



**NANYANG
TECHNOLOGICAL
UNIVERSITY**

**Nanyang Technological University
School of Computer Engineering**

CZ2005 DATABASES LAB 1 REPORT

Name:

Ang Wan Qi

An Zheyuan

Thong H9oi Wei

Janssen Tan

Lee Suyeon

Lab/Group:

SSR1 Group 5

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1. Bullet Point 1
 - a. Each user is identified by an ID; hence users is an entity set with the attribute ID as its key. The basic information of the user is kept as the other attributes.
2. Bullet Point 2
 - a. Schools and employers are represented as entity sets, with school name and employer name as their keys respectively. This is to avoid redundancy in the case that different users have attended the same school or have worked for the same employer.
 - b. Education and work experiences are represented as relationships between the user and the schools or the employers. Information of the experiences such as class year and position are kept as attributes of the relationships. They are many-to-many relationships because a user may have attended/worked for multiple schools/employers, and a school or an employer may have accommodated multiple users.
3. Bullet Point 3
 - a. Message is an entity set identified by timestamp. However, messages sent by different users may have the same timestamp, therefore it is represented as a weak entity set supported by users.
 - b. Writing and sending messages are represented by the send relationship between user and message, with a receiver attribute that records the ID of the receiving user. An action of writing messages will have the receiver ID be the same as the sender of the message. Each message must be sent by one and only one user, hence the relationship is many-to-one with referential integrity.
 - c. Commenting is represented as a many-to-many relationship between the user and messages because a user may comment on multiple messages, and a message can be commented by many users. The content and timestamp of the comment are kept as attributes of the relationship.
4. Bullet Point 4
 - a. A user can be friends with many users, hence it is represented as a many-to-many relationship between the user and itself.
 - b. Lists created by different users may have the same name, but lists created by the same user will have distinct names. Hence lists are represented as a weak entity set supported by users. Since each list must be created by one user, the supporting relationship is many-to-one with referential integrity.
 - c. Since the user must have two default lists of Friends and NewsFeed, they are represented as subclasses of list and have one-to-one relationships which has referential integrity on both sides with the user.
5. Bullet Point 5
 - a. A Point of Interest (POI) belongs to an entity set identified by its ID as the key attribute. It also has other attributes such as coordinates, address, and description. Category labels are also represented as an attribute of the point of interest.
6. Bullet Point 6
 - a. Photos are represented as an entity set with a caption attribute. It is also assumed that each photo is uniquely identified by a photo id, as different photos may have the same captions.
 - b. The association made by a user of a photo to a POI is represented as a weak entity set supported by all of the three entity sets. A user may make many associations but the same association of a photo to a POI can only be, and must be made once by one user, hence the relationship is many-to-one with referential integrity. Each POI may be associated with many photos by different users, but each association must involve one and only one POI, hence the relationship is many-to-one with referential integrity. Each photo can only be involved in one association, but a POI can have many photos associated, hence the relationship is many-to-one.
7. Bullet Point 7
 - a. Each check-in is represented as a relationship between the user and the point of interest. A user can check-in at many POIs and each point of interest can have check-ins by many users. Hence, it is a many-to-many relationship.
 - b. Each check-in contains a shout attribute which is the short text left by the user.
8. Bullet Point 8
 - a. Each tip is represented as a relationship between the user and the POI, with a text attribute. A user can tip at many POIs and each point of interest can be tipped by many users. Hence, it is a many-to-many relationship.