print(".");
  }
  Serial.println("");
  Serial.println("WiFi connected");
  Serial.println("IP address: ");
  Serial.println(WiFi.localIP());
}

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++) {
    data3 += (char)payload[i];
  }
  Serial.println("data: "+ data3);
  if(data3=="lighton") {
    Serial.println(data3);
    digitalWrite(LED,HIGH);
  }
  else {
```

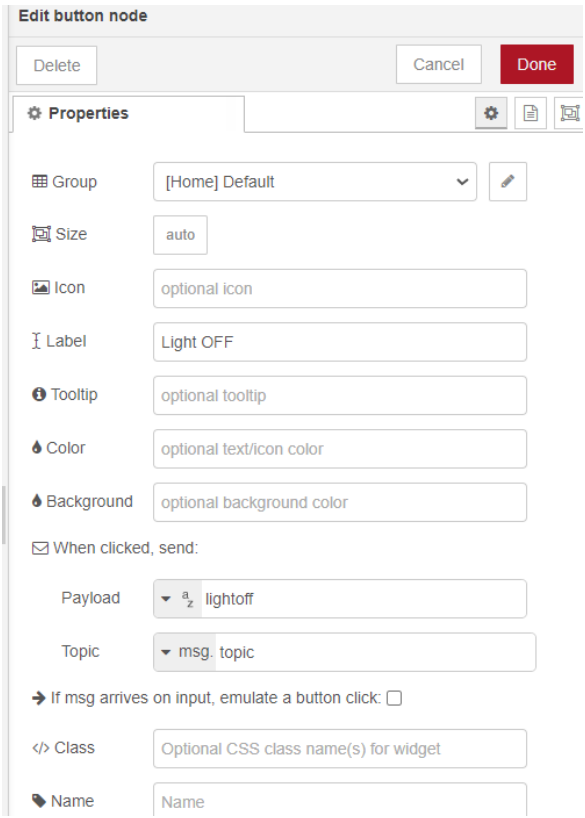
```
    Serial.println(data3);
    digitalWrite(LED,LOW);
  }
  data3="";
}
```

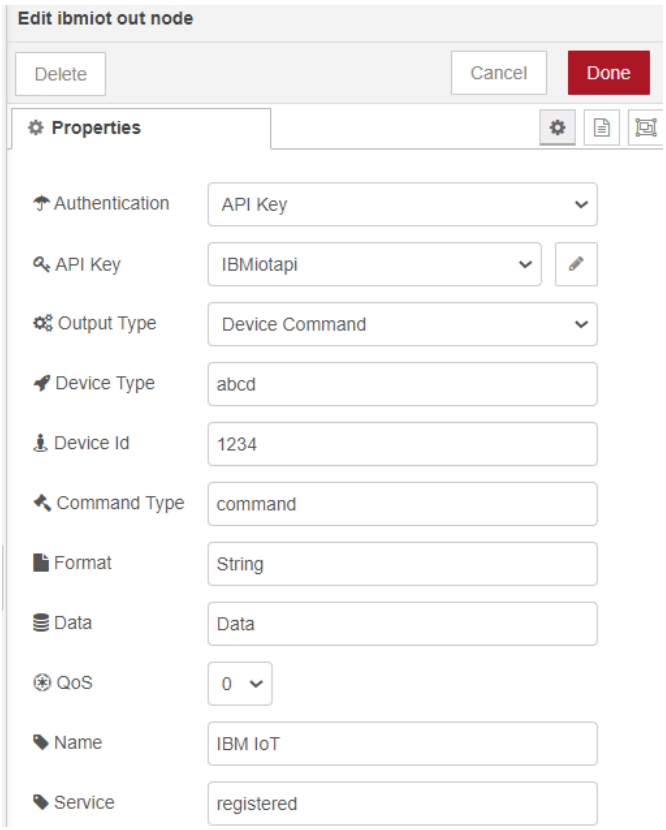
NODE RED FLOW DIAGRAM:



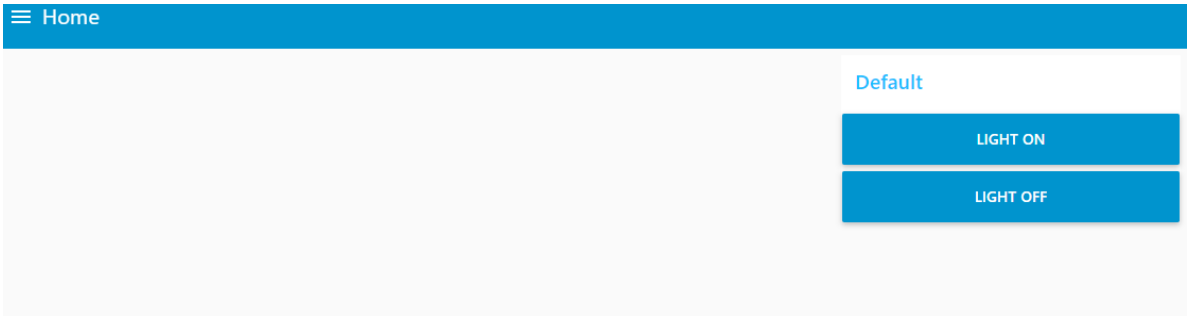
NODE PROPERTIES:




Edit button node
Delete
Cancel
Done
Properties
Group
[Home] Default
Size
auto
Icon
optional icon
Label
Light OFF
Tooltip
optional tooltip
Color
optional text/icon color
Background
optional background color
When clicked, send:
Payload
lightoff
Topic
msg. topic
If msg arrives on input, emulate a button click:
Class
Optional CSS class name(s) for widget
Name
Name

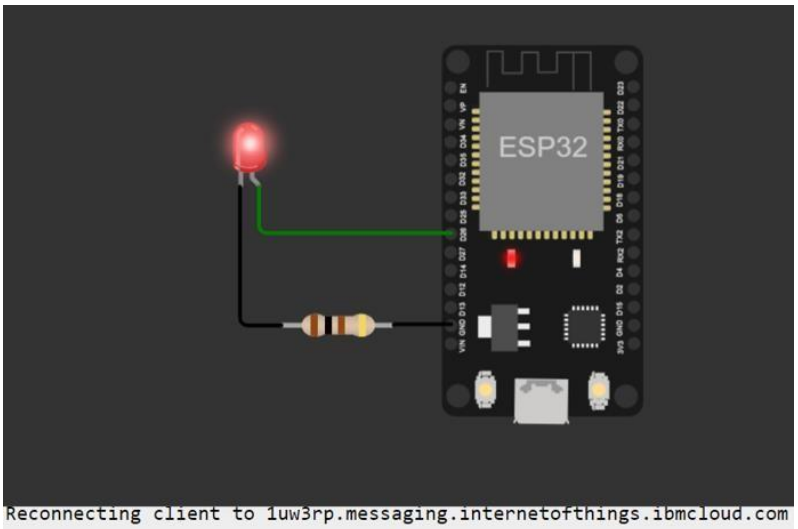


NODE RED DASHBOARD:



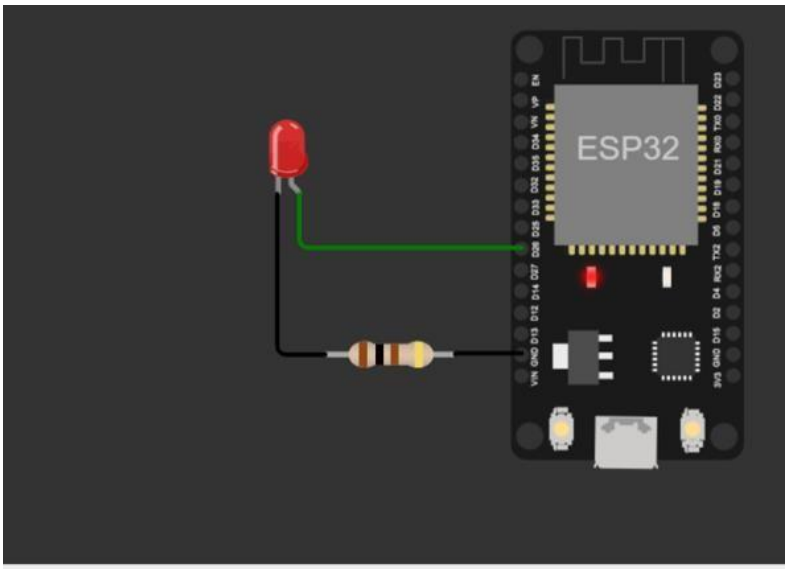
OUTPUT:

When “LIGHT ON” button is clicked on the dashboard-




```
Reconnecting client to 1uw3rp.messaging.internetofthings.ibmcloud.com
iot-2/cmd/command/fmt/String
subscribe to cmd OK

callback invoked for topic: iot-2/cmd/command/fmt/String
data: lighton
lighton
```

When “LIGHT OFF” button is clicked on the dashboard-




```
callback invoked for topic: iot-2/cmd/command/fmt/String
data: lighton
lighton
callback invoked for topic: iot-2/cmd/command/fmt/String
data: lightoff
lightoff
```

Serial Monitor Output-

```
Connecting to ....
WiFi connected
IP address:
10.10.0.2
Reconnecting client to 1uw3rp.messaging.internetofthings.ibmcloud.com
iot-2/cmd/command/fmt/String
subscribe to cmd OK

callback invoked for topic: iot-2/cmd/command/fmt/String
data: lighton
lighton
callback invoked for topic: iot-2/cmd/command/fmt/String
data: lightoff
lightoff
```

RESULT:

Thus, the given task has been performed successfully.