

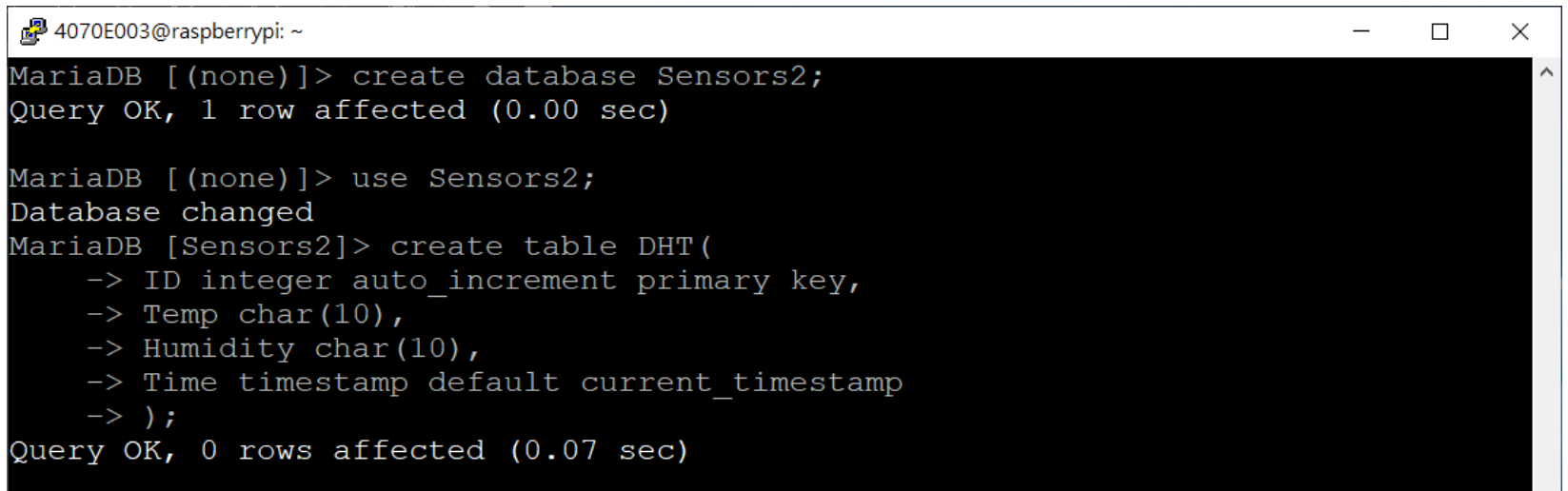
嵌入式系統作業

雲端資料庫實作

學號：4070E003

姓名：唐靖凱

1.進入MySQL(已建置資料庫)

A terminal window with a black background and white text. The window title bar shows '4070E003@raspberrypi: ~' and standard window controls. The terminal displays the following commands and output:

```
MariaDB [(none)]> create database Sensors2;  
Query OK, 1 row affected (0.00 sec)  
  
MariaDB [(none)]> use Sensors2;  
Database changed  
MariaDB [Sensors2]> create table DHT(  
    -> ID integer auto_increment primary key,  
    -> Temp char(10),  
    -> Humidity char(10),  
    -> Time timestamp default current_timestamp  
    -> );  
Query OK, 0 rows affected (0.07 sec)
```

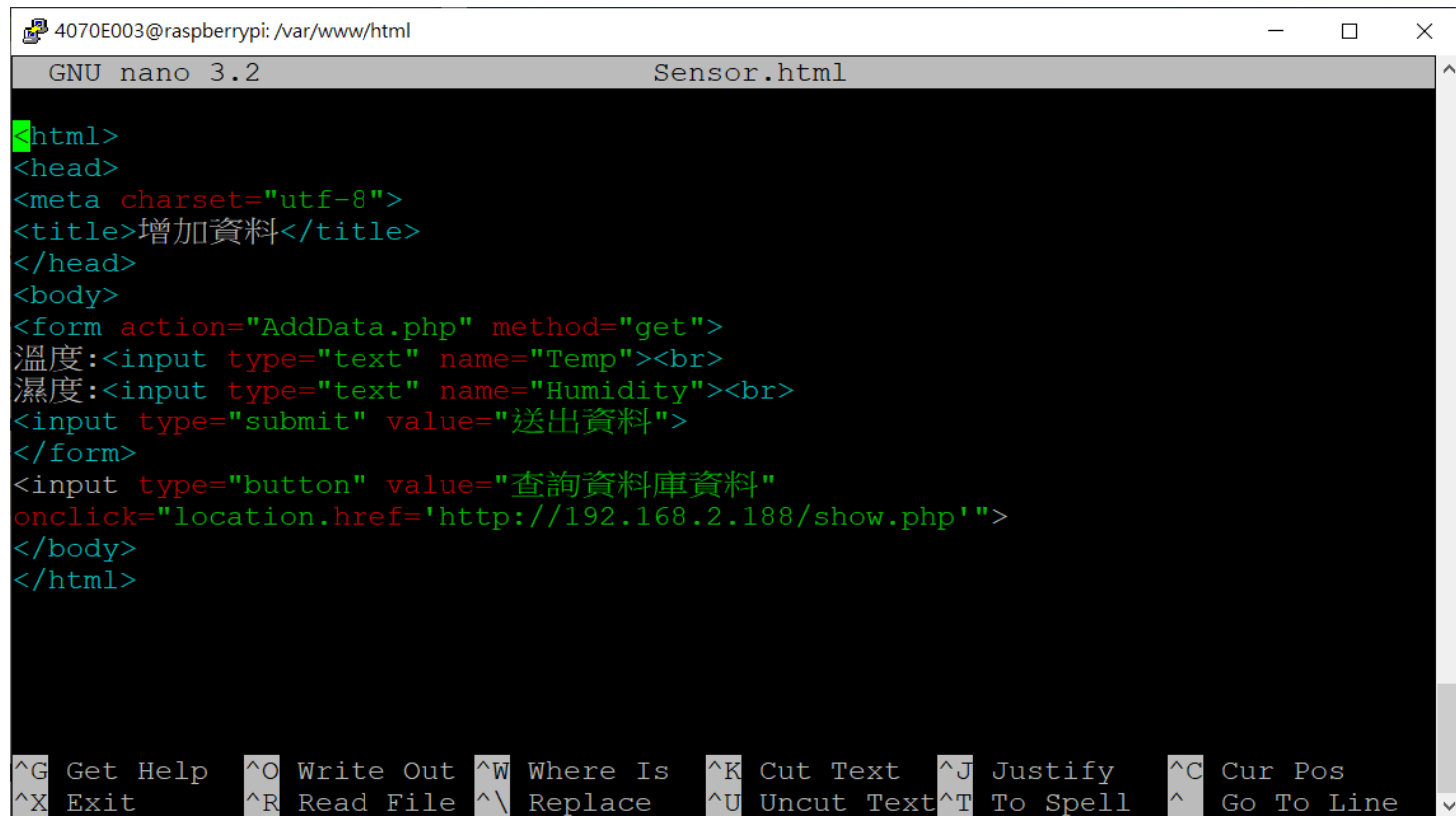
2.查看資料表欄位訊息

```
4070E003@raspberrypi: ~  
-> Time timestamp default current_timestamp  
-> );  
Query OK, 0 rows affected (0.07 sec)  
  
MariaDB [Sensors2]> desc DHT;  
+-----+-----+-----+-----+-----+-----+  
| Field      | Type      | Null | Key | Default      | Extra      |  
+-----+-----+-----+-----+-----+-----+  
| ID         | int(11)   | NO   | PRI | NULL         | auto_inc  |  
| Temp       | char(10)  | YES  |     | NULL         |           |  
| Humidity   | char(10)  | YES  |     | NULL         |           |  
| Time       | timestamp | NO   |     | CURRENT_TIMESTAMP |           |  
+-----+-----+-----+-----+-----+-----+  
4 rows in set (0.01 sec)  
  
MariaDB [Sensors2]> 
```

3.列出根目錄底下html,php

```
4070E003@raspberrypi: /var/www/html
4070E003@raspberrypi:~ $ cd /var/www/html
4070E003@raspberrypi:/var/www/html $ ls -la
total 36
drwxrwxrwx 2 root root 4096 Jan  6 17:11 .
drwxrwxrwx 3 root root 4096 Dec  2 21:41 ..
-rwxrwxrwx 1 root root  457 Jan  5 10:37 AddData.php
-rw-r--r-- 1 root root 10701 Dec  2 21:41 index.html
-rw-r--r-- 1 root root   25 Dec 18 16:31 phpinfo.php
-rwxrwxrwx 1 root root  385 Jan  5 11:38 Sensor.html
-rw----- 1 root root    0 Dec 29 11:52 Sensor.html.save
-rwxrwxrwx 1 root root  784 Jan  6 17:11 show.php
4070E003@raspberrypi:/var/www/html $
4070E003@raspberrypi:/var/www/html $
```

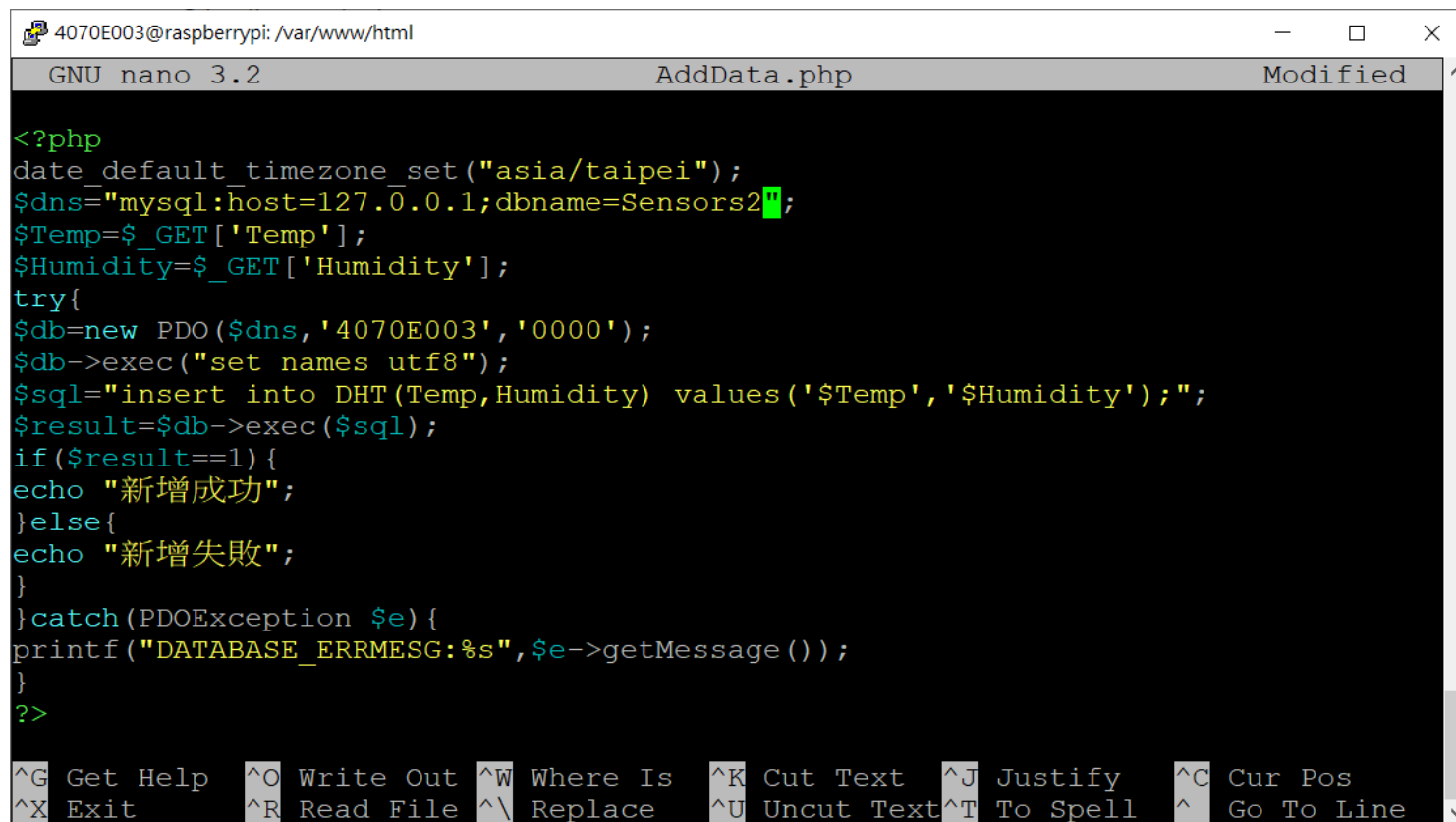
4. Sensor.html



```
4070E003@raspberrypi: /var/www/html
GNU nano 3.2 Sensor.html
<html>
<head>
<meta charset="utf-8">
<title>增加資料</title>
</head>
<body>
<form action="AddData.php" method="get">
溫度:<input type="text" name="Temp"><br>
濕度:<input type="text" name="Humidity"><br>
<input type="submit" value="送出資料">
</form>
<input type="button" value="查詢資料庫資料"
onclick="location.href='http://192.168.2.188/show.php'">
</body>
</html>

^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
```

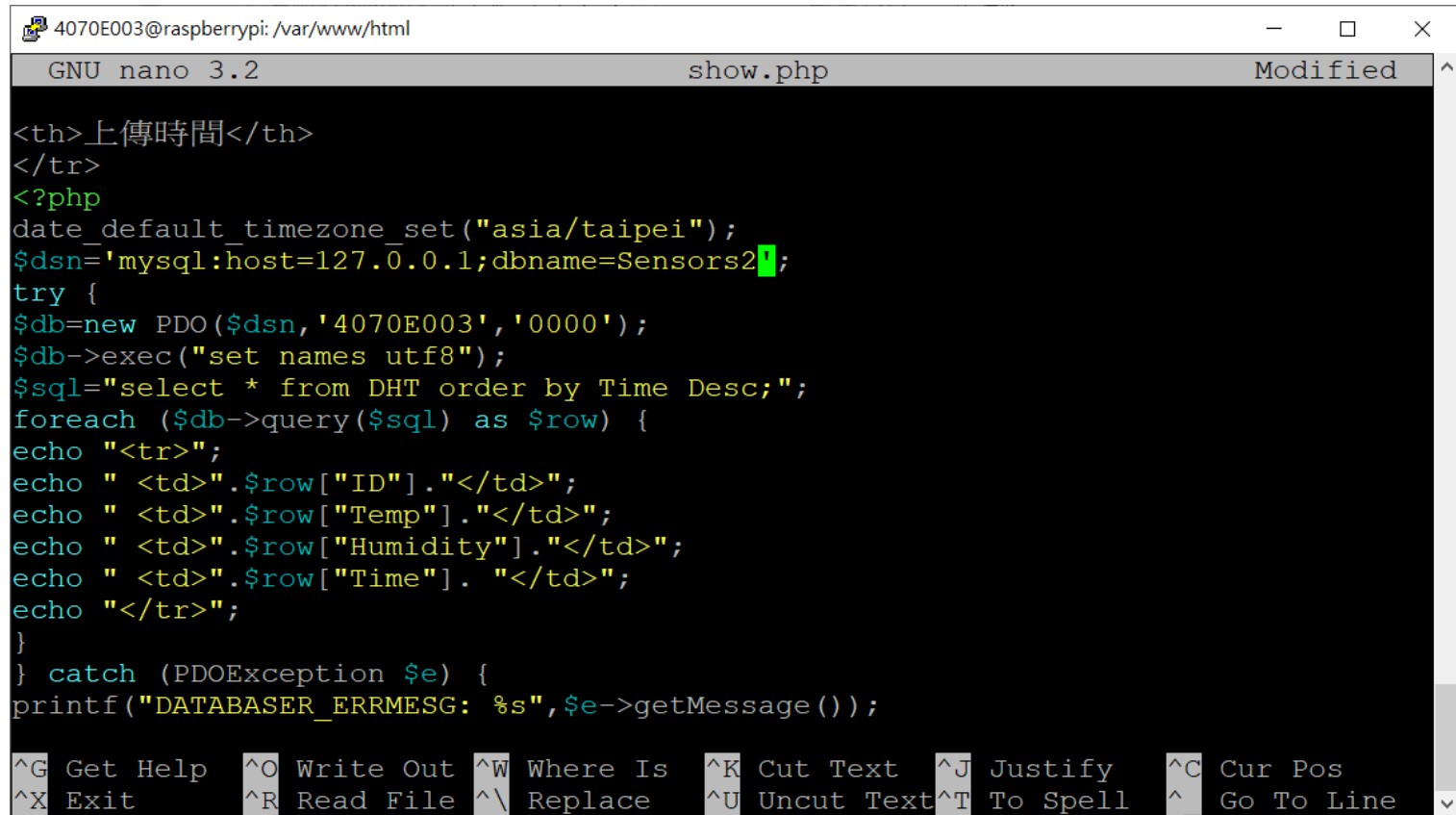
5. AddData.php



```
4070E003@raspberrypi: /var/www/html
GNU nano 3.2 AddData.php Modified
<?php
date_default_timezone_set("asia/taipei");
$dns="mysql:host=127.0.0.1;dbname=Sensors2";
$Temp=$_GET['Temp'];
$Humidity=$_GET['Humidity'];
try{
$db=new PDO($dns,'4070E003','0000');
$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());
}
?>
```

^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



```
4070E003@raspberrypi: /var/www/html
GNU nano 3.2 show.php Modified
<th>上傳時間</th>
</tr>
<?php
date_default_timezone_set("asia/taipei");
$dsn='mysql:host=127.0.0.1;dbname=Sensors2';
try {
$db=new PDO($dsn,'4070E003','0000');
$db->exec("set names utf8");
$sql="select * from DHT order by Time Desc;";
foreach ($db->query($sql) as $row) {
echo "<tr>";
echo " <td>".$row["ID"]."</td>";
echo " <td>".$row["Temp"]."</td>";
echo " <td>".$row["Humidity"]."</td>";
echo " <td>".$row["Time"]. "</td>";
echo "</tr>";
}
} catch (PDOException $e) {
printf("DATABASE_ERRORMSG: %s",$e->getMessage());
}
```

^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

溫度: 22

濕度: 11

送出資料

查詢資料庫資料



ID	溫度	濕度	上傳時間
888	22	11	2021-01-08 14:58:20
887	19	22	2021-01-08 14:57:59
886	111	222	2021-01-08 14:57:17

返回上一頁

8.資料送進資料庫成功

```
4070E003@raspberrypi: ~  
-----+  
| ID          | int(11)  | NO   | PRI | NULL          | auto_inc  
ement |  
| Temp        | char(10) | YES  |     | NULL          |  
| Humidity    | char(10) | YES  |     | NULL          |  
| Time        | timestamp | NO   |     | CURRENT_TIMESTAMP |  
+-----+-----+-----+-----+-----+-----+  
-----+  
4 rows in set (0.00 sec)  
  
MariaDB [Sensors]> select * from DHT;  
+-----+-----+-----+-----+-----+  
| ID  | Temp | Humidity | Time          |  
+-----+-----+-----+-----+  
| 886 | 111  | 222      | 2021-01-08 14:57:17 |  
| 887 | 19   | 22       | 2021-01-08 14:57:59 |  
| 888 | 22   | 11       | 2021-01-08 14:58:20 |  
+-----+-----+-----+-----+  
3 rows in set (0.00 sec)  
  
MariaDB [Sensors]> █
```

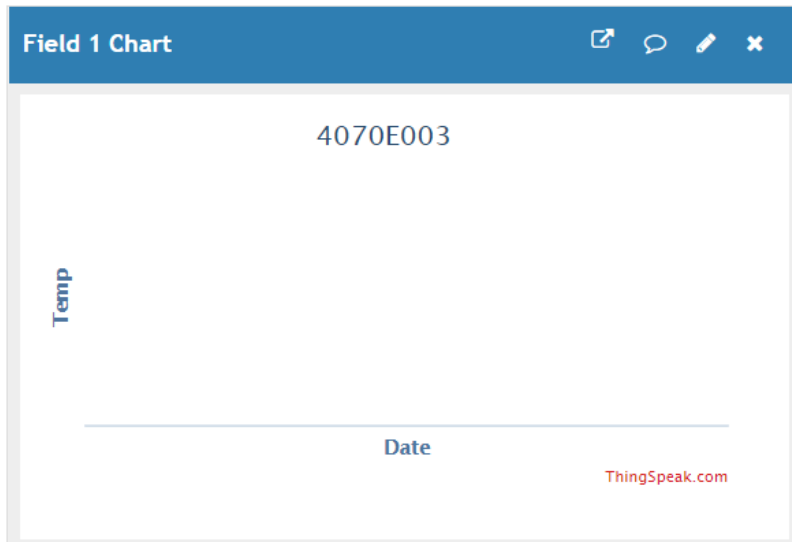
9.查詢資料庫內資料

ID	溫度	濕度	上傳時間
888	22	11	2021-01-08 14:58:20
887	19	22	2021-01-08 14:57:59
886	111	222	2021-01-08 14:57:17

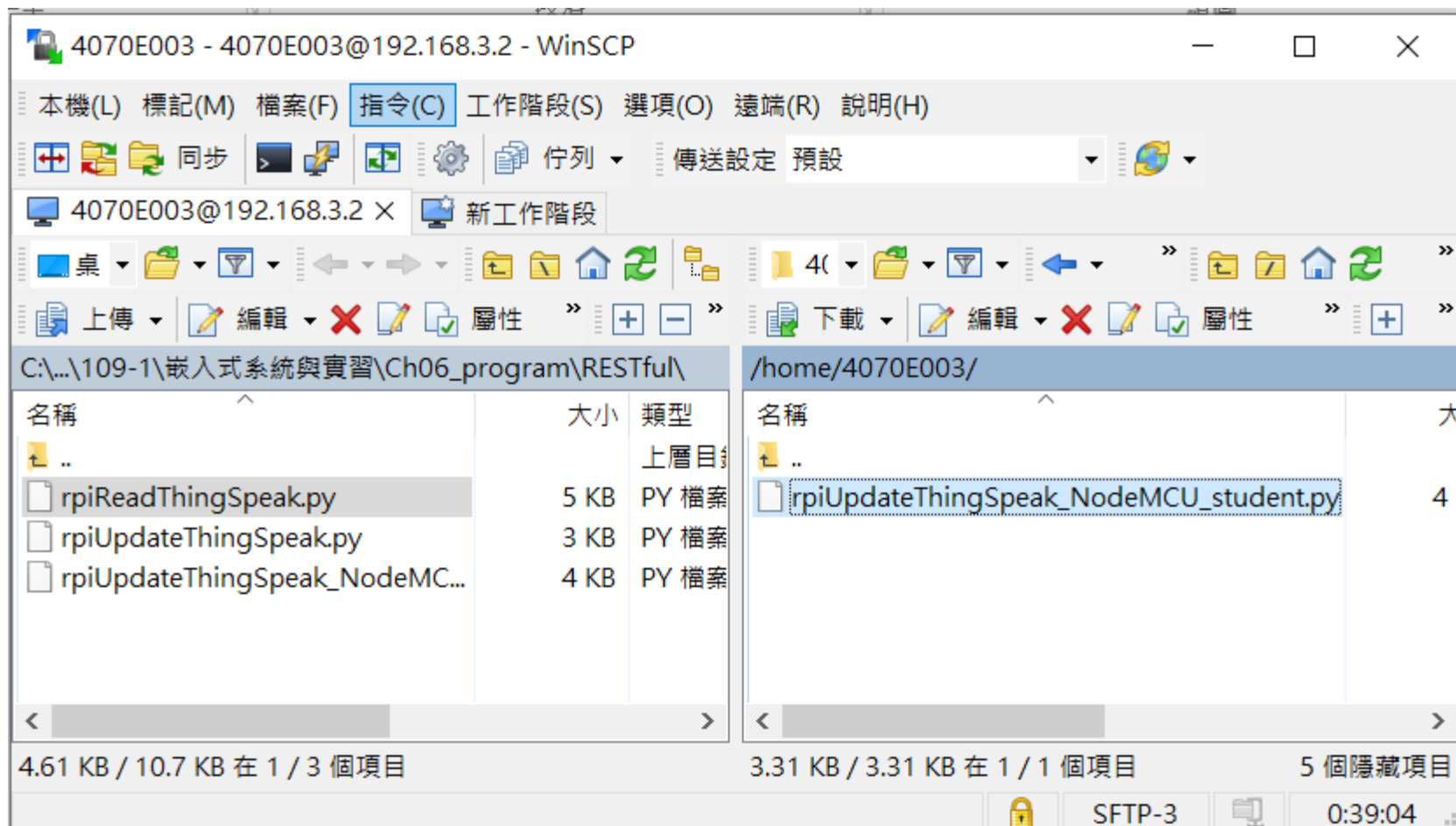
[返回上一頁](#)

10.在ThingSpeak創建資料

(名稱為自己學號)



11.將寫入兩檔案上傳



12.修改API key為自己的

```
#####>
# Set Pin No, ThingSpeak Key
#####>

#sensor = Adafruit_DHT.DHT22
#pin = 24 #GPIO24

#Write API Key
#Replace it with your Write API Key
thingSpeakApiKey = "ZFH40YDX7XZ40AVQ"
ser = serial.Serial(
    port='/dev/ttyUSB0',
    baudrate = 115200,
    parity=serial.PARITY_NONE,
    stopbits=serial.STOPBITS_ONE,
    bytesize=serial.EIGHTBITS,
    timeout=3)
#####>
```

13.執行程式

(rpiUpdateThingSpeak_NodeMCU_student.py)

```
4070E003@raspberrypi: ~  
/dev/tty      /dev/tty19  /dev/tty3    /dev/tty40   /dev/tty51   /dev/tty62  
/dev/tty0     /dev/tty2   /dev/tty30   /dev/tty41   /dev/tty52   /dev/tty63  
/dev/tty1     /dev/tty20  /dev/tty31   /dev/tty42   /dev/tty53   /dev/tty7  
/dev/tty10    /dev/tty21  /dev/tty32   /dev/tty43   /dev/tty54   /dev/tty8  
/dev/tty11    /dev/tty22  /dev/tty33   /dev/tty44   /dev/tty55   /dev/tty9  
/dev/tty12    /dev/tty23  /dev/tty34   /dev/tty45   /dev/tty56   /dev/ttyAMA0  
/dev/tty13    /dev/tty24  /dev/tty35   /dev/tty46   /dev/tty57   /dev/ttyprintk  
/dev/tty14    /dev/tty25  /dev/tty36   /dev/tty47   /dev/tty58   /dev/ttyUSB0  
/dev/tty15    /dev/tty26  /dev/tty37   /dev/tty48   /dev/tty59  
/dev/tty16    /dev/tty27  /dev/tty38   /dev/tty49   /dev/tty6  
/dev/tty17    /dev/tty28  /dev/tty39   /dev/tty5    /dev/tty60  
/dev/tty18    /dev/tty29  /dev/tty4    /dev/tty50   /dev/tty61  
4070E003@raspberrypi:~ $ sudo ./rpiUpdateThingSpeak_NodeMCU_student.py  
b's,51.70,18.80,e\r\n'  
['s', '51.70', '18.80', 'e\r\n']  
51.7  
18.8  
temp = 18.80*C humidity =51.70%  
*****HTTP POST Request*****  
200 OK field1=18.8&field2=51.7&key=ZFH40YDX7XZ40AVQ Fri Jan 8 15:52:41 2021  
*****HTTP GET Request*****  
200 OK field1=18.8&field2=51.7&key=ZFH40YDX7XZ40AVQ Fri Jan 8 15:52:57 2021  
b's,51.60,18.70,e\r\n'  
['s', '51.60', '18.70', 'e\r\n']
```

14.ThingSpeak上數據(至少10筆)

