



嵌入式系統作業

雲端資料庫實作

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1.進入MySQL(已建置資料庫)

4070E021@raspberrypi: ~

MariaDB [Sensors]> desc DHT;

Field	Type	Null	Key	Default	Extra
ID	int(11)	NO	PRI	NULL	auto_increment
Temp	char(10)	YES		NULL	
Humidity	char(10)	YES		NULL	
Time	timestamp	NO		CURRENT_TIMESTAMP	

4 rows in set (0.01 sec)

2.查看資料表欄位訊息

```
MariaDB [Sensors]> select * from DHT;
```

ID	Temp	Humidity	Time
11641	20	30	2021-01-08 16:54:36

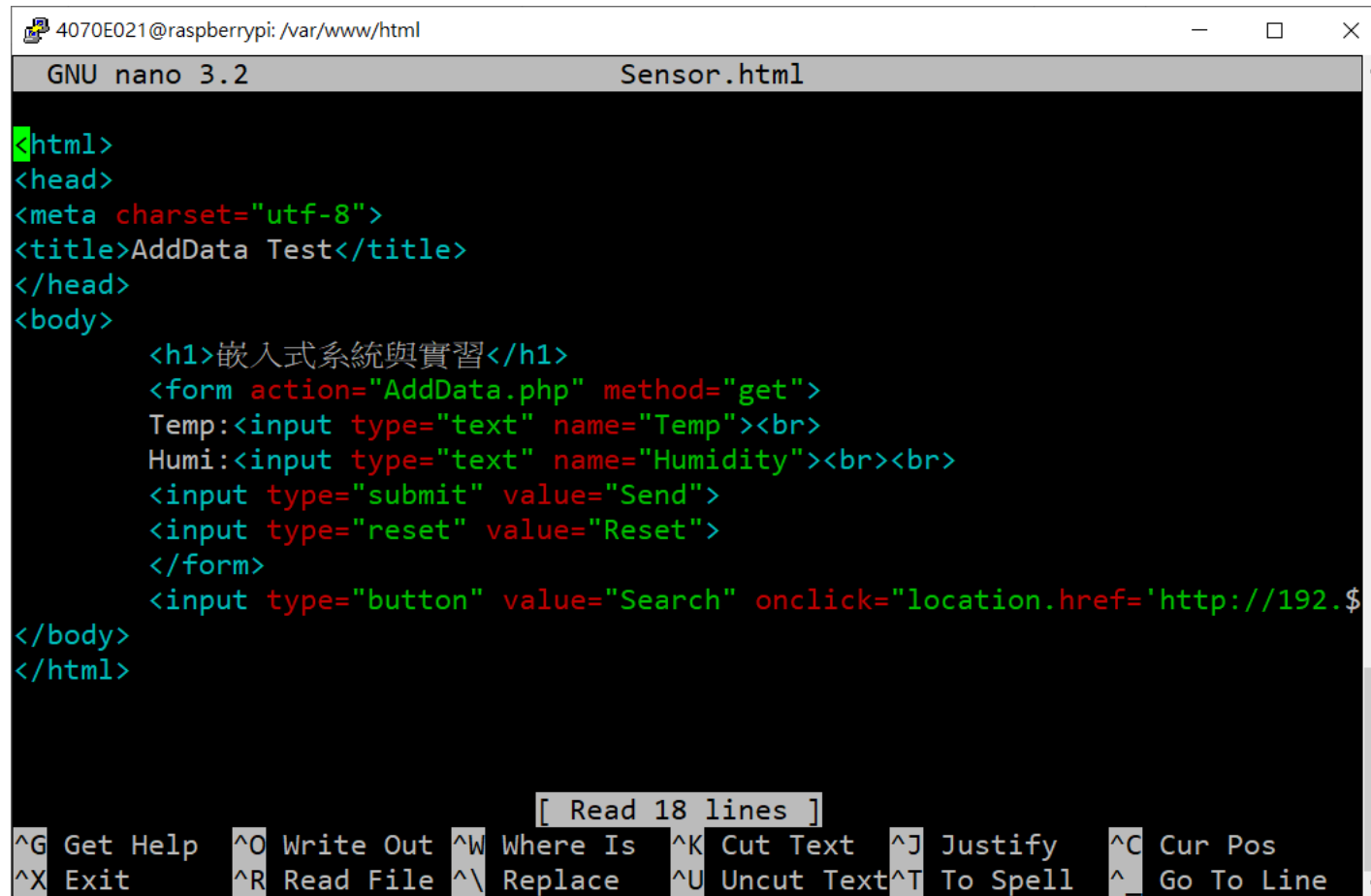
1 row in set (0.00 sec)

```
MariaDB [Sensors]> 
```

3.列出根目錄底下html,php

```
4070E021@raspberrypi: /var/www/html
4070E021@raspberrypi:~ $ cd /var/www/html
4070E021@raspberrypi:/var/www/html $ ls -la
total 36
drwxrwxr-x 2 root    root    4096 Jan  8 17:26 .
drwxrwxr-x 3 root    root    4096 Dec 18 23:31 ..
-rw-r--r-- 1 root    root     492 Jan  8 16:25 AddData.php
-rw-r--r-- 1 root    root    10701 Dec 18 23:31 index.html
-rw-r--r-- 1 root    root      26 Dec 18 23:48 phpinfo.php
-rw-r--r-- 1 root    root     485 Jan  5 10:42 Sensor.html
-rw-r--r-- 1 4070E021 4070E021 1010 Jan  8 17:27 show.php
4070E021@raspberrypi:/var/www/html $
```

4. Sensor.html



```
4070E021@raspberrypi: /var/www/html
GNU nano 3.2 Sensor.html
<html>
<head>
<meta charset="utf-8">
<title>AddData Test</title>
</head>
<body>
  <h1>嵌入式系統與實習</h1>
  <form action="AddData.php" method="get">
    Temp:<input type="text" name="Temp"><br>
    Humi:<input type="text" name="Humidity"><br><br>
    <input type="submit" value="Send">
    <input type="reset" value="Reset">
  </form>
  <input type="button" value="Search" onclick="location.href='http://192.$
</body>
</html>

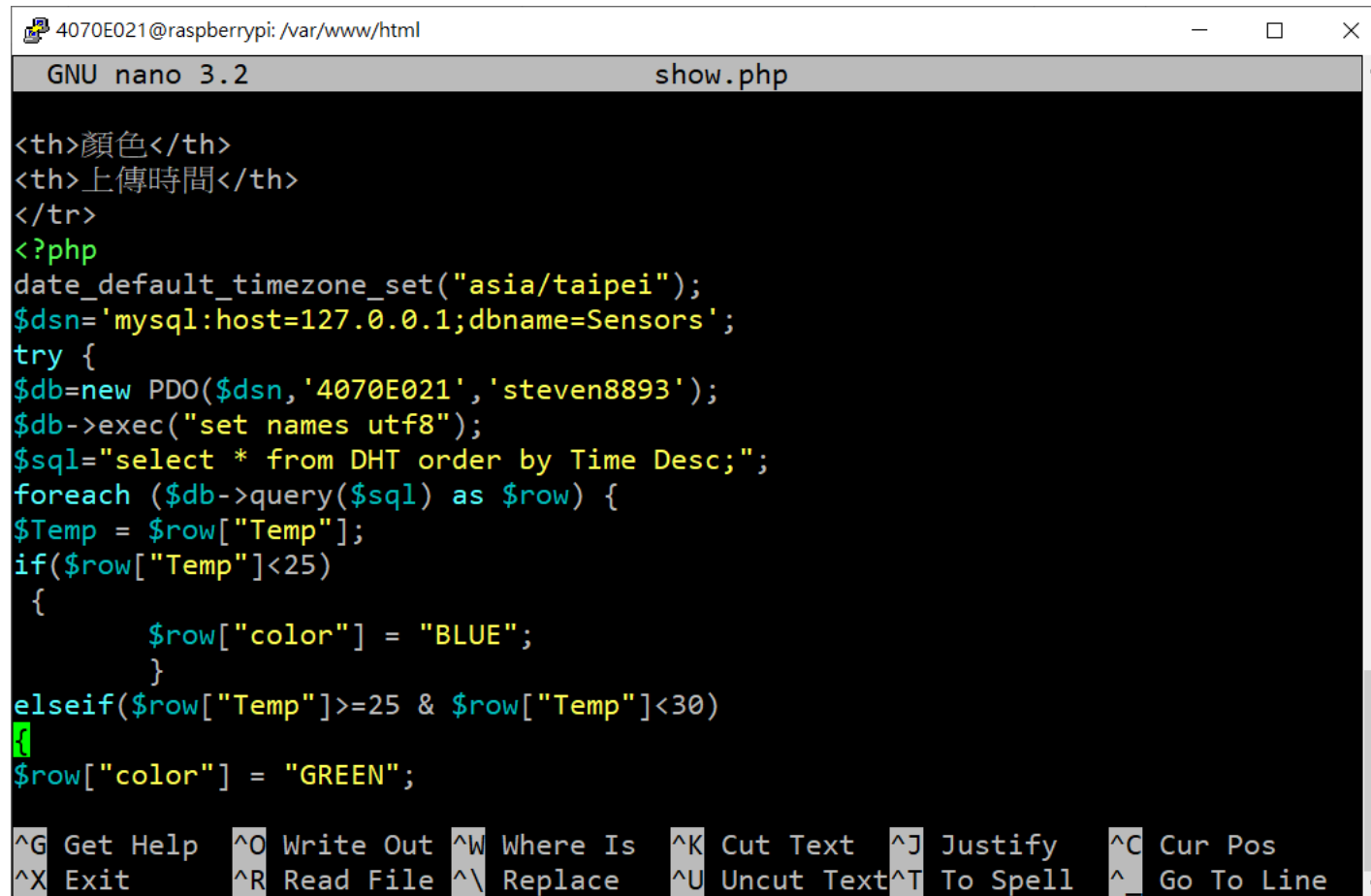
[ Read 18 lines ]
^G Get Help  ^O Write Out ^W Where Is  ^K Cut Text  ^J Justify   ^C Cur Pos
^X Exit      ^R Read File ^\ Replace   ^U Uncut Text ^T To Spell  ^_ Go To Line
```

5. AddData.php

```
4070E021@raspberrypi: /var/www/html
GNU nano 3.2 AddData.php
?php date_default_timezone_set("asia/taipei");
$dns="mysql:host=127.0.0.1;dbname=Sensors";
$Temp=$_GET['Temp'];
$Humidity=$_GET['Humidity'];
try{
    $db=new PDO($dns,'4070E021','steven8893');
    $db->exec("set names utf8");
    $sql="insert into DHT(Temp,Humidity) values('$Temp','$Humidity')";
    $result=$db->exec($sql);
    if($result==1){
        echo "新增成功";
    }else{
        echo "新增失敗";
    }
}catch(PDOException $e){
    printf("DATABASE_ERRMSG:%s",$e->getMessage());
}
?>

[ Read 18 lines ]
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^_ Go To Line
```

6. show.php



```
4070E021@raspberrypi: /var/www/html
GNU nano 3.2 show.php

<th>顏色</th>
<th>上傳時間</th>
</tr>
<?php
date_default_timezone_set("asia/taipei");
$dsn='mysql:host=127.0.0.1;dbname=Sensors';
try {
$db=new PDO($dsn,'4070E021','steven8893');
$db->exec("set names utf8");
$sql="select * from DHT order by Time Desc;";
foreach ($db->query($sql) as $row) {
$Temp = $row["Temp"];
if($row["Temp"]<25)
{
    $row["color"] = "BLUE";
}
elseif($row["Temp"]>=25 & $row["Temp"]<30)
{
    $row["color"] = "GREEN";
}
}
```

^G	Get Help	^O	Write Out	^W	Where Is	^K	Cut Text	^J	Justify	^C	Cur Pos
^X	Exit	^R	Read File	^_\	Replace	^U	Uncut Text	^T	To Spell	^_	Go To Line

7.輸入測試資料

嵌入式系統與實習

Temp:

Humi:

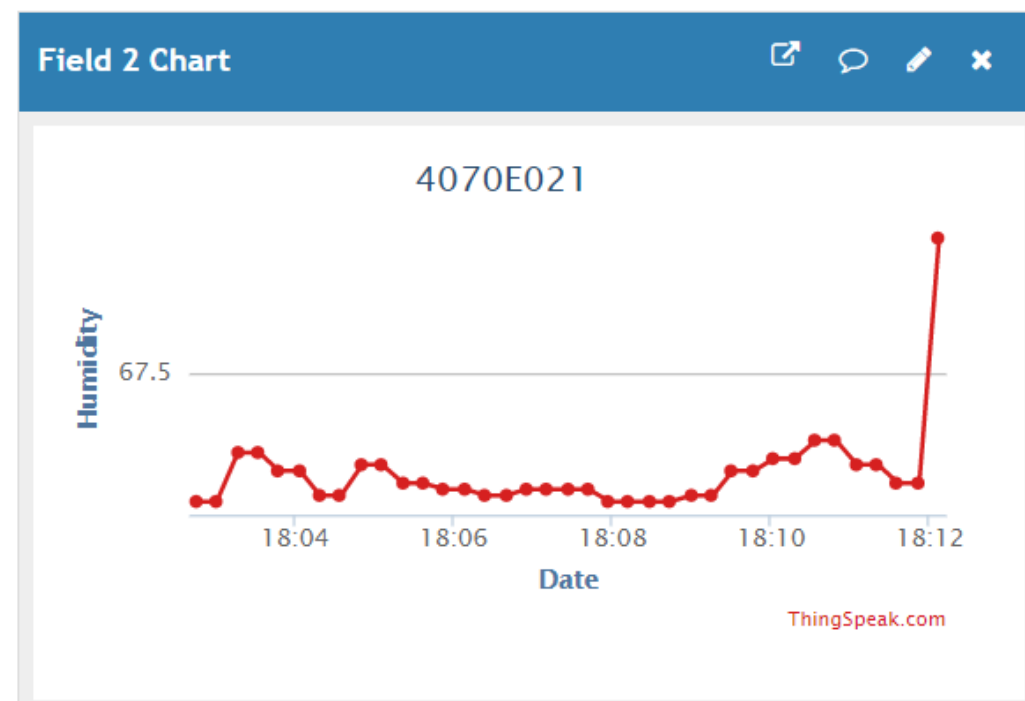
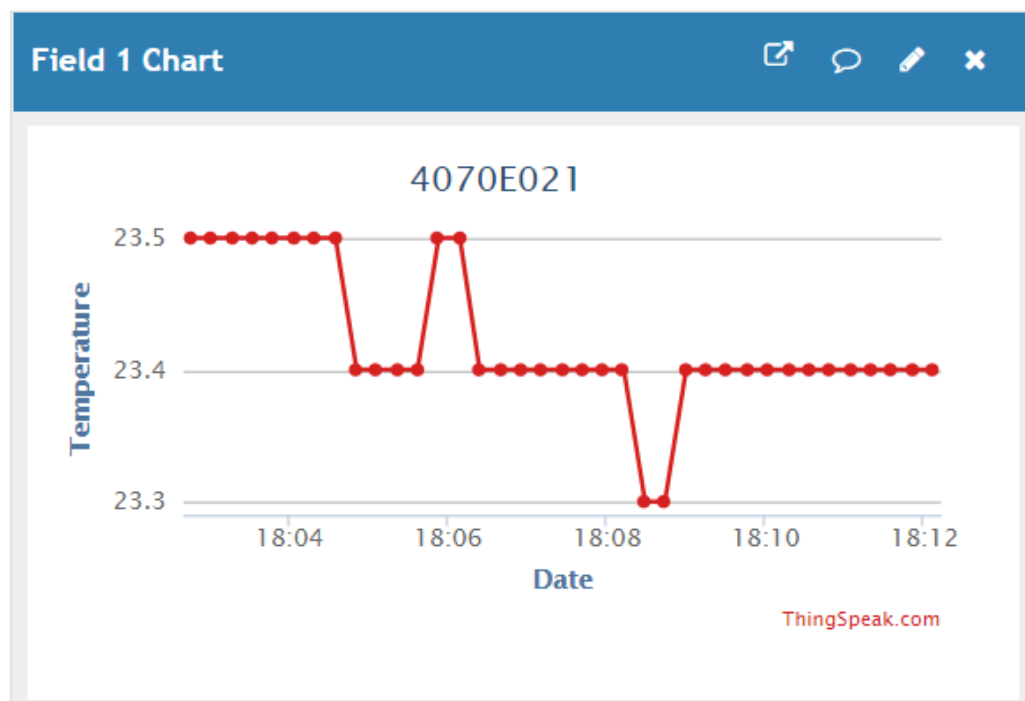
8.資料送進資料庫成功

ID	溫度	濕度
11845	18.30	53.60
11846	18.30	53.40
11847	18.30	53.10
11848	18.30	52.60
11849	12	22
11850	18.30	53.40

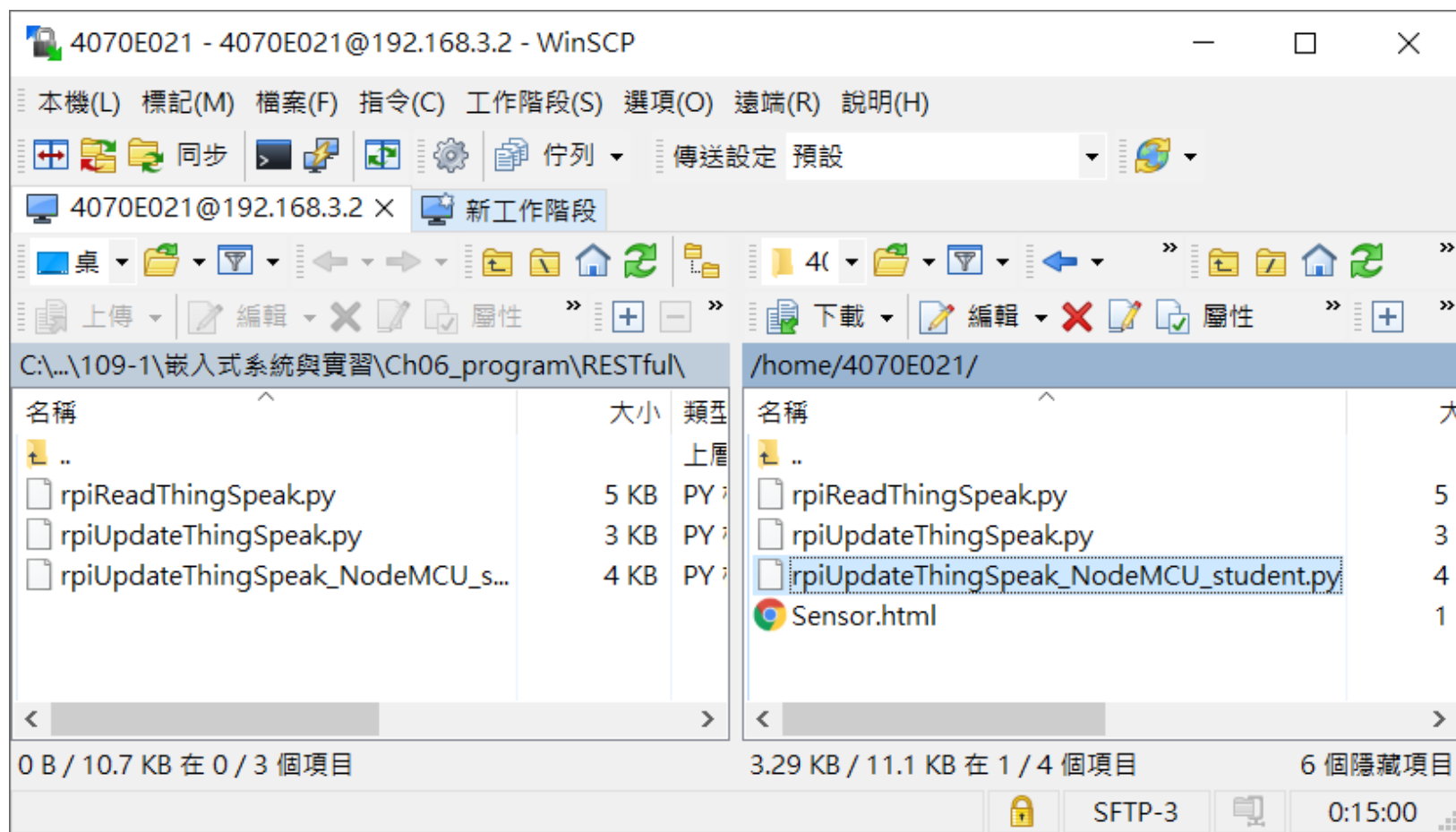
9.查詢資料庫內資料(web,SQL)

```
4070E021@raspberrypi: ~  
+-----+-----+-----+-----+  
| 11855 | 18.30 | 52.10 | 2021-01-08 17:36:25 |  
| 11856 | 18.30 | 52.20 | 2021-01-08 17:36:28 |  
| 11857 | 18.30 | 52.10 | 2021-01-08 17:36:31 |  
| 11858 | 18.30 | 51.90 | 2021-01-08 17:36:35 |  
| 11859 | 18.30 | 51.80 | 2021-01-08 17:36:38 |  
| 11860 | 18.30 | 51.80 | 2021-01-08 17:36:41 |  
| 11861 | 18.30 | 51.70 | 2021-01-08 17:36:44 |  
| 11862 | 18.30 | 51.70 | 2021-01-08 17:36:48 |  
| 11863 | 18.30 | 51.70 | 2021-01-08 17:36:51 |  
| 11864 | 18.30 | 51.70 | 2021-01-08 17:36:54 |  
| 11865 | 18.30 | 51.70 | 2021-01-08 17:36:58 |  
| 11866 | 18.30 | 51.80 | 2021-01-08 17:37:01 |  
| 11867 | 12    | 22    | 2021-01-08 17:37:02 |  
| 11868 | 18.30 | 51.70 | 2021-01-08 17:37:04 |  
| 11869 | 18.40 | 51.70 | 2021-01-08 17:37:08 |  
| 11870 | 18.30 | 51.70 | 2021-01-08 17:37:11 |  
| 11871 | 18.40 | 51.70 | 2021-01-08 17:37:14 |  
| 11872 | 18.40 | 51.70 | 2021-01-08 17:37:18 |  
| 11873 | 18.30 | 51.70 | 2021-01-08 17:37:21 |  
| 11874 | 18.40 | 51.70 | 2021-01-08 17:37:25 |  
+-----+-----+-----+-----+  
30 rows in set (0.00 sec)  
  
MariaDB [Sensors]> █
```

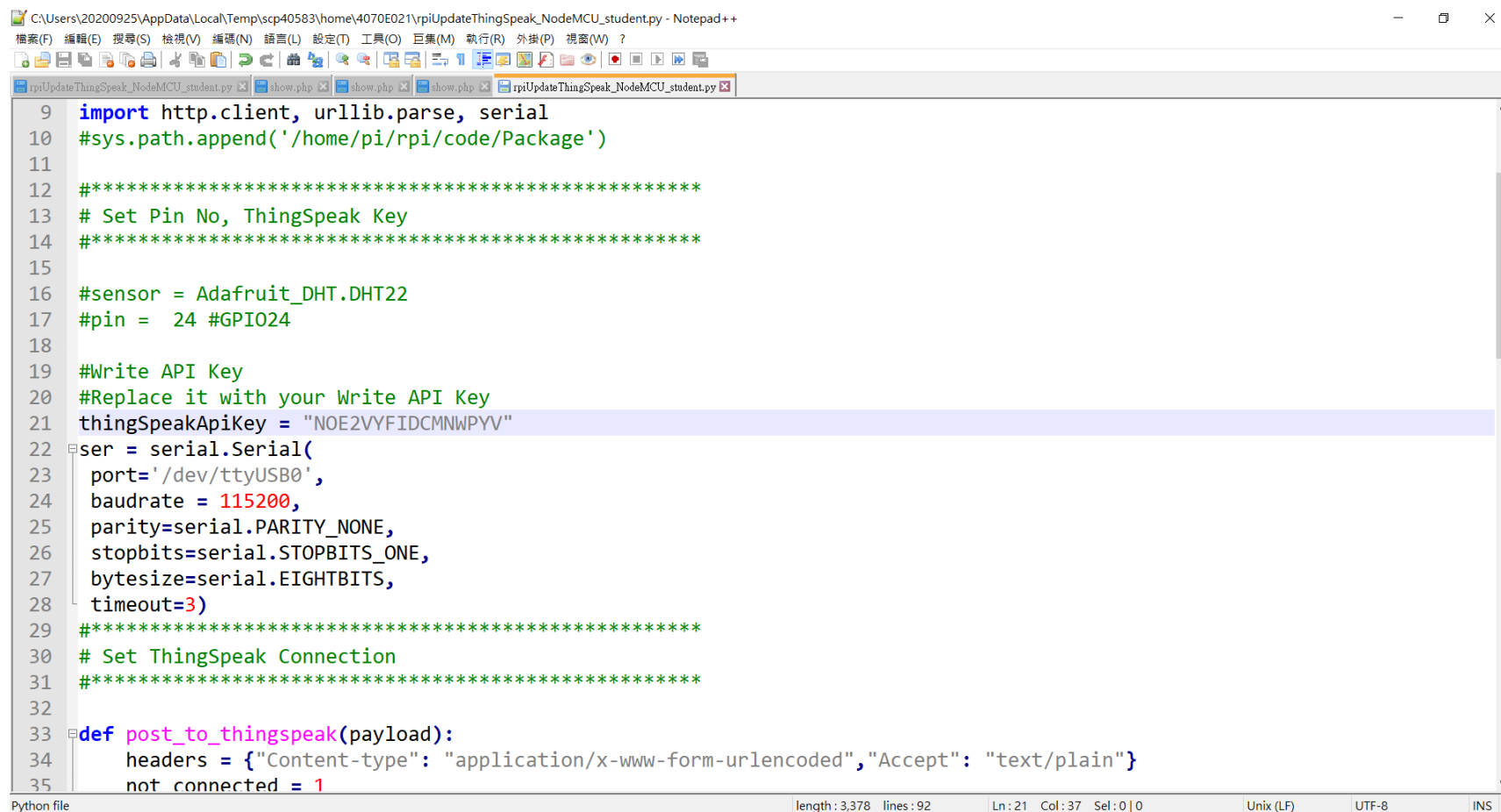
10.在ThingSpeak創建資料(名稱為自己學號)



11.將寫入檔案上傳



12.修改API key為自己的



```
9 import http.client, urllib.parse, serial
10 #sys.path.append('/home/pi/rpi/code/Package')
11
12 *****
13 # Set Pin No, ThingSpeak Key
14 *****
15
16 #sensor = Adafruit_DHT.DHT22
17 #pin = 24 #GPIO24
18
19 #Write API Key
20 #Replace it with your Write API Key
21 thingSpeakApiKey = "NOE2VYFIDCMNWPYV"
22 ser = serial.Serial(
23     port='/dev/ttyUSB0',
24     baudrate = 115200,
25     parity=serial.PARITY_NONE,
26     stopbits=serial.STOPBITS_ONE,
27     bytesize=serial.EIGHTBITS,
28     timeout=3)
29 *****
30 # Set ThingSpeak Connection
31 *****
32
33 def post_to_thingspeak(payload):
34     headers = {"Content-type": "application/x-www-form-urlencoded", "Accept": "text/plain"}
35     not connected = 1
```

Python file length: 3,378 lines: 92 Ln: 21 Col: 37 Sel: 0 | 0 Unix (LF) UTF-8 INS

13.修改權限(rpiUpdateThingSpeak_NodeMCU_student.py)

```
4070E021@raspberrypi: ~  
| 11873 | 18.30 | 51.70 | 2021-01-08 17:37:21 |  
| 11874 | 18.40 | 51.70 | 2021-01-08 17:37:25 |  
+-----+-----+-----+-----+  
30 rows in set (0.00 sec)  
  
MariaDB [Sensors]> Ctrl-C -- exit!  
Aborted  
4070E021@raspberrypi:~ $ sudo chmod +x *.py  
4070E021@raspberrypi:~ $ ls -la  
total 52  
drwxr-xr-x 4 4070E021 4070E021 4096 Jan  6 17:53 .  
drwxr-xr-x 5 root      root      4096 Dec  2 21:08 ..  
-rw----- 1 4070E021 4070E021 2546 Jan  8 17:15 .bash_history  
-rw-r--r-- 1 4070E021 4070E021  220 Dec  2 21:08 .bash_logout  
-rw-r--r-- 1 4070E021 4070E021 3523 Dec  2 21:08 .bashrc  
drwx----- 3 4070E021 4070E021 4096 Dec  2 21:12 .gnupg  
drwxr-xr-x 3 4070E021 4070E021 4096 Dec 29 10:31 .local  
-rw-r--r-- 1 4070E021 4070E021  807 Dec  2 21:08 .profile  
-rwxr-xr-x 1 4070E021 4070E021 4724 Dec 29 10:08 rpiReadThingSpeak.py  
-rwxr-xr-x 1 4070E021 4070E021 3378 Jan  8 17:40 rpiUpdateThingSpeak_NodeMCU_stu  
dent.py  
-rwxr-xr-x 1 4070E021 4070E021 2937 Jan  6 17:53 rpiUpdateThingSpeak.py  
-rw-r--r-- 1 root      root      416 Dec 29 11:06 Sensor.html  
4070E021@raspberrypi:~ $
```

14.執行程式(rpiUpdateThingSpeak_NodeMCU_student.py)

```
4070E021@raspberrypi: ~  
b'-----\r\n'  
Traceback (most recent call last):  
  File "./rpiUpdateThingSpeak_NodeMCU_student.py", line 84, in <module>  
    print("temp = %.02f*C humidity =%.02f%%"%(temp, humidity))  
NameError: name 'temp' is not defined  
4070E021@raspberrypi:~ $ vi rpiUpdateThingSpeak_NodeMCU_student.py  
4070E021@raspberrypi:~ $ sudo ./rpiUpdateThingSpeak_NodeMCU_student.py  
b'-----\r\n'  
Traceback (most recent call last):  
  File "./rpiUpdateThingSpeak_NodeMCU_student.py", line 84, in <module>  
    print("temp = %.02f*C humidity =%.02f%%"%(temp, humidity))  
NameError: name 'temp' is not defined  
4070E021@raspberrypi:~ $ sudo ./rpiUpdateThingSpeak_NodeMCU_student.py  
b's,50.00,18.50,e\r\n'  
['s', '50.00', '18.50', 'e\r\n']  
50.0  
18.5  
temp = 18.50*C humidity =50.00%  
*****HTTP POST Request*****  
200 OK field1=18.5&field2=50.0&key=NOE2VYFIDCMNWPYV Fri Jan 8 17:44:52 2021  
*****HTTP GET Request*****  
200 OK field1=18.5&field2=50.0&key=NOE2VYFIDCMNWPYV Fri Jan 8 17:45:10 2021  
b's,50.00,18.50,e\r\n'  
['s', '50.00', '18.50', 'e\r\n']
```

15.ThingSpeak上數據(至少10筆)

