07 Compute Engine - Database

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使用 gcloud 連線至雲端的資料庫

- gcloud auth login

- gcloud compute ssh instance-0812

- mysql -u root -p

- SHOW DATABASES;

- USE DB_0812;

- SHOW TABLES;

建立一個新的資料表 player+學號後四碼

```
MariaDB [DB_0812]> create table player0812 (
    -> id INT AUTO_INCREMENT,
    -> name VARCHAR(30),
    -> exp INT,
    -> PRIMARY KEY (id));
```

```
MariaDB [DB_0812]> describe player0812;
+-------+-------------+------+-----+---------+----------------+
| Field | Type        | Null | Key | Default | Extra          |
+-------+-------------+------+-----+---------+----------------+
| id    | int(11)     | NO   | PRI | NULL    | auto_increment |
| name  | varchar(30) | YES  |     | NULL    |                |
| exp   | int(11)     | YES  |     | NULL    |                |
+-------+-------------+------+-----+---------+----------------+
```

新增資料
依序提供欄位資料值

- NULL 表示空值，讓系統提供

```
[MariaDB [DB_0812]> INSERT INTO player0812 VALUES
[      -> (NULL, 'Jeff Henderson', 1431);
Query OK, 1 row affected (0.02 sec)

[MariaDB [DB_0812]> select * from player0812;
+----+----------------+------+
| id | name           | exp  |
+----+----------------+------+
|  1 | Jeff Henderson | 1431 |
+----+----------------+------+
1 row in set (0.00 sec)
```

一次插入多筆資料

```
[MariaDB [DB_0812]> INSERT INTO player0812 VALUES
    -> (NULL, 'Sandra Smith', 4563),
    -> (NULL, 'John Baker', 231),
    -> (NULL, 'Jennifer West', 5400);
Query OK, 3 rows affected (0.03 sec)
Records: 3  Duplicates: 0  Warnings: 0

[MariaDB [DB_0812]> select * from player0812;
+----+----------------+------+
| id | name           | exp  |
+----+----------------+------+
|  1 | Jeff Henderson | 1431 |
|  2 | Sandra Smith   | 4563 |
|  3 | John Baker     |  231 |
|  4 | Jennifer West  | 5400 |
+----+----------------+------+
4 rows in set (0.00 sec)
```

查詢資料庫的不同方法

- SELECT * FROM player0812;

- SELECT id, name FROM player0812;

- SELECT exp, name FROM player0812;

```
[MariaDB [DB_0812]> SELECT exp AS '經驗值', name AS '姓名' FROM player0812;
+-----------+-----------------+
| 經驗值     | 姓名             |
+-----------+-----------------+
|      1431 | Jeff Henderson  |
|      4563 | Sandra Smith    |
|       231 | John Baker      |
|      5400 | Jennifer West   |
+-----------+-----------------+
```

設定查詢條件

```
[MariaDB [DB_0812]> SELECT * FROM player0812 WHERE exp > 1000;
+----+-----------------+------+
| id | name            | exp  |
+----+-----------------+------+
|  1 | Jeff Henderson  | 1431 |
|  2 | Sandra Smith    | 4563 |
|  4 | Jennifer West   | 5400 |
+----+-----------------+------+
```

```
[MariaDB [DB_0812]> SELECT * FROM player0812 WHERE name = 'John Baker';
+----+------------+------+
| id | name       | exp  |
+----+------------+------+
|  3 | John Baker |  231 |
+----+------------+------+
```

```
[MariaDB [DB_0812]> SELECT * FROM player0812 WHERE name LIKE 'J%';
+----+-----------------+------+
| id | name            | exp  |
+----+-----------------+------+
|  1 | Jeff Henderson  | 1431 |
|  3 | John Baker      |  231 |
|  4 | Jennifer West   | 5400 |
+----+-----------------+------+
```

多重查詢條件

```
[MariaDB [DB_0812]> SELECT * FROM player0812
    -> WHERE name LIKE '%S%' AND exp > 2000;
+----+---------------+------+
| id | name          | exp  |
+----+---------------+------+
|  2 | Sandra Smith  | 4563 |
|  4 | Jennifer West | 5400 |
+----+---------------+------+
```

資料表 (table) 的修改

```
[MariaDB [DB_0812]> ALTER TABLE player0812 ADD lastlogin TIMESTAMP;
Query OK, 0 rows affected (0.10 sec)
Records: 0  Duplicates: 0  Warnings: 0

[MariaDB [DB_0812]> ALTER TABLE player0812 MODIFY name VARCHAR(50);
Query OK, 4 rows affected (1.26 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

```
[MariaDB [DB_0812]> UPDATE player0812 SET lastlogin = NULL
[    -> WHERE name = "Jeff Henderson";
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

[MariaDB [DB_0812]> SELECT * FROM player0812;
```

變數的使用

```
[MariaDB [DB_0812]> SELECT @maxid := MAX(id) FROM player0812;
+-------------------+
| @maxid := MAX(id) |
+-------------------+
|                 4 |
+-------------------+
1 row in set (0.00 sec)

[MariaDB [DB_0812]> SELECT * FROM player0812 WHERE id = @maxid;
```

MySQL 進階使用

```
[MariaDB [DB_0812]> delimiter //
[MariaDB [DB_0812]> CREATE PROCEDURE dorepeat(p1 INT)
    -> BEGIN
    ->    SET @x = 0;
    ->    REPEAT SET @x = @x + 1; UNTIL @x > p1 END REPEAT;
    -> END
    -> //
```

```
[MariaDB [DB_0812]> delimiter ;
[MariaDB [DB_0812]> CALL dorepeat(10000);
Query OK, 0 rows affected (0.01 sec)

[MariaDB [DB_0812]> SELECT @x;
+-------+
| @x    |
+-------+
| 10001 |
+-------+
```

使用連續迴圈新增資料

- 使用下面的範例，新增 25 筆資料，使用 select(*) 語法確認資料筆數。

```
[MariaDB [DB_0812]> create procedure dorepeat(p1 INT)
[    -> begin
[    -> set @x = 0;
[    -> repeat
[    -> insert into pet values('Peter', 'Mary');
[    -> set @x = @x +1;
[    -> until @x > p1
[    -> end repeat;
[    -> end
[    -> //
```