進階資料庫實務

Class 6 – Stored Procedure 應用

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還記得？

列出 **110** 學年度於『臺北市立內湖高級中學』各班學生總平均 (按高到低排序)

SELECT
semester,
school_name,
classroom_name,
member_name,
AVG(score) AS average

FROM \`db\`.\`v_scores\`

WHERE
semester = '110' AND
school_name = '臺北市立內湖高級中學'

GROUP BY semester, school_name, classroom_name, member_name

ORDER BY classroom_name ASC, average DESC;

有沒有可能變成類似函式的樣子？

scores_average('110' , '臺北市立內湖高級中學')

預存程序 (Stored Procedure)

常常會遇到重複性很高的事情，可能只是參數不同但過程相同，在程式中我們會想要寫成一個函式，而在資料庫中可以寫一支預存程序加快處理速度。

Stored Procedure 語法：

```
CREATE PROCEDURE [名稱] ([參數名稱1] [型別1], [參數名稱2] [型別2], …)

BEGIN
            [程式邏輯放這裡]
END
```

```
CALL [名稱] ([參數1] , [參數2] , …);
```

包裝成 **Stored Procedure**

列出 **110** 學年度於『臺北市立內湖高級中學』各班學生總平均 **(**按高到低排序**)**

```
1   CREATE PROCEDURE `db`.`sp_scores_average`(searchSemester varchar(255), searchSchoolName varchar(255))
2   BEGIN
3       SELECT semester, school_name, classroom_name, member_name, AVG(score) AS average
4       FROM `db`.`v_scores`
5       WHERE semester = searchSemester AND school_name = searchSchoolName
6       GROUP BY semester, school_name, classroom_name, member_name
7       ORDER BY classroom_name ASC, average DESC;
8   END
9
```

參數

資料庫   **預存程序名稱**

```
CREATE PROCEDURE `db`.`sp_scores_average`(searchSemester varchar(255), searchSchoolName varchar(255))
BEGIN
    SELECT semester, school_name, classroom_name, member_name, AVG(score) AS average
    FROM `db`.`v_scores`
    WHERE semester = searchSemester AND school_name = searchSchoolName
    GROUP BY semester, school_name, classroom_name, member_name
    ORDER BY classroom_name ASC, average DESC;
END
```
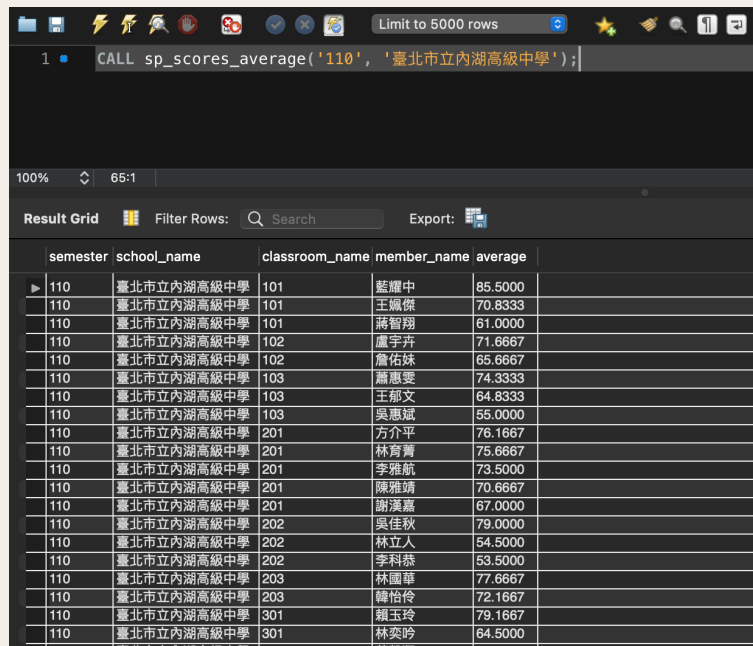
呼叫 Stored Procedure

列出 110 學年度於『臺北市立內湖高級中學』各班學生總平均 (按高到低排序)

CALL sp_scores_average('110', '臺北市立內湖高級中學');

預存程序名稱

練習

寫一支 **Stored Procedure** 建立學生成績

```
CALL sp_insert_score ('110', '臺北市立內湖高級中學', '101', '劉淑年', '補考', '數學', 90);
```

scores

id : INT
member_classroom_id: INT
type: VARCHAR(255)
subject: VARCHAR(255)
score: INT
create_time: TIMESTAMP

提示步驟：

1. **用前四個參數查找出 member_classroom_id**

2. **再將值 insert 到 scores 裡面**

練習

用前四個參數查找出 **member_classroom_id** 並暫存

定義整數變數

DECLARE mc_id INT;

SELECT member_classroom.id INTO mc_id
FROM …
WHERE ….

Select 後存入

練習

建立 **Stored Procedure** 並將查出來的 **id** 進行 **insert**

```
1    CREATE PROCEDURE `db`.`sp_insert_score` (
2        searchSemester varchar(255),
3        searchSchoolname varchar(255),
4        searchClassroomname varchar(255),
5        searchMembername varchar(255),
6        insertType varchar(255),
7        insertSubject varchar(255),
8        insertScore int
9    )
10   BEGIN
11       DECLARE mc_id INT;
12
13       SELECT member_classroom.id INTO mc_id
14       FROM `db`.`schools`, `db`.`classrooms`, `db`.`members`, `db`.`member_classroom`
15       WHERE schools.id = classrooms.school_id AND member_classroom.member_id = members.id AND
16       member_classroom.classroom_id = classrooms.id AND members.role = '學生' AND
17       classrooms.semester = searchSemester AND schools.name = searchSchoolname AND
18       classrooms.name = searchClassroomname AND members.name = searchMembername;
19
20       INSERT INTO `db`.`scores` (member_classroom_id, type, subject, score) VALUES
21       (mc_id, insertType, insertSubject, insertScore);
22   END
```

INSERT INTO `db`.`scores`
(member_classroom_id, type, subject, score)
VALUES
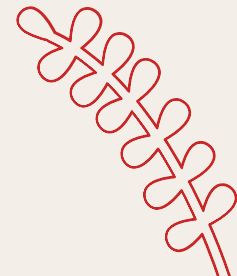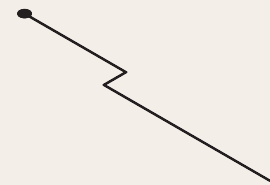(**mc_id**, insertType, insertSubject, insertScore);

練習

試著呼叫看看 sp_insert_score

```
CALL sp_insert_score ('110', '臺北市立內湖高級中學', '101', '劉淑年', '補考', '數學', 90);
```

se...	school_name	classroom...	member_name	type	subject	score
110	臺北市立內湖高級中學	101	劉淑年	期末考	文文	
110	臺北市立內湖高級中學	101	劉淑年	期末考	數學	73
110	臺北市立內湖高級中學	101	劉淑年	補考	數學	90
110	臺北市立內湖高級中學	101	楊智義	期中考	國文	69
110	臺北市立內湖高級中學	101	楊智義	期中考	英文	77

Summary

- 認識 **Stored Procedure**

- 學會建立與呼叫 **Stored Procedure**

- 練習撰寫 **Stored Procedure**

Thanks!