Exercise 17: ThingSpeak

Equipment

For this exercise you will need:

- 1 x ESP8266
- Some data to send

Messy code? Use **ctrl+T**

Reading

None

Setup

- Make a user on ThingSpeak: Sign up
- Copy this code into the Arduino IDE

```
#include <ESP8266WiFi.h>
#include <ThingSpeak.h>

const char* ssid = "WiFi␣SSID";
const char* pass = "Password";
WiFiClient client;

unsigned long channelID = 424242;            //your TS channal
const char * APIKey = "ABCD1234";            //your TS API
const char* server = "api.thingspeak.com";
const int postDelay = 20 * 1000;             //post data every 20
   seconds

void setup() {
  Serial.begin(115200);
  WiFi.begin(ssid, pass);
}
float data;                                  //measured data
void loop() {
  data = 42.0;
  ThingSpeak.begin(client);
  client.connect(server, 80);                //connect(URL, Port)
  ThingSpeak.setField(X, data);              //set data on the X
     graph
  ThingSpeak.writeFields(channelID, APIKey);//post everything to TS
  client.stop();
  delay(postDelay);                          //wait and then post
     again
}
```

- Read through the code and discuss what it does
- Exchange all values in the code for your own (e.g. "WiFi SSID" should be the name (SSID) of your WiFi)

Questions & Exercises

17a: Print the WiFi RSSI of the ESP8266 to a ThingSpeak channel
17b: Add a two variable graph and fill it with either

- RSSI and LED on/off
- Data from two of your sensors

(you will need to add this to your breadboard)
17c: Explore the possibilities writing to and reading from ThingSpeak

Hint

You will need to make a Matlab script on ThingSpeak to create a multi-variable graph.