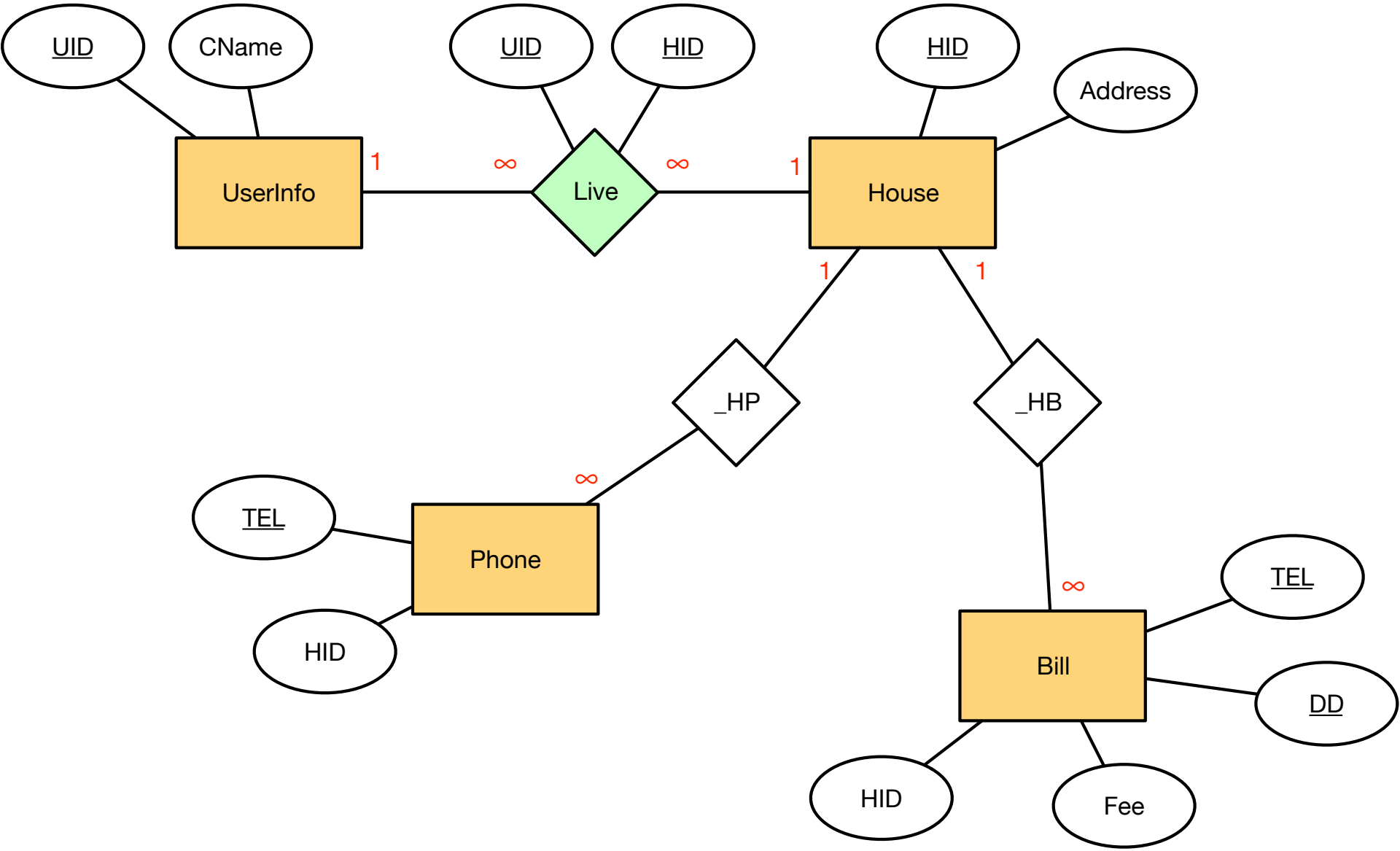
SQL Command

朱克剛


UID
CName
UserInfo
1
UID
HID
∞
Live
∞
HID
Address
1
House
1
1
_HP
_HB
∞
TEL
Phone
HID
∞
TEL
Bill
DD
HID
Fee

SELECT基本語法

SELECT　欄位

FROM　資料表

WHERE　條件

SELECT 單一資料表

顯示 UserInfo 資料表中的所有資料

```
SELECT *
FROM userinfo
```

顯示 UserInfo 資料表中的個別欄位

```
SELECT uid, cname
FROM userinfo
```

LIKE

需要所有姓李的基本資料

```
SELECT *
FROM userinfo
WHERE cname LIKE '李%'
```

SQL command 的字串為單引號

列出所有姓李的以及身份證字號後四碼為1234

```
SELECT *
FROM userinfo
WHERE cname LIKE '李%' AND uid LIKE '%1234'
```

=, >, <, >=, <=, <>

列出電話費超過500元的資料

```
SELECT *
FROM bill
WHERE fee > 500
```

列出電話費在500~1000元的資料

```
SELECT *
FROM bill
WHERE fee >= 500 AND fee < 1000
```

BETWEEN AND

列出電話費1000-2000元的資料

```
SELECT *
FROM bill
WHERE fee BETWEEN 500 AND 1000
```

IN、NOT IN

列出王大明與李大媽的基本資料

```
SELECT *
FROM userinfo
WHERE cname IN ('王大明', '李大媽')
```

=

```
SELECT *
FROM userinfo
WHERE cname = '王大明' OR cname = '李大媽'
```

排序 ORDER BY

將電話號碼由小到大排序

```
SELECT *
FROM phone
ORDER BY tel
```

將電話號碼由大到小排序

```
SELECT *
FROM phone
ORDER BY tel DESC
```

MYSQL按照中文筆畫數排序

MySQL預設編碼為utf8，若要按照中文筆畫數排序，轉成big5再排即可

```
select *
from userinfo
order by convert(cname using big5)
```

IS NULL、IS NOT NULL

列出使用者姓名為輸入的資料

```
SELECT *
FROM userinfo
WHERE cname IS NULL OR cname = ''
```

函數 count()

列出UserInfo資料表中有多少筆資料

```
SELECT count(*)
FROM userinfo
```

關連線處理 - JOIN

四種類型

- INNER JOIN
  - 關連線左右兩邊均有資料
- LEFT OUTER JOIN
  - 關連線左側資料較多
- RIGHT OUTER JOIN
  - 關連線右側資料較多
- CROSS JOIN
  - 未設定關連而形成交叉對應

INNER JOIN

列出身份證字號、姓名、住址、電話

```
SELECT
    userinfo.uid,
    cname,
    address,
    tel
FROM
    userinfo, live, house, phone
WHERE
    userinfo.uid = live.uid AND
    live.hid = house.hid AND
    house.hid = phone.hid
```

OUTER JOIN

列出身份證字號、姓名、住址、電話

```
SELECT
    userinfo.uid,
    cname,
    address,
    tel
FROM
    userinfo LEFT JOIN live
        ON userinfo.uid = live.uid
    LEFT JOIN house
        ON live.hid = house.hid
    LEFT JOIN phone
        ON house.hid = phone.hid
```

群組 GROUP BY

列出每支電話的總費用

```
SELECT tel, sum(fee)
FROM bill
GROUP BY tel
```

別名

列出身份證字號、姓名、住址、電話

```
SELECT
    a.uid AS '身份證字號',
    cname AS '姓名',
    address AS '住址',
    tel AS '電話'
FROM
    userinfo AS a, live AS b, house AS c, phone AS d
WHERE
    a.uid = b.uid AND
    b.hid = c.hid AND
    c.hid = d.hid
ORDER BY a.uid
```

不重複資料 DISTINCT

列出所有的姓氏

```
SELECT DISTINCT left(cname, 1)
FROM userinfo
```

補充 left(), right(), substring()

列出每個姓氏有幾筆資料

```
SELECT lastname, count(*) AS n
FROM (
    SELECT left(cname, 1) as lastname
    FROM userinfo
) AS a
GROUP BY lastname
```

極端值查詢

列出每支電話電話費總額最高的電話

```
select tel, max_fee from (
    select tel, sum(fee) as n from bill group by tel
) as a, (
    select max(n) as max_fee from (
        select sum(fee) as n from bill group by tel
    ) as tmp
) as b
where a.n = b.max_fee
```

練習

請列出每個人有多少支電話？

請列出每個人有多少地方住？

UNION ALL

目的：合併兩個一模一樣的查詢結果

```
SELECT * FROM userinfo WHERE uid = 'A01'
UNION ALL
SELECT 'TTT', '測試員'
```

TOP

請列出繳費金額最高的前三支電話號碼

```
SELECT TOP 3 *
FROM bill
ORDER BY fee DESC
```

請列出前百分之50的會員資料

```
SELECT TOP 50 PERCENT *
FROM userinfo
```

LIMIT (MySQL)

請列出繳費金額最高的前三支電話號碼

```
SELECT *
FROM bill
ORDER BY fee DESC
LIMIT 3
```

HAVING

列出平均繳費金額超過300元的電話資料

```
SELECT tel, avg(fee)
FROM bill
GROUP BY tel
HAVING avg(fee) > 300
```

```
SELECT * FROM (
    SELECT tel, avg(fee) AS avg_fee
    FROM bill
    GROUP BY tel
) AS a
WHERE avg_fee > 300
```

練習

請列出電話帳單金額總額最高的電話相關資料

視觀表 View

建立一個住在台北市民眾資料的視觀表

```
CREATE VIEW v_userinfo_taipei AS
    SELECT userinfo.uid, cname, address
    FROM userinfo, live, house
    WHERE
            userinfo.uid = live.uid AND
            live.hid = house.hid AND
            house.address LIKE = '台北市%'
```

視觀表用法

查詢目前居住在台北市的人口有多少人

```
SELECT count(*)
FROM v_userinfo_taipei
```

INSERT INTO

插入一筆新的資料到 userinfo 資料表

```
INSERT INTO userinfo VALUES (
        'A03',
        '王小毛'
)

INSERT INTO userinfo (uid) VALUES (
         'A04'
)
```

複製資料 (1)

將台北市民眾資料複製到另外一個資料表
（new_table必須先存在）

```
INSERT INTO new_table (uid, cname)
    SELECT uid, cname
    FROM UserInfo
```

複製資料 (2)

新的資料表不需要事先存在

SQL Server

```
select * into new_table from userinfo
```

MySQL

```
create table new_table select * from userinfo
```

UPDATE

更新資料表中所有資料

```
UPDATE userinfo SET cname = NULL
```

更新特定資料

- 將 A03 的姓名改為孫小毛，身份證字號改為B01

```
UPDATE userinfo SET
    cname = '孫小毛',
    uid = 'B01'
WHERE uid = 'A03'
```

DELETE

刪除所有電話帳單資料

```
DELETE FROM bill
```

或

```
TRUNCATE TABLE bill
```

刪除孫小毛資料

```
DELETE FROM userinfo
WHERE uid = 'B01'
```

COMMIT & ROLLBACK

BEGIN TRANSACTION

- 宣告交易開始

COMMIT

- 確認交易成功

ROLLBACK

- 交易失敗，恢復交易前狀態

範例：

```
BEGIN TRANSACTION
    DELETE FROM userinfo WHERE uid = 'A01'
ROLLBACK
// A01 資料還在
```

COMMIT & ROLLBACK - MySQL

START TRANSACTION
- 宣告交易開始

COMMIT
- 確認交易成功

ROLLBACK
- 交易失敗，恢復交易前狀態

範例：

```
START TRANSACTION;
    DELETE FROM userinfo WHERE uid = 'A01';
ROLLBACK;
// A01 資料還在
```