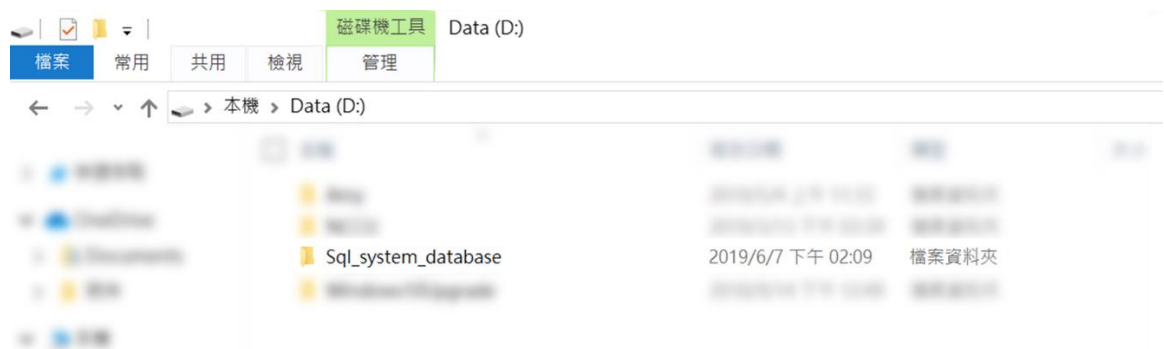


建立存放資料庫的資料夾

首先，我們先在電腦內建立一個資料夾來做為存放 SQL 之 Database 的檔案路徑。

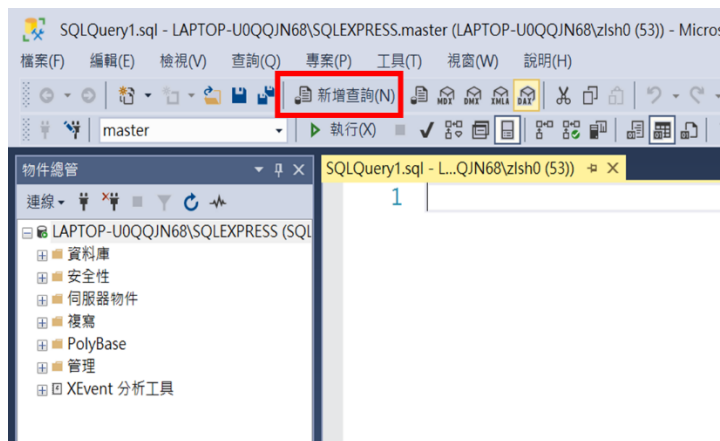
1. 先在 D 槽，新增一個資料夾"Sql_system_database"。

(NOTE：資料庫/表名稱的第一個字不可為數字。EX：2AB、3CDE 為錯誤。)¹



2. 開啟 SQL Server Management Studio，並點選「連線」。

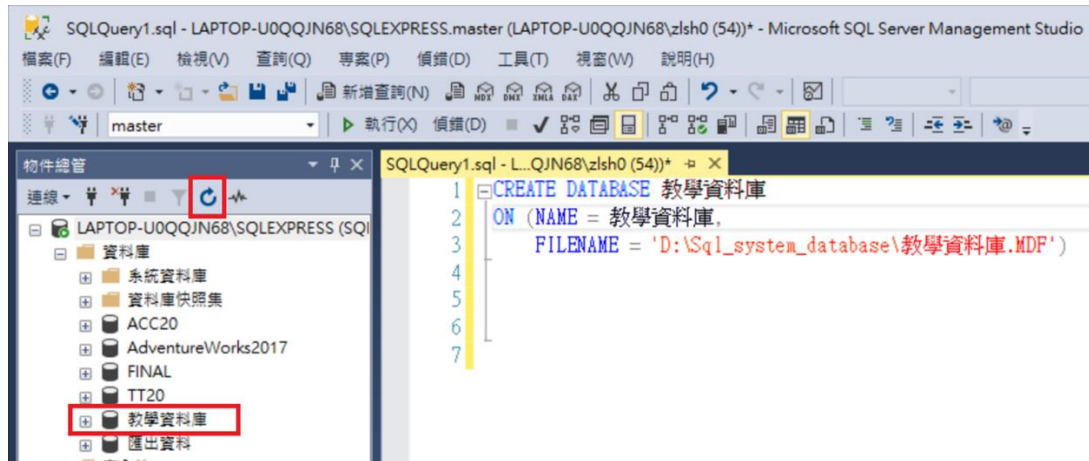
3. 接著點選「新增查詢」，就會出現可輸入程式的工作區，如下圖：



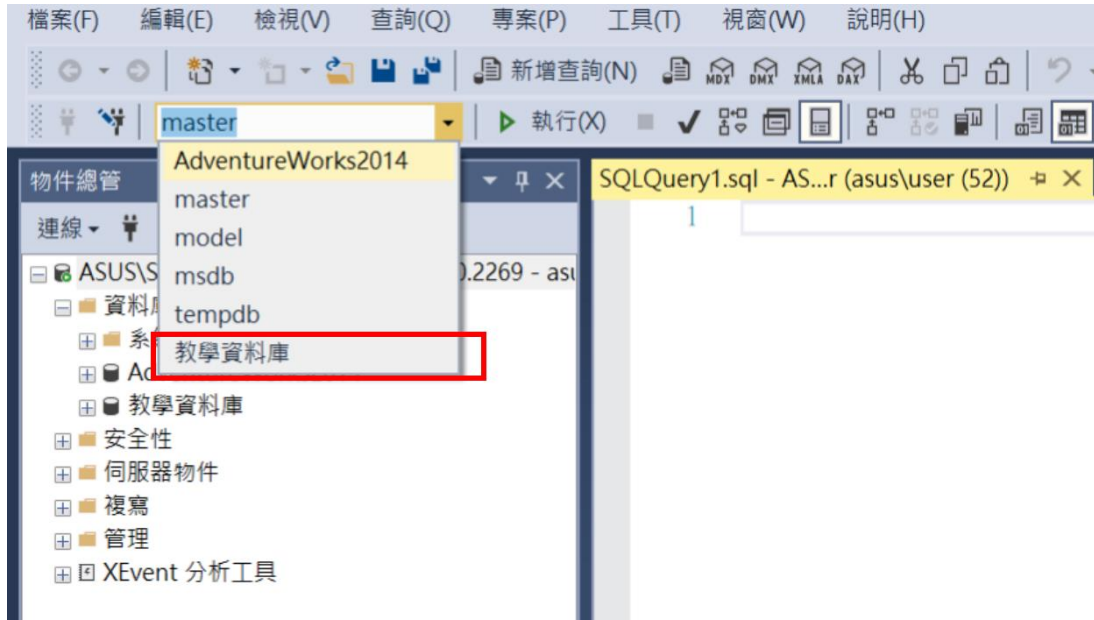
4. 在工作區，輸入下列程式碼，並按「執行」，以建立資料庫。執行完成後，在左邊物件總管上方，先按「重新整理」，再點選資料庫，就會看到剛才所建立的「教學資料庫」。

程式碼：

```
CREATE DATABASE 教學資料庫  
ON (NAME = 教學資料庫,  
     FILENAME = 'D:\Sql_system_database\教學資料庫.MDF')
```



5. 改變查詢位置



匯入資料表

在查詢處輸入以下程式碼以匯入資料表

```
CREATE TABLE ACS2018([資料行0] nvarchar(150))
BULK INSERT ACS2018
FROM "C:\Users\user\Downloads\usa_00002.dat" /* 記得改成自己存放資料的位置 */
WITH (FIELDTERMINATOR = '\t',
      ROWTERMINATOR = '0x0a' );
```

切割欄位

```
SELECT
cast(SUBSTRING([資料行0],1,4) AS int) "YEAR",
cast(SUBSTRING([資料行0],5,6) AS char) "SAMPLE",
cast(SUBSTRING([資料行0],11,8) AS char) "SERIAL",
cast(SUBSTRING([資料行0],19,13) AS char) "CBSERIAL",
cast(SUBSTRING([資料行0],32,10) AS int) "HHWT",
cast(SUBSTRING([資料行0],42,13) AS char) "CLUSTER",
cast(SUBSTRING([資料行0],55,12) AS int) "STRATA",
cast(SUBSTRING([資料行0],67,1) AS int) "GQ",
cast(SUBSTRING([資料行0],68,4) AS char) "PERNUM",
cast(SUBSTRING([資料行0],72,10) AS char) "PERWT",
cast(SUBSTRING([資料行0],82,1) AS char) "SEX",
cast(SUBSTRING([資料行0],83,3) AS int) "AGE",
cast(SUBSTRING([資料行0],86,1) AS char) "MARST",
cast(SUBSTRING([資料行0],87,4) AS int) "BIRTHYR",
cast(SUBSTRING([資料行0],91,1) AS char) "HCOVANY",
cast(SUBSTRING([資料行0],92,1) AS char) "HCOVPRIV",
cast(SUBSTRING([資料行0],93,2) AS char) "EDUC",
cast(SUBSTRING([資料行0],95,3) AS char) "EDUCD",
cast(SUBSTRING([資料行0],98,4) AS char) "OCC",
cast(SUBSTRING([資料行0],102,7) AS bigint) "INCTOT",
cast(SUBSTRING([資料行0],109,114) AS bigint) "INCWAGE"
INTO ACS2018_NEW /* 把切好的資料放入新的資料表中 */
FROM ACS2018;
```

SQL 基礎語法

SELECT 欄位名稱

(INTO 表名)

FROM 表名

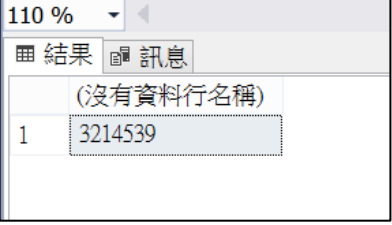
WHERE 條件敘述

GROUP BY 欄位名稱

ORDER BY 欄位名稱

1. 確認此份資料的列數

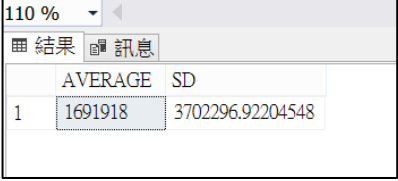
```
SELECT COUNT(*) /* *字號代表表中所有欄位的資料 */  
FROM ACS2018_NEW;
```



(沒有資料行名稱)	
1	3214539

2. 計算 INCTOT 此欄位的平均數、標準差

```
SELECT AVG(INCTOT) AS AVERAGE, STDEV(INCTOT) AS SD  
FROM ACS2018_NEW;
```



	AVERAGE	SD
1	1691918	3702296.92204548

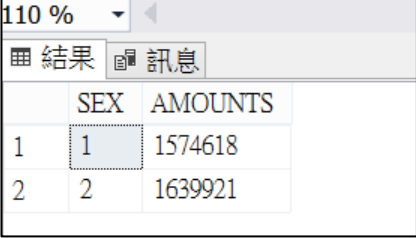
3. 看女性的 INCTOT 此欄位

```
SELECT SEX, INCTOT  
FROM ACS2018_NEW  
WHERE SEX = '2'
```

	SEX	INCTOT
1	2	31000
2	2	35100
3	2	12000
4	2	25000
5	2	9000

3. 計算男女各自的人數

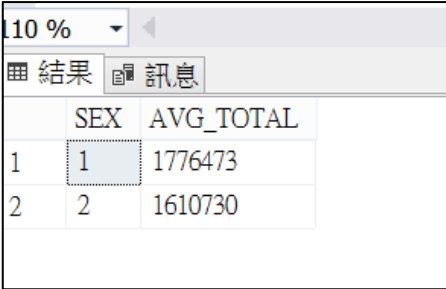
```
SELECT SEX, COUNT(*) AS AMOUNTS  
FROM ACS2018_NEW  
GROUP BY SEX /* 將性別分組計算 */  
ORDER BY SEX;
```



	SEX	AMOUNTS
1	1	1574618
2	2	1639921

4. 計算男女各自平均收入

```
SELECT SEX, AVG(INCTOT) AS AVG_INCTOT  
FROM ACS2018_NEW  
GROUP BY SEX  
ORDER BY SEX;
```



	SEX	AVG_TOTAL
1	1	1776473
2	2	1610730

5. 隨機抽取 1%資料，放入新的資料表中

```
SELECT TOP 1 PERCENT *  
INTO ACS_SAMPLE1  
FROM ACS2018_NEW  
ORDER BY NEWID();
```