Python Script:

Date	19-11-2022
Team ID	PNT2022TMID18932
Project Name	IoT based child safety gadget formonitoring and notification

Program:

```cpp
#include <WiFi.h>
#include <WiFiClient.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>
#include<TinyGPS++.h>
#define RXD2 16
#define TXD2 17
HardwareSerial neogps(1);

TinyGPSPlus gps;
char arr[100];

const char* ssid = "Redmi";
const char* password = "krish@08";

#define ID "17cmwk"
#define DEVICE_TYPE "Tracker"
#define DEVICE_ID "gps1"
#define TOKEN "childtracker1"

char server[] = ID ".messaging.internetofthings.ibmcloud.com";
char publish_Topic1[] = "iot-2/evt/Data1/fmt/json";
char publish_Topic2[] = "iot-2/evt/Data2/fmt/json";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ID ":" DEVICE_TYPE ":" DEVICE_ID;

WiFiClient wifiClient;
PubSubClient client(server, 1883, NULL, wifiClient);

void setup() {
    Serial.begin(115200);
    Serial.println();
    wifi_init();
}

long previous_message = 0;
void loop() {
    client.loop();
    String payload = getLocationPayload();
    if(payload=="{}"){
      return;
    }

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

```cpp
        Serial.println(payload);
        if (client.publish(publish_Topic1, arr)) {
            Serial.println("Published successfully");
        } else {
            Serial.println("Failed");
        }
        delay(2000);
}
void wifi_init(){
        WiFi.begin(ssid, password);
        neogps.begin(9600,SERIAL_8N1,RXD2,TXD2);
        while (WiFi.status() != WL_CONNECTED) {
          delay(500);
          Serial.print(".");
        }
        Serial.println("");
        Serial.println(WiFi.localIP());

        if (!client.connected()) {
            Serial.print("Reconnecting client to ");
            Serial.println(server);
            while (!client.connect(clientId, authMethod, token)) {
                Serial.print(".");
                delay(500);
            }
            Serial.println("Connected TO IBM IoT cloud!");
        }
}
String getLocationPayload(){
        boolean newData = false;
        for(unsigned long start = millis();millis()-start<1000;){
          while(neogps.available()){
            if(gps.encode(neogps.read())){
              newData = true;
            }
          }
        }
        String payload;
        if(newData == true){
          newData = false;
          payload = locationPayloadGenerator();
        }
        else{
          Serial.println("No data");
          payload ="{}";
        }
        return payload;
}
String locationPayloadGenerator(){
    String payload = "{}";
    if(gps.location.isValid()){
        float lat = gps.location.lat();
        float lon = gps.location.lng();
        payload = "{\"latitude\" : "+String(lat)+",\"longitude\" :
"+String(lon)+"}";
        create_json(lat,lon);
    }
    return payload;
```

```
}
void create_json(float lat,float lon){
  StaticJsonDocument<100> doc;
  JsonObject root = doc.to<JsonObject>();
  root["name"]="Child";
  root["latitude"] = lat;
  root["longitude"] = lon;
  serializeJsonPretty(doc,arr);
}
```

Output: