資料庫系統期末報告

虎尾美食推薦系統

指導老師：江季翰

組　　　別：第十四組

成　　　員：41043104 郭俞汎
　　　　　　41043146 張哲維
　　　　　　41143237 陳昱霖
　　　　　　41143254 鄭名男

中華民國 114 年 6 月 10 日

目錄

一、應用情境

當你第一次來到虎尾，人生地不熟，不知道要吃哪一家餐廳的時候該怎麼辦呢，本系統可以根據使用者輸入的喜好類別，推薦合適的餐廳給使用者。使用者要先註冊並登入系統，並且輸入自己的喜好類別後，就可以查看推薦的餐廳以及餐廳的詳細資料。以下是幾個具體的應用情境：

- ◆ 初來乍到，滿足第一次踏足虎尾的美食之旅

  1. 情境描述：小明和他的三個朋友剛從台北開車到虎尾渡假，這是他們第一次來虎尾，對當地的美食店家一無所知。到了晚上，大家都開始肚子餓了，想要找間不錯的餐廳用餐。

  2. 系統應用：
     (1) 小明打開虎尾美食推薦系統，點選註冊新會員，填寫基本資料完成註冊。
     (2) 登入後，系統詢問小明的喜好類別，小明勾選了「燒肉」、「丼飯」和「甜食」三個類別。
     (3) 系統根據小明的喜好，過濾和分析虎尾所有餐廳的菜色類別，很快產生一份推薦名單。
     (4) 透過打開推薦清單中的 Google 地圖連結，小明看到「色鼎燒肉」這家店的介紹：提供燒肉、丼飯和甜點等多種菜色，營業到晚上 11 點，離小明下榻的旅館也不太遠。
     (5) 小明點開看到具體位置和路線導航後，決定就帶著三個朋友前往這家餐廳用餐。

- ◆ 熟門熟路，想換口味卻想不到合適的餐廳

  1. 情境描述：老王是虎尾科大的學生，住在虎尾兩年了，他不喜歡每天都吃同樣的餐點，但卻想不到要吃什麼，詢問同學也得到了「不知道欸？你要吃什麼」的回答。

  2. 系統應用：
     (1) 老王打開虎尾美食推薦系統，登入後系統詢問老王的喜好類別，老王發現自己在上次選擇了「火鍋」這個類別。
     (2) 老王覺得火鍋已經吃過了，取消掉火鍋的選項，改選擇了「麵類」。
     (3) 系統根據老王的喜好，過濾和分析虎尾所有餐廳的菜色類別，很快產生一份推薦名單。
     (4) 在推薦清單中，老王看到「客家庄」、「熬鍋燒」等店家，他們都有販賣麵類，透過打開推薦清單中的 Google 地圖連結後發現「敖鍋燒」比較便宜，於是老王選擇了「熬鍋燒」。
     (5) 老王找了朋友們一起騎車去吃「熬鍋燒」。

二、系統需求說明

1. 系統概述

　　本系統是旨在幫助使用者找尋虎尾地區的美食店家，根據其個人喜好進行推薦。系統主要功能包括管理員登入、會員登入、美食店家資料管理、會員喜好類別輸入、推薦項目清單產生等。

2. 功能需求

1. 會員管理

- 使用者會員註冊
- 使用者會員登入
- 管理員查看會員數量(無法查看會員個人資料)

2. 美食店家管理

- 管理員新增、刪除、更新店家資訊
- 使用者瀏覽店家列表

3. 喜好類別管理

- 管理員新增、刪除喜好類別
- 管理員為店家新增類別
- 使用者設定自己的喜好類別

4. 推薦項目生成

- 系統根據會員的喜好類別，隨機產生符合類別的 2 個推薦店家

5. 安全性
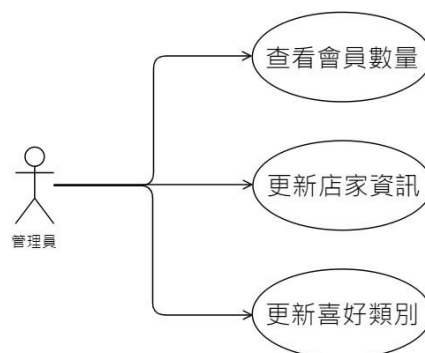
- 密碼獨立資料表儲存
- 一般管理員無法查看會員個人資料

三、使用案例

1. 使用者角色（會員）
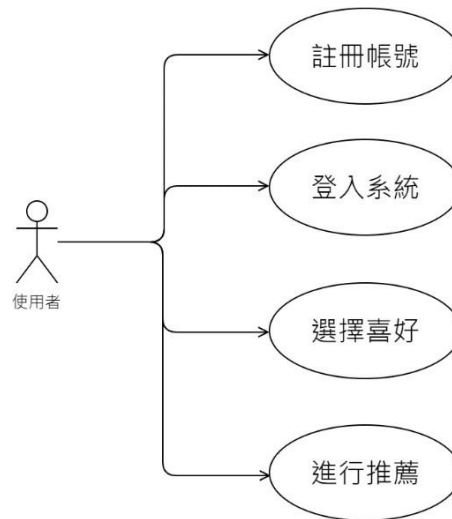
在此系統中，使用者的使用過程包含以下幾個步驟：
- 註冊帳號：會員需要在系統上註冊，這涉及使用者資料的儲存，對應資料庫中「Member」實體。
- 登入系統：會員可以透過註冊的帳號密碼登入，對應「Member」與「Password」實體的存取。
- 選擇喜好：會員可以自行選擇喜好類別，對應「Category」與「Preference」實體的關聯與修改。
- 進行推薦：使用者可以點擊推薦功能，對應「Restaurant」與「Recommendation」實體的關聯與新增。

2. 管理員角色(餐廳資料管理者)

在此系統中，管理員的使用過程包含以下幾個步驟：
- 查看會員數量：餐廳資料管理者可以在系統上查看會員數量，這涉及對「Member」實體數量的存取。

- 更新店家資訊：餐廳資料管理者可以在系統上更新店家的相關資訊，這涉及對「Restaurant」與「Hours」實體的修改。
- 更新喜好類別：餐廳資料管理者可以在系統上新增、刪除喜好類別，這涉及對「Category」實體的修改。

四、資料概念層模型

1. 會員 (Member) 資料表

Member

欄位名稱	說明	資料型態	是否為空	值域
mId	會員 ID	INT AUTO_INCREMENT	N	主鍵，自動遞增
mName	姓名	VARCHAR(12)	N	2~12 字元，限中文字或英文字母
mAccount	帳號	VARCHAR(20)	N	6~20 字元，限英文與數字組合
mEmail	電子郵件	VARCHAR(50)	N	Email 格式，'^[a-zA-Z0-9.]+@[a-zA-Z0-9.-]+.[a-zA-Z]{2,}$'
mPhone	手機號碼	CHAR(10)	Y	台灣手機格式，以 09 開頭後面接 8 個數字
mAddress	常用地址	VARCHAR(64)	Y	最長 64 字元的文字
mCreateDate	建立日期	DATE	N	格式為 yyyy-mm-dd，未設定時自動填入當前系統日期

2. 喜好類別 (Category) 資料表

Category

欄位名稱	說明	資料型態	是否為空	值域
cId	類別 ID	INT AUTO_INCREMENT	N	主鍵，自動遞增
cName	類別名稱	VARCHAR(16)	N	1~16 字元，限中文字或英文字母

3. 營業時間 (Hours) 資料表

Hours

欄位名稱	說明	資料型態	是否為空	值域
rHoursId	營業時間 ID	INT	N	從 1 開始遞增的整數
day	星期	CHAR(3)	N	符合英文星期縮寫，只能是固定的 Mon, Tue, Wed, Thu, Fri, Sat, Sun 這幾種

start_hr	開始小時	TINYINT	N	0~23（24 小時制），整數
start_min	開始分鐘	TINYINT	N	0~59，整數
end_hr	結束小時	TINYINT	N	0~23（24 小時制），整數
end_min	結束分鐘	TINYINT	N	符合時間的分鐘

4. 餐廳 (Restaurant) 資料表

Restaurant

欄位名稱	說明	資料型態	是否為空	值域
rId	店家 ID	INT AUTO_INCREMENT	N	主鍵，自動遞增
rName	店家名稱	VARCHAR(30)	N	1~30 字元，中文或英文皆可
rAddress	店家地址	VARCHAR(64)	N	最長 64 字元的文字
rPhone	店家電話	VARCHAR(10)	Y	056 開頭後面 6 個數字的虎尾市話 或 09 開頭後面 8 個數字的行動電話
rHoursId	營業時間 ID	INT	Y	參考 hours.rHoursId
rLink	Google Map 連結	VARCHAR(100)	Y	URL 格式，含 https://www.google.com.tw/maps?hl=zh-TW + 英文與數字的組合

5. 店家類別對應表 (resCate) 資料表

resCate

欄位名稱	說明	資料型態	是否為空	值域
rId	店家 ID	INT	N	參考 restaurant.rId
cId	類別 ID	INT	N	參考 category.cId

6. 會員喜好類別 (Preference) 資料表

Preference

欄位名稱	說明	資料型態	是否為空	值域
mId	會員 ID	INT	N	參考 member.mId
cId	類別 ID	INT	N	參考 category.cId

7. 推薦清單表 (Recommendation) 資料表

Recommendation

欄位名稱	說明	資料型態	是否為空	值域
recId	推薦 ID	INT AUTO_INCREMENT	N	主鍵，自動遞增
mId	會員 ID	INT	N	參考 member.mId
rIdA	推薦店家 1 ID	INT	N	參考 restaurant.rId
rIdB	推薦店家 B ID	INT	N	參考 restaurant.rId
recDate	推薦日期	DATE	N	格式為 yyyy-mm-dd，未設定時自動填入當前系統日期

五、ER Diagram
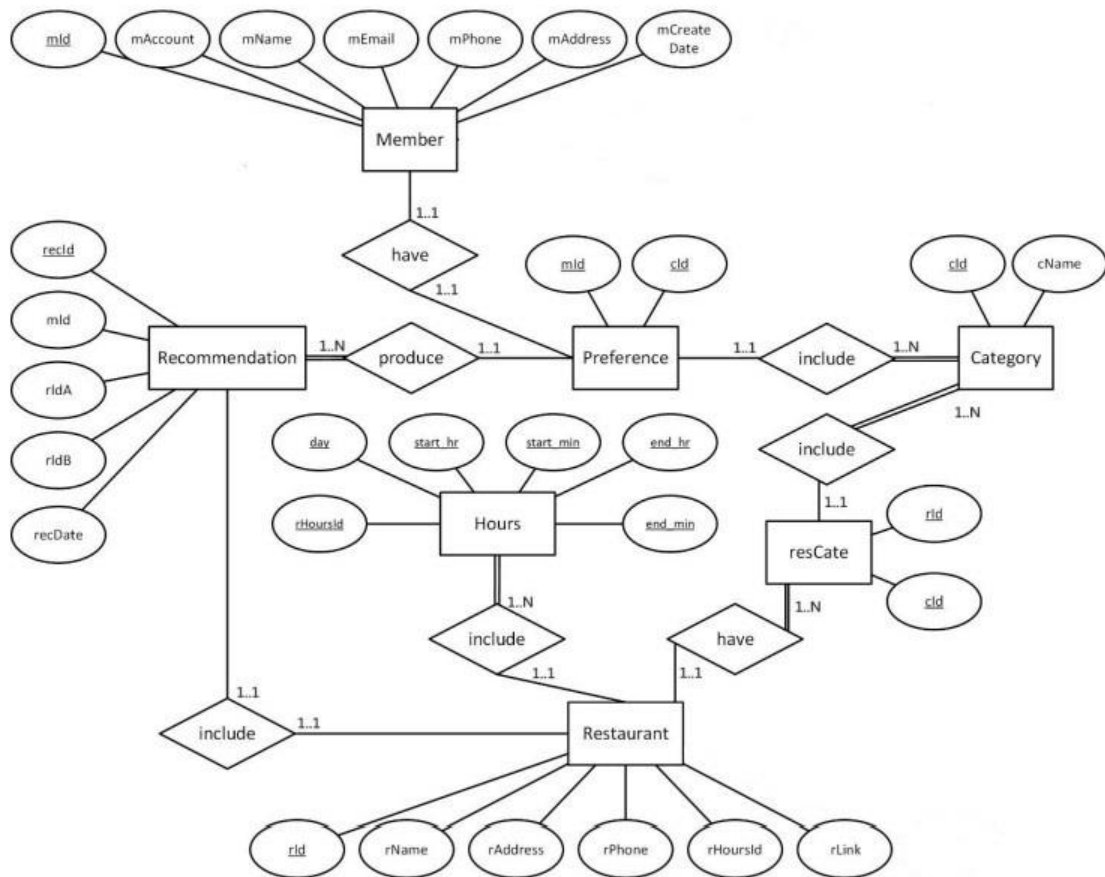
1. 會員 (Member) 資料表屬性
   - 會員 ID (mId)
   - 姓名 (mName)
   - 會員帳號 (mAccount)
   - 電子郵件 (mEmail)
   - 連絡電話 (mPhone)
   - 常用地址 (mAddress)
   - 建立日期 (mCreateDate)

2. 喜好類別 (Category) 資料表屬性
   - 類別 ID (cId)
   - 類別名稱 (cName)

3. 營業時間 (Hours) 資料表屬性
   - 營業時間 ID (rHoursId)
   - 營業星期 (day)
   - 營業開始時 (start_hr)
   - 營業開始分 (start_min)

- ◆ 營業結束時 (end_hr)
- ◆ 營業結束分 (end_min)

4. 餐廳 (Restaurant) 資料表屬性
   - ◆ 店家 ID (rId)
   - ◆ 店家名稱 (rName)
   - ◆ 店家地址 (rAddress)
   - ◆ 店家電話 (rPhone)
   - ◆ 營業時間 ID (rHoursId)
   - ◆ Google Map 連結 (rLink)

5. 店家類別 (resCate) 資料表屬性
   - ◆ 店家 ID (rId)
   - ◆ 類別 ID (cId)

6. 會員喜好類別 (Preference) 資料表屬性
   - ◆ 會員 ID (mId)
   - ◆ 類別 ID (cId)

7. 推薦清單 (Recommendation) 資料表屬性
   - ◆ 推薦 ID (recId)
   - ◆ 會員 ID (mId)
   - ◆ 店家 1 ID (rIdA)
   - ◆ 店家 2 ID (rIdB)
   - ◆ 推薦日期 (recDate)

8. 關聯
   - ◆ 「Member」與「Preference」實體有一對一 (1..1) 的關係，每個使用者對應到一整組喜好。
   - ◆ 「Preference」與「Category」實體有一對多 (1..n) 的關係，每組使用者喜好對應到多個喜好類別。
   - ◆ 「Preference」與「Recommendation」實體有一對多 (1..n) 的關係，每組使用者喜好可以產生多個推薦清單。
   - ◆ 「Restaurant」與「Hours」實體有一對多 (1..n) 的關係，每個店家有不同的營業時段。
   - ◆ 「Restaurant」與「Recommendation」實體有一對一 (1..1) 的關係，每個店家對應到一組推薦清單。

- 「Restaurant」與「resCate」實體有一對多 (1..n) 的關係，每個店家對應到多個類別。
- 「resCate」與「Category」實體有一對多 (1..n) 的關係，每個店家類別對應到多個喜好類別。

六、資料庫Schema

1. 會員 (Member) 資料表 SQL

```
CREATE TABLE Member (
  mId INT NOT NULL AUTO_INCREMENT,
  mName VARCHAR(12) NOT NULL,
  mAccount VARCHAR(20) NOT NULL,
  mEmail VARCHAR(50) NOT NULL,
  mPhone CHAR(10),
  mAddress VARCHAR(64),
  mCreateDate DATE NOT NULL DEFAULT CURRENT_DATE,
  CHECK (mAccount REGEXP '^[a-zA-Z0-9._]{6,20}$'),
  CHECK (CHAR_LENGTH(mName) >= 2),
  CHECK (mEmail REGEXP '^[a-zA-Z0-9.]+@[a-zA-Z0-9.]+\.[a-zA-Z]{2,}$'),
  CHECK (mPhone IS NULL OR mPhone REGEXP '^09[0-9]{8}$'),
  CHECK (mAddress IS NULL OR CHAR_LENGTH(mAddress) >= 1),
  PRIMARY KEY (mId),
  UNIQUE (mAccount),
  UNIQUE (mEmail)
);
```

- 範例資料

```
INSERT INTO Member (mAccount, mName, mEmail, mPhone, mAddress, mCreateDate)
VALUES
('yf0612', '郭俞汎', '41043104@nfu.edu.tw', '0900787955', '雲林縣虎尾鎮新生路74號', '2025-04-27'),
('pp9988', '無名氏', '94879487@gmail.com', '0987987987', '雲林縣虎尾鎮文化路87號', '2025-04-27'),
('chen.meiling', '陳美玲', 'chen.meiling@gmail.com', '0921789584', '雲林縣虎尾鎮中正路376號', '2025-05-13'),
('zhang.zhihao', '張志豪', 'zhang.zhihao@gmail.com', '0918254368', '雲林縣虎尾鎮忠孝路126號', '2025-05-13'),
('lin.shuhan', '林書涵', 'lin.shuhan@gmail.com', '0909987514', '雲林縣虎尾鎮林森路二段24號', '2025-05-13'),
('li.jiaxin', '李嘉欣', 'li.jiaxin@gmail.com', '0933452841', '雲林縣虎尾鎮民主八路44號', '2025-05-13'),
('wang.yuxiang', '王宇翔', 'wang.yuxiang@gmail.com', '0932542855', '雲林縣虎尾鎮西平路26號', '2025-05-13');
```

2. 喜好類別 (Category) 資料表 SQL

```
CREATE TABLE Category (
  cId INT NOT NULL AUTO_INCREMENT,
```

```
  cName VARCHAR(16) NOT NULL,
  PRIMARY KEY (cId),
  CHECK (CHAR_LENGTH(cName) >= 1)
  UNIQUE (cName)
);
```

◆ 範例資料

INSERT INTO category(cName) VALUES
("沙拉"),("丼飯"),("咖哩"),("炸物"),("羹類"),("麵類"),("飯類"),
("湯類"),("拉麵"),("日式料理"),("燒肉"),("吃到飽"),("素食"),("鴨肉"),
("麵線"),("冬粉"),("米血"),("蚵仔煎"),("健康餐"),("烏龍麵"),("鍋燒"),
("豆花"),("剉冰"),("火鍋"),("水餃"),("漢堡"),("宵夜"),("輕食"),
("義大利麵"),("咖啡"),("早午餐"),("海鮮"),("炒飯"),("石鍋"),("簡餐"),
("燉飯"),("鬆餅"),("定食"),("燒烤"),("飯糰"),("甜食"),("脆皮豬"),
("焗烤"),("披薩"),("滷味"),("地瓜球"),("地瓜薯條"),("地瓜牛奶"),
("蔥肉煎包"),("韭香煎餃"),("排餐"),("壽司"),("握壽司"),("臭豆腐"),
("鴨血"),("吐司"),("蛋餅"),("飲料"),("生魚片"),("熱炒"),("串燒"),
("酒類"),("套餐"),("牛排"),("豬排"),("雞排"),("鐵板麵"),("玉米濃湯"),
("泡麵"),("台灣菜"),("關東煮"),("蔬食"),("韓式料理"),("炸雞"),
("豆腐鍋"),("義式料理"),("壽喜燒飯"),("牛肉麵"),("滷肉飯"),("雞肉飯"),
("台式便當"),("酒吧"),("燴飯"),("炒麵"),("鹹酥雞"),("飯捲"),("冰品"), ("意麵"),("包子
"),("饅頭");

3. 營業時間 (Hours) 資料表 SQL

```
CREATE TABLE Hours (
  rHoursId INT NOT NULL,
  day CHAR(3) NOT NULL,
  start_hr NUMERIC(2) CHECK (start_hr >= 0 AND start_hr <= 24),
  start_min NUMERIC(2) CHECK (start_min >= 0 AND start_min < 60),
  end_hr NUMERIC(2) CHECK (end_hr >= 0 AND end_hr <= 24),
  end_min NUMERIC(2) CHECK (end_min >= 0 AND end_min < 60),
  PRIMARY KEY (rHoursId, day, start_hr, start_min, end_hr, end_min),
  CHECK (day IN ('Mon', 'Tue', 'Wed', 'Thu', 'Fri', 'Sat', 'Sun'))
);
```

◆ 範例資料

INSERT INTO hours VALUES
(1, "Mon", 11, 30, 14, 30), (1, "Mon", 17, 0, 20, 0),
(1, "Thu", 11, 30, 14, 30), (1, "Thu", 17, 0, 20, 0),
(1, "Fri", 11, 30, 14, 30), (1, "Fri", 17, 0, 20, 0),
(1, "Sat", 11, 30, 14, 30), (1, "Sat", 17, 0, 20, 0),
(1, "Sun", 11, 30, 14, 30), (1, "Sun", 17, 0, 20, 0),
(2, "Tue", 11, 0, 14, 0), (2, "Tue", 17, 0, 20, 0),
(2, "Wed", 11, 0, 14, 0), (2, "Wed", 17, 0, 20, 0),
(2, "Thu", 11, 0, 14, 0), (2, "Thu", 17, 0, 20, 0),
(2, "Fri", 11, 0, 14, 0), (2, "Fri", 17, 0, 20, 0),
(2, "Sat", 11, 0, 14, 0), (2, "Sat", 17, 0, 20, 0),
(3, "Tue", 6, 30, 12, 30), (3, "Wed", 6, 30, 12, 30),
(3, "Thu", 6, 30, 12, 30), (3, "Fri", 6, 30, 12, 30),

```

(3, "Sat", 6, 30, 12, 30), (3, "Sun", 6, 30, 12, 30),
(4, "Mon", 11, 14, 17, 21), (4, "Tue", 11, 14, 17, 21),
(4, "Wed", 11, 14, 17, 21), (4, "Thu", 11, 14, 17, 21),
(4, "Fri", 11, 14, 17, 21), (4, "Sat", 11, 14, 17, 21),
(4, "Sun", 11, 14, 17, 21), (5, "Mon", 11, 0, 22, 30),
(5, "Tue", 16, 0, 22, 30), (5, "Wed", 16, 0, 22, 30),
(5, "Thu", 16, 0, 22, 30), (5, "Fri", 11, 0, 22, 30),
(5, "Sat", 10, 50, 23, 0), (5, "Sun", 10, 50, 23, 0),
(6, "Mon", 17, 0, 20, 30), (6, "Tue", 17, 0, 20, 30),
(6, "Wed", 17, 0, 20, 30), (6, "Thu", 17, 0, 20, 30),
(6, "Fri", 17, 0, 20, 30), (6, "Sat", 17, 0, 20, 30),
(7, "Mon", 11, 0, 14, 0), (7, "Mon", 17, 0, 22, 0),
(7, "Tue", 11, 0, 14, 0), (7, "Tue", 17, 0, 22, 0),
(7, "Wed", 11, 0, 14, 0), (7, "Wed", 17, 0, 22, 0),
(7, "Thu", 11, 0, 14, 0), (7, "Thu", 17, 0, 22, 0),
(7, "Fri", 11, 0, 14, 0), (7, "Fri", 17, 0, 22, 0),
(7, "Sat", 11, 0, 14, 0), (8, "Mon", 11, 30, 14, 0),
(8, "Mon", 17, 30, 21, 0), (8, "Tue", 11, 30, 14, 0),
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4. 餐廳 (Restaurant) 資料表 SQL

```
CREATE TABLE Restaurant (
    rId INT NOT NULL AUTO_INCREMENT,
    rName VARCHAR(30) NOT NULL,
    rAddress VARCHAR(64) NOT NULL,
    rPhone VARCHAR(10),
    rHoursId INT,
    rLink VARCHAR(100),
    PRIMARY KEY (rId),
    FOREIGN KEY (rHoursId) REFERENCES Hours(rHoursId) ON DELETE SET NULL,
    CHECK (CHAR_LENGTH(rName) >= 1),
    CHECK (CHAR_LENGTH(rAddress) >= 1),
```

```sql
    CHECK (rLink IS NULL OR rLink REGEXP '^https://maps\.app\.goo\.gl/.*$'),
    CHECK (rPhone IS NULL OR rPhone REGEXP '^056[0-9]{6}|09[0-9]{8}$')
);
--觸發器 "" 換 null,
DELIMITER //
CREATE TRIGGER restaurant_before_insert
BEFORE INSERT ON Restaurant
FOR EACH ROW
BEGIN
    IF NEW.rPhone = "" THEN
        SET NEW.rPhone = NULL;
    END IF;
END //
DELIMITER ;
```

◆ 範例資料

```sql
INSERT INTO restaurant(rID,rName,rAddress,rPhone,rHoursId,rLink) VALUES
 (1,"樂飯樂販","雲林縣虎尾鎮自強街 31號","056310673",1,
"https://maps.app.goo.gl/4ZT4XMCax78Y1ANt5"),
(2,"第8間咖哩","雲林縣虎尾鎮文化路 88號","056311288",2,
"https://maps.app.goo.gl/xS93PNQkDyuNdNx9A"),
(3,"虎尾美貞肉羹麵","雲林縣虎尾鎮中山路 23巷2-2號","",3,
"https://maps.app.goo.gl/29f6CWfwcQXAKyPp9"),
(4,"川息拉麵丼飯","雲林縣虎尾鎮林森路二段 111號","0921794642",4,
"https://maps.app.goo.gl/ZhUZZnqRQzkYf4YQ9"),
(5,"色鼎燒肉","雲林縣虎尾鎮林森路二段 125號","056361748",5,
"https://maps.app.goo.gl/gdmGx9vgotzq7bUn8"),
(6,"老王當歸鴨麵線","雲林縣虎尾鎮民生路 57號","",6,
"https://maps.app.goo.gl/6VchGZCjNmgEPBfr6"),
(7,"野瘦派","雲林縣虎尾鎮中正路 406號","056338228",7,
"https://maps.app.goo.gl/N3ixUFKGUPfnmCMm7"),
(8,"熊初丼","雲林縣虎尾鎮中山路 3之26號","056361683",8,
"https://maps.app.goo.gl/yu6FKXsQgLGRFvG7A"),
(9,"虎尾火車鍋燒意麵","雲林縣虎尾鎮文化路 55巷2之2號","0933439226",9,
"https://maps.app.goo.gl/5pQVv5a5CEvd94Qi6"),
(10,"吉慶冰沙豆花","雲林縣虎尾鎮中山路 3-23號","056366559",10,
"https://maps.app.goo.gl/39eRN8dapTcL8XYr6"),
(11,"築間幸福鍋物","雲林縣虎尾鎮忠孝路 8號","056363727",11,
"https://maps.app.goo.gl/rJ4uSZ5V4f9crYQo7"),
(12,"樂善閣食堂","雲林縣虎尾鎮西安街 41號","0975498219",12,
"https://maps.app.goo.gl/iGq1v4rYXXmh8Z6E7"),
(13,"伊府將鍋燒","雲林縣虎尾鎮中正路 279-1號","0918212867",13,
"https://maps.app.goo.gl/KhhAKRSEXUKE9f6u6"),
(14,"雲穀牛禾","雲林縣虎尾鎮八德街 58號","",14,
"https://maps.app.goo.gl/q5xR8KDGatui2KfV7"),
(15,"三國饌駕鴦麻辣鍋","雲林縣虎尾鎮中正路 238號","056325889",15,
"https://maps.app.goo.gl/ox1D7uN5r7y1y5r48"),
(16,"三人行炸雞","雲林縣虎尾鎮中正路 299號","0955439919",16,
"https://maps.app.goo.gl/wmpRt1XkEbqRL4Yv8"),
(17,"熬鍋燒","雲林縣虎尾鎮中正路 175號","056326672",17,
"https://maps.app.goo.gl/2LoobkbAFFYRcYRF8"),
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(18,"福斯咖啡","雲林縣虎尾鎮中正路 396號","056311130",18,
"https://maps.app.goo.gl/UCw8HxAqmZkuJde69"),
(19,"甜甜早餐概念屋","雲林縣虎尾鎮文化路 7號","056322366",19,
"https://maps.app.goo.gl/aVJbdDXDn7MsPKxN7"),
(20,"咖哩老師虎尾店","雲林縣虎尾鎮中央街 7號","0987990993",20,
"https://maps.app.goo.gl/GXRVwwaMDCeFN4ZGA"),
(21,"伍家虎尾鱔魚麵","雲林縣虎尾鎮民生路 50-1號","0979919137",21,
"https://maps.app.goo.gl/zdpVX1XUsuESkQkz7"),
(22,"春天義禾複合式廚房","雲林縣虎尾鎮林森路一段 375號","056311616",22,
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(23,"健康那件小事","雲林縣虎尾鎮中山路 107號","056330125",23,
"https://maps.app.goo.gl/9oVvF1qNZwgozWTHA"),
(24,"一廣大乾麵","雲林縣虎尾鎮中正路 83號","",24,
"https://maps.app.goo.gl/mtmADHCRnbPAAzwFA"),
(25,"木子","雲林縣虎尾鎮復興路 5號","056324075",25,
"https://maps.app.goo.gl/qWpVEE6EurJ15Emy6"),
(26,"覓巷廚坊","雲林縣虎尾鎮林森路一段 614巷10號","0975756020",26,
"https://maps.app.goo.gl/pxpxp9DwirAXpxUj8"),
(27,"微樂生活咖啡","雲林縣虎尾鎮林森路一段 429號","056311972",27,
"https://maps.app.goo.gl/xvHm5qZQZ3PvBLg48"),
(28,"虎尾有特色滷味","雲林縣虎尾鎮福民路 80號","0909090702",28,
"https://maps.app.goo.gl/VgbVJujZx7b8TV658"),
(29,"虎尾地瓜球","雲林縣虎尾鎮忠孝路 210號","0930035031",29,
"https://maps.app.goo.gl/vgh13prZGTbK7Xjn9"),
(30,"黃金比利","雲林縣虎尾鎮立德路 1號","0958881606",30,
"https://maps.app.goo.gl/SYokA6rbBVtXpJaN9"),
(31,"Sunny Q 陽光公主 義國餐廳","雲林縣虎尾鎮信義路 69號","056360298",31,
"https://maps.app.goo.gl/eLa9riDxtJ9eVy6K8"),
(32,"火鍋世家 ","雲林縣虎尾鎮林森路 1段號285號","056310002",32,
"https://maps.app.goo.gl/WxRzA5gEehSNj9EL6"),
(33,"藝壽司","雲林縣虎尾鎮林森路二段 549號","0987901873",33,
"https://maps.app.goo.gl/gDorVr5D63fDV5XZ9"),
(34,"野川堂秘境鍋物","雲林縣虎尾鎮林森路二段 440號","056362877",34,
"https://maps.app.goo.gl/nf2JKSbTyX8j1jNm7"),
(35,"大吉祥香豆腐","雲林縣虎尾鎮林森路二段 301號","056311158",35,
"https://maps.app.goo.gl/o2KwPcrc4TAVkzcu8"),
(36,"虎尾豆奶攤","雲林縣虎尾鎮林森路二段 246-1號","056366520",36,
"https://maps.app.goo.gl/TCysf8RGbhicTQnt7"),
(37,"虎尾宮本屋","雲林縣虎尾鎮民主路 58之3號","056360099",37,
"https://maps.app.goo.gl/rgbeKtFtMWhx73EG8"),
(38,"參壹","雲林縣虎尾鎮林森路二段 477巷73號","0985703492",38,
"https://maps.app.goo.gl/umDL2fXiDnTrrVjP6"),
(39,"蒸饌","雲林縣虎尾鎮林森路二段 386號","056310638",39,
"https://maps.app.goo.gl/BjnEPfMqWfDk1hzv5"),
(40,"春子麵","雲林縣虎尾鎮林森路二段 477巷2號","0984266683",40,
"https://maps.app.goo.gl/ZrHrChpgEpMmDHA8A"),
(41,"虎尾婆婆的店","雲林縣虎尾鎮工專路 27號","",41,
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(42,"王犇牛排","雲林縣虎尾鎮林森路二段 209號","056310982",42,
"https://maps.app.goo.gl/PuK1csGegdS7LrZg7"),
(43,"多肉丼物","雲林縣虎尾鎮四維街 26號","056366293",43,

"https://maps.app.goo.gl/g44fXWi7brrR3FbJ8"),
(44,"客家莊","雲林縣虎尾鎮吉安街 5號","056332206",44,
"https://maps.app.goo.gl/LTtxYJPgLgn9qsmv6"),
(45,"鹿島和居","雲林縣虎尾鎮立新街 91號","0979269115",45,
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(46,"全州韓二石","雲林縣虎尾鎮信義路 32號","056321999",46,
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(47,"50Pizza","雲林縣虎尾鎮中正路 235號","056330606",47,
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(48,"一魂拉麵","雲林縣虎尾鎮立德路 137號","056324702",48,
"https://maps.app.goo.gl/aEaYM6U1yNzqSguf6"),
(49,"一江拉麵","雲林縣虎尾鎮林森路二段 477巷","056363921",49,
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(50,"職人雙響丼","雲林縣虎尾鎮中正路 295號","056337578",50,
"https://maps.app.goo.gl/rxKwvMH8ajwWerYn9"),
(51,"捌食光年","雲林縣虎尾鎮長春路 13號","056327922",51,
"https://maps.app.goo.gl/QuphK6MXs1KWMwNX6"),
(52,"口福牛肉麵","雲林縣虎尾鎮中正路 308號","056362035",52,
"https://maps.app.goo.gl/x4zh7JvedT6V1qBp8"),
(53,"阿財雞肉飯","雲林縣虎尾鎮林森路二段 90號","056324516",53,
"https://maps.app.goo.gl/6vJBjZRifUH6wLrq6"),
(54,"大口五米飯","雲林縣虎尾鎮民主路 18-13號","056339376",54,
"https://maps.app.goo.gl/j7j5k9kFvBbZwuAbA"),
(55,"老賴茶棧","雲林縣虎尾鎮文化路 53號","056322152",55,
"https://maps.app.goo.gl/kUVWmtTyFxJf7ECh6"),
(56,"偷偷飯糰","雲林縣虎尾鎮文化路 75號","056325211",56,
"https://maps.app.goo.gl/KhWcgbvFM8AGG61d9"),
(57,"藤原","雲林縣虎尾鎮林森路一段 533號","056311452",57,
"https://maps.app.goo.gl/ELyQuecsifqGZSyDA"),
(58,"味道關東煮","雲林縣虎尾鎮中正路 296號","056328722",58,
"https://maps.app.goo.gl/d7VVqkKURvpety2c6"),
(59,"茶衛門手創茶飲","雲林縣虎尾鎮中正路 306號","056327532",59,
"https://maps.app.goo.gl/cJRKXy9daVURTUTS7"),
(60,"樸樂咖啡","雲林縣虎尾鎮中正路 314號","056324806",60,
"https://maps.app.goo.gl/Ew6C89VDSmafHafX9"),
(61,"鮮茶道","雲林縣虎尾鎮中正路 312號","056337733",61,
"https://maps.app.goo.gl/kmGRbMYstff6UsD86"),
(62,"雙醬咖哩","雲林縣虎尾鎮中正路 319號","056328235",62,
"https://maps.app.goo.gl/YCyJ2Yy2YdzDMnx16"),
(63,"小南老蘇排骨便當","雲林縣虎尾鎮中正路 343號","056329692",63,
"https://maps.app.goo.gl/eFSTqbEwtkfmfd488"),
(64,"亞薩漢堡","雲林縣虎尾鎮中正路 351號","056362269",64,
"https://maps.app.goo.gl/P6hxo8qYr9rcDYka6"),
(65,"五隻豬","雲林縣虎尾鎮中正路 361號","056332007",65,
"https://maps.app.goo.gl/woyB1q3VMz2ZFmiF8"),
(66,"茶の魔手","雲林縣虎尾鎮中正路 92號","056323377",66,
"https://maps.app.goo.gl/UJ8i2ecw9Qv5JFeR7"),
(67,"麻古茶坊虎尾科大店","雲林縣虎尾鎮林森路二段 261號","056323688",67,
"https://maps.app.goo.gl/MFNBgab7WJk9vDFXA"),
(68,"PIZZA HUT必勝客-雲林虎尾店","雲林縣虎尾鎮林森路二段 237號",
"056366262",68,"https://maps.app.goo.gl/rwNA441zoxs6oDBp9"),

(69,"胖老爹美式炸雞 虎尾店","雲林縣虎尾鎮林森路二段 204號",
"0978881886",69,"https://maps.app.goo.gl/oSY9aRNm7h3eKWr57"),
(70,"迷客夏Milksha 雲林虎尾店","雲林縣虎尾鎮林森路二段 152號",
"056330177",70,"https://maps.app.goo.gl/f9HRbF2qYGnKqnc58"),
(71,"五花馬水餃館","雲林縣虎尾鎮林森路二段 161號","056338955",71,
"https://maps.app.goo.gl/M69AxAeksjkpj2Go6"),
(72,"LevinMo 萊莫咖啡","雲林縣虎尾鎮文化路 29-1號","056363879",72,
"https://maps.app.goo.gl/r6cW1sxa9o8xMcgA8"),
(73,"早安山丘（虎尾文化店）","雲林縣虎尾鎮文化路 29號","056337770",73,
"https://maps.app.goo.gl/3fChYyneh4X8Cqkr5"),
(74,"品都串燒-虎尾店","雲林縣虎尾鎮林森路二段 149號","056362200",74,
"https://maps.app.goo.gl/tSNVxuQyrwVeohHcA"),
(75,"潮味決・湯滷專門店 雲林虎尾分社","雲林縣虎尾鎮文化路 32號",
"056322511",75,"https://maps.app.goo.gl/4SykhbGY7nQMT6ZA6"),
(76,"炸雞大獅 雲林虎尾店","雲林縣虎尾鎮文化路 32號","056311066",76,
"https://maps.app.goo.gl/3stW2z2sqGdmGByeA"),
(77,"格寧貳貳","雲林縣虎尾鎮中正路 286號","056311172",77,
"https://maps.app.goo.gl/dZqyoBpv8V2ufeb1A"),
(78,"成功牛排虎尾店","雲林縣虎尾鎮中正路 276號","056324027",78,
"https://maps.app.goo.gl/ahSVRV6LTvJBpnjE7"),
(79,"六扇門時尚湯鍋 虎尾中正店","雲林縣虎尾鎮中正路 264號",
"056337737",79,"https://maps.app.goo.gl/HZkBAU3AUbpnFGTJ8"),
(80,"三媽臭臭鍋雲林虎尾店","雲林縣虎尾鎮忠孝路 61號","056332946",80,
"https://maps.app.goo.gl/4ZhUktyhHj5Wv5Lj8"),
(81,"色鼎燒肉虎尾店","雲林縣虎尾鎮林森路二段 125號","056361748",81,
"https://maps.app.goo.gl/jg5YVzCvK5rNyV4i7"),
(82,"王煮麵舖","雲林縣虎尾鎮忠孝路 75號","0910478587",82,
"https://maps.app.goo.gl/rxCGusBm12YbuY4w7"),
(83,"無空間廚坊","雲林縣虎尾鎮忠孝路 58號","056335669",83,
"https://maps.app.goo.gl/GZSNqDUrA56dC1eb6"),
(84,"後院houyuan","雲林縣虎尾鎮忠孝路 2號","",84,
"https://maps.app.goo.gl/GUCYTi6dB63FMzwRA"),
(85,"老廣的炒飯","雲林縣虎尾鎮中正路 248號","0930141556",85,
"https://maps.app.goo.gl/QSAeDjdKWAt2Xs8AA"),
(86,"天勝炒飯·麵·燴飯","雲林縣虎尾鎮中正路 263號","0982939317",86,
"https://maps.app.goo.gl/Mzo2CqRXfwnrKJxz5"),
(87,"耐肯輕食炸雞","雲林縣虎尾鎮中正路 265號","056326917",87,
"https://maps.app.goo.gl/53PzqxgkFiCyHWqZ8"),
(88,"吉香屋海苔飯捲","雲林縣虎尾鎮中正路 267號","056312623",88,
"https://maps.app.goo.gl/dgbXkiuMbu2QxdzJ9"),
(89,"得正#虎尾中正計畫","雲林縣虎尾鎮中正路 206號","056323663",89,
"https://maps.app.goo.gl/WQ9E7KBS7P61NgiQA"),
(90,"棕梠樹時尚早午餐","雲林縣虎尾鎮中山路 25-9號","056362987",90,
"https://maps.app.goo.gl/LTTqTaaLPfypChyNA"),
(91,"貨櫃炸雞","雲林縣虎尾鎮四維街 6號","0900350528",91,
"https://maps.app.goo.gl/gPNiQYwfBPVL9Dp86"),
(92,"Mr.渣登","雲林縣虎尾鎮四維街 18號
","056365237",92,"https://maps.app.goo.gl/gPNiQYwfBPVL9Dp86"),
(93,"食神滷味 -雲林虎尾店","雲林縣虎尾鎮四維街 11號","0952533125",93,
"https://maps.app.goo.gl/LNKCQJBZMNHpiTG86"),
(94,"虎尾榕樹下 綿綿冰","雲林縣虎尾鎮四維街 35-5號","056365310",94,

"https://maps.app.goo.gl/XfWxeP34mqZFGFgU9"),
(95,"樂鍋吐司IronPan","雲林縣虎尾鎮四維街 35-7號","056360961",95,
"https://maps.app.goo.gl/XfWxeP34mqZFGFgU9"),
(96,"頂山門烤肉","雲林縣虎尾鎮四維街 39號","0932693382",96,
"https://maps.app.goo.gl/2BPf7L5t8xKwxYhH8"),
(97,"蕃茄村Brunch&Cafe虎尾四維店","雲林縣虎尾鎮四維街 51號",
"056336818",97,"https://maps.app.goo.gl/JowBAzf1JERcPsHH8"), (98,"阿亮香雞排","
雲林縣虎尾鎮工專路 105巷口號","0922389928",98,
"https://maps.app.goo.gl/QCHZQmJm7CXxSGAC7"),
(99,"StoryC.U.P故事咖啡","雲林縣虎尾鎮立新街 80號","056339008",99,
"https://maps.app.goo.gl/XFNT1Lr7ksVQ4i8t6"),
(100,"樂包子LeBaozi","雲林縣虎尾鎮林森路二段 25號","056327120",100,
"https://maps.app.goo.gl/RoMLpUzL2HtZSF459");

5. 店家類別 (resCate) 資料表 SQL

CREATE TABLE resCate (
    rId INT NOT NULL,
    cId INT NOT NULL,
    PRIMARY KEY (rId, cId),
    FOREIGN KEY (rId) REFERENCES Restaurant(rId) ON DELETE CASCADE,
    FOREIGN KEY (cId) REFERENCES Category(cId) ON DELETE CASCADE
);

◆   範例資料

INSERT INTO resCate(rID,cID) VALUES
(1,1),(1,2),(1,3),(2,1),(2,3),(2,4),(3,5),(3,6),(3,7),(3,8),(4,2),
(4,4),(4,9),(4,10),(5,4),(5,10),(5,11),(5,12),(5,13),(6,14),(6,15),
(6,16),(6,17),(6,18),(7,19),(8,2),(8,4),(8,20),(9,21),(10,22),
(10,23),(10,41),(10,88),(11,24),(12,6),(12,7),(12,8),(12,25),(12,26),
(12,4),(12,27),(13,21),(14,6),(14,7),(14,8),(15,24),(16,4),(17,21),
(17,6),(17,7),(18,28),(18,29),(18,2),(18,30),(19,26),(19,31),(20,3),
(20,11),(20,25),(21,32),(21,7),(21,33),(21,6),(21,8),(22,34),(22,24),
(22,35),(22,29),(22,36),(22,43),(22,4),(22,37),(22,1),(23,19),(24,7),
(24,6),(24,8),(25,38),(25,39),(25,4),(26,6),(26,40),(26,8),(26,41),
(26,42),(27,29),(27,36),(27,24),(27,34),(27,43),(27,3),(27,44),
(27,19),(27,8),(27,1),(27,4),(28,45),(29,46),(29,47),(29,48),(30,49),
(30,50),(31,29),(31,36),(31,44),(31,24),(31,51),(31,1),(31,4),
(32,24),(33,2),(33,52),(33,53),(33,10),(34,24),(35,54),(35,55),
(35,6),(35,7),(36,43),(36,26),(36,56),(36,6),(36,57),(36,58),(36,27),
(37,29),(37,52),(37,53),(37,4),(37,1),(37,10),(38,4),(38,7),(38,6),
(38,60),(38,61),(38,8),(38,62),(38,10),(39,24),(40,6),(40,7),(40,8),
(40,63),(41,6),(41,7),(41,8),(42,64),(42,65),(42,66),(42,67),(42,1),
(42,68),(42,41),(43,2),(43,6),(43,69),(43,4),(43,8),(43,58),(43,10),
(44,70),(44,60),(44,8),(44,6),(44,7),(45,2),(45,6),(45,7),(45,71),
(45,72),(46,73),(46,74),(46,4),(46,34),(46,75),(47,76),(47,29),
(47,44),(47,68),(48,9),(48,2),(48,4),(48,10),(49,9),(49,2),(49,4),
(49,10),(50,2),(50,20),(50,4),(50,10),(51,29),(51,30),(51,77),
(52,78),(52,79),(52,25),(52,6),(52,7),(53,80),(53,79),(53,7),(54,81),
(54,6),(54,7),(55,58),(56,40),(56,2),(56,10),(57,52),(57,2),(57,10),
(58,71),(59,58),(60,58),(61,58),(62,3),(62,4),(63,81),(64,31),

(64,26),(64,67),(65,7),(65,25),(65,6),(66,58),(67,58),(68,44),
(69,74),(69,4),(70,58),(71,25),(71,7),(71,6),(72,30),(72,58),(73,26),
(73,67),(73,58),(73,31),(74,61),(74,39),(74,27),(75,45),(76,74),
(76,4),(76,7),(77,6),(77,7),(77,26),(77,27),(78,67),(78,64),(79,24),
(80,24),(81,11),(82,6),(83,29),(83,36),(83,66),(84,30),(84,58),
(84,41),(84,35),(84,82),(85,33),(85,83),(85,84),(86,33),(86,83),
(86,84),(87,74),(87,85),(88,86),(89,58),(90,31),(90,6),(91,74),
(91,27),(92,29),(92,37),(92,40),(92,63),(92,31),(93,45),(93,27),
(94,87),(95,88),(95,56),(95,31),(96,39),(96,61),(96,27),(97,26),
(97,57),(97,31),(98,66),(98,85),(98,27),(99,30),(99,58),(99,41),
(99,35),(100,89),(100,90),(100,58);

6. 會員喜好類別 (Preference) 資料表 SQL

CREATE TABLE Preference (
    mId INT NOT NULL,
    cId INT NOT NULL,
    PRIMARY KEY (mId, cId),
    FOREIGN KEY (mId) REFERENCES Member(mId) ON DELETE CASCADE,
    FOREIGN KEY (cId) REFERENCES Category(cId) ON DELETE CASCADE
);

◆   範例資料

INSERT INTO preference VALUES
(2, 10), (2, 20), (2, 24), (2, 25), (4, 12),
(4, 40), (4, 80), (5, 1), (5, 2), (5, 3);

7. 推薦清單 (Recommendation) 資料表 SQL

CREATE TABLE Recommendation (
    recId INT NOT NULL AUTO_INCREMENT,
    mId INT NOT NULL,
    rIdA INT NOT NULL,
    rIdB INT NOT NULL,
    recDate DATE NOT NULL DEFAULT CURRENT_DATE,
    PRIMARY KEY (recId),
    FOREIGN KEY (mId) REFERENCES Member(mId) ON DELETE CASCADE,
    FOREIGN KEY (rIdA) REFERENCES Restaurant(rId) ON DELETE CASCADE,
    FOREIGN KEY (rIdB) REFERENCES Restaurant(rId) ON DELETE CASCADE
);

◆   範例資料

INSERT INTO Recommendation (mId, rIdA, rIdB, recDate) VALUES
(2, 34, 48, '2025-05-01'), (2, 5, 79, '2025-05-01'), (2, 20, 43, '2025-05-02'),
(2, 4, 52, '2025-05-02'), (2, 49, 71, '2025-05-02'), (2, 11, 12, '2025-05-04'),
(5, 1, 49, '2025-05-05'), (5, 1, 48, '2025-05-06'), (5, 37, 45, '2025-05-06'),
(5, 43, 57, '2025-05-06');;

七、View SQL

1. 會員View

(1) 會員喜好 View：user_preferences

用途：彙整會員的喜好類別。

```
SELECT
    m.mID,
    m.mName,
    m.mAccount,
    GROUP_CONCAT(c.cName SEPARATOR ', ') AS preferences
FROM member m
LEFT JOIN preference p ON m.mID = p.mID
LEFT JOIN category c ON p.cID = c.cID
GROUP BY m.mID, m.mName, m.mAccount;
```

(2) 營業中餐廳 View：open_restaurants

用途：查詢目前時間仍在營業的餐廳。

```
SELECT DISTINCT
    r.rID,
    r.rName,
    r.rAddress,
    r.rPhone,
    r.rLink
FROM restaurant r
JOIN hours h ON r.rHoursID = h.rHoursID
WHERE h.day = LEFT(DAYNAME(NOW()), 3)
AND (
    (h.start_hr < HOUR(NOW()) OR
     (h.start_hr = HOUR(NOW()) AND h.start_min <= MINUTE(NOW())))
    AND
    (h.end_hr > HOUR(NOW()) OR
     (h.end_hr = HOUR(NOW()) AND h.end_min >= MINUTE(NOW())))
);
```

(3) 推薦候選餐廳 View：recommendation_candidates

用途：計算會員與餐廳間的喜好配對數量（供推薦邏輯使用）。

```
SELECT
    p.mID,
    r.rID,
    r.rName,
    r.rAddress,
    r.rPhone,
    r.rLink,
```

```
    COUNT(DISTINCT rc.cID) AS matching_categories
FROM preference p
JOIN resCate rc ON p.cID = rc.cID
JOIN restaurant r ON rc.rID = r.rID
GROUP BY p.mID, r.rID, r.rName, r.rAddress, r.rPhone, r.rLink
ORDER BY p.mID, matching_categories DESC;
```

(4) 推薦記錄 View：recent_recommendations

用途：顯示推薦歷史記錄與對應餐廳名稱。

```
SELECT
    rec.recID,
    m.mName,
    m.mAccount,
    r1.rName AS restaurant_1,
    r2.rName AS restaurant_2,
    rec.recDate
FROM recommendation rec
JOIN member m ON rec.mID = m.mID
JOIN restaurant r1 ON rec.rIDA = r1.rID
JOIN restaurant r2 ON rec.rIDB = r2.rID
ORDER BY rec.recDate DESC, rec.recID DESC;
```

2. 管理員 View

(1) 系統統計 View：admin_statistics

用途：顯示會員總數、餐廳數、類別數與推薦記錄數。

```
SELECT
    (SELECT COUNT(*) FROM member) AS total_members,
    (SELECT COUNT(*) FROM restaurant) AS total_restaurants,
    (SELECT COUNT(*) FROM category) AS total_categories,
    (SELECT COUNT(*) FROM recommendation) AS total_recommendations;
```

八、使用者權限SQL

1. 建立會員使用者帳號

   CREATE USER 'user_general'@'%' IDENTIFIED BY 'userpassword123';

2. 會員使用者對 huwei_food 資料庫中的操作權限

   GRANT SELECT, INSERT, UPDATE, DELETE ON huwei_food.Preference TO 'user_general'@'%';
   GRANT SELECT ON huwei_food.recommendation TO 'user_general'@'%';

3. 授權會員使用者查詢view

   GRANT SELECT ON huwei_food.user_preferences TO 'user_general'@'%';
   GRANT SELECT ON huwei_food.open_restaurants TO 'user_general'@'%';
   GRANT SELECT ON huwei_food.recommendation_candidates TO 'user_general'@'%';
   GRANT SELECT ON huwei_food.recent_recommendations TO 'user_general'@'%';
   GRANT SELECT ON huwei_food.restaurant_details TO 'user_general'@'%';

4. 建立餐廳資料管理者帳號

   CREATE USER 'user_admin'@'%' IDENTIFIED BY 'userpassword789';

5. 餐廳資料管理者對 huwei_food 資料庫中的操作權限

   GRANT SELECT, INSERT, UPDATE, DELETE ON huwei_food.category TO 'user_admin'@'%';
   GRANT SELECT, INSERT, UPDATE, DELETE ON huwei_food.restaurant TO 'user_admin'@'%';
   GRANT SELECT, INSERT, UPDATE, DELETE ON huwei_food.rescate TO 'user_admin'@'%';
   GRANT SELECT, INSERT, UPDATE, DELETE ON huwei_food.hours TO 'user_admin'@'%';

6. 授權餐廳資料管理者查詢view

   GRANT SELECT ON huwei_food.admin_statistics TO 'user_general'@'%';

   FLUSH PRIVILEGES;