



**NANYANG
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SC2207: Introduction to Databases

Lab 1 Report

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The diagram illustrates the database structure for a food delivery system. It features several entities and their relationships:

- Restaurant & Cafeterias** (Entity): Attributes include name, address, opening hours, and ID. It is associated with **Mail Chain** via a **Belong to** relationship.
- Mail Chain** (Entity): Attribute is name.
- User** (Entity): Attributes include email address, name, gender, monthly income, date of birth, home address, phone number, relationship, and type. It is associated with **Restaurant & Cafeterias** via an **In** relationship and with **DayPackage** via a **SignUp** relationship.
- DayPackage** (Entity): Attributes include PackageID, date-time, and price. It is associated with **User** via a **SignUp** relationship.
- User Preference** (Entity): Attributes include language and learned informat. It is associated with **User** via a **Have** relationship.
- Relationships** (Diamonds):
 - In**: Connects **Restaurant & Cafeterias** and **User**.
 - Belong to**: Connects **Restaurant & Cafeterias** and **Mail Chain**.
 - Used in**: Connects **Restaurant & Cafeterias** and **User** (multiple instances).
 - Shopped-in**: Connects **User** and **DayPackage** (multiple instances).
 - Visit**: Connects **User** and **DayPackage** (multiple instances).
 - Directed to**: Connects **User** and **Restaurant & Cafeterias** (multiple instances).
 - complain**: Connects **User** and **Restaurant & Cafeterias** (multiple instances).
 - Have**: Connects **User** and **User Preference**.
 - Related**: Connects **User** and **User Preference**.
- Attributes** (Ovals):
 - Restaurant & Cafeterias**: name, address, opening hours, ID.
 - Mail Chain**: name.
 - User**: email address, name, gender, monthly income, date of birth, home address, phone number, relationship, type.
 - DayPackage**: PackageID, date-time, price.
 - User Preference**: language, learned informat.

Explanations

Assumptions

- For the *User* entity, date of birth, name, and gender are optional. If we don't have information about it, "None" will be filled in.
- For the *User Preference*, "learned information" uses natural language to store the user's preference, generated by ChatGPT.
- Assume that *Cafeterias* are a type of *Restaurant* and, hence can be grouped under the same entity set *Restaurant & Cafeterias*.
- Assume that a *User* can sign up for and be part of multiple *Day Packages* at the same time.
- Assume that *Cash Vouchers* can only be used in *Restaurants & Cafeterias*, and *Purchase Vouchers* can only be used in *Retail Shops*.
- Assume that *Discount Vouchers* mentioned in Appendix A of the Lab Manual, bullet point 6 is not another type of voucher, but refer to either of the 2 existing types of voucher, *Purchase Voucher* or *Cash Voucher*.

Features

- The system can recommend suitable restaurants according to the user's visiting history.
- For the user-history-related queries (like the earnings of the restaurant), we only maintain the user history instead of maintaining all the answers for queries, which follows the principle "*Avoid Redundancy*".
- Instead of creating different types of vouchers, we use a general entity Vouchers with an attribute type, following the design principle "*Keep It Simple*".

Appendix

Appendix A: Individual Contribution Form

Full Name	Individual Contribution to Lab 1 Submission	Percentage of Contribution	Signature
Pu Fanyi	ER Diagram	14.29%	濮凡轶
Jin Qingyang	ER Diagram	14.29%	晋清扬
Qian Jianheng Oscar	ER Diagram	14.29%	Qian
Soo Ying Xi	ER Diagram	14.29%	So
Ting Ruo Chee	ER Diagram	14.29%	Ting Ruo Chee
Ye Yuhan	ER Diagram	14.29%	Ye Yuhan
Tang Yutong	ER Diagram	14.29%	唐毓童

Appendix B: Individual Contribution Form

Team member (full name)	Signature	Date	A or B*
Pu Fanyi	濮凡轶	13/Feb/2024	A
Jin Qingyang	晋清扬	13/Feb/2024	A
Qian Jianheng Oscar	Qian	13/Feb/2024	A
Soo Ying Xi	So	13/Feb/2024	A
Ting Ruo Chee	Ting Ruo Chee	13/Feb/2024	A
Ye Yuhan	Ye Yuhan	13/Feb/2024	A
Tang Yutong	唐毓童	13/Feb/2024	A

* Each team member should indicate either A or B:

- A. I affirm that my contribution(s) to the lab work is my own, produced without help from any AI tool(s).
- B. I affirm that my contribution(s) to the lab work has been produced with the use of AI tool(s).