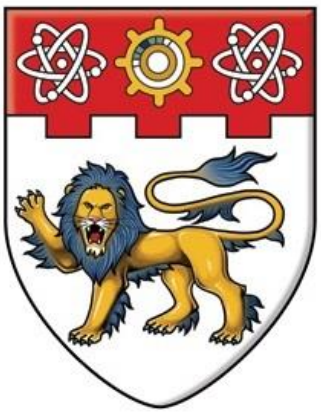

NANYANG TECHNOLOGICAL UNIVERSITY

CZ2007 Introduction to Databases

Entity Relationship Diagram with Justification

Lab Group SS1: Group 3

04 September 2020

CZ2007 Lab 1 Written Discussion

1. Rationale behind creating **Shop Rating (WEC)** and **Product Rating (WEC)** as separate weak entity sets, instead of using a single weak entity set (i.e. **Rating**) to represent both:
    a. Users can individually rate **Shop (EC)** and **Product (EC)**, with each user able to rate each shop and each product once. If it were one "Rating" entity class, and we kept the *s_name(K)* and *PID(K)* pair as unique keys, a situation would arise where a user would want to rate only the product or shop but not be able to as the other key cannot be null.
    b. With individual weak entity sets, we are able to use the *s_name(K)* and *PID(K)* for each of the tables respectively; removing the need for either keys to be used, as both *s_name(K)* and *PID(K)* are mutually exclusive keys after all.

2. Rationale behind **Ordered_Product (WEC)** as a subset of **Product (EC)** and a weak entity set of **Order (EC)**:
    a. **Ordered_Product** inherits all of the attributes of **Product**.
    b. **Ordered_Product** has additional attributes (i.e. price) that is not present in **Product**.
    c. **Ordered_Product** should require the *OID(K)* from **Order** as there can be multiple products in an order. Hence, inheriting *PID(K)* from **Product (EC)** is not sufficient.

3. Why **Complaints (EC)** has *CID(K)* and is not a Weak Entity Set
    a. If **Complaints** were a Weak Entity Set, *s_name*(K) and *PID*(K) would both be unique keys, thus not allowing a situation where a user would want to make a complaint only about a shop or product but not the other. However if it were just a many to one relationship, there would be no way to differentiate multiple complaints made by the same user on the same product/shop.

4. Why **Sold (WEC)** is a double binary Weak Entity Set
    a. **Sold** contains the history of price changes in the product at any given time.
    b. If **Sold** is just a relationship between Product and Shop, it will not be able to reflect **time** as another unique key, where there must be only 1 unique combination of *s_name*, *PID* and *time* would give a certain price.

5. Why **Shop (EC)** and **Product (EC)** are related in a many-to-many referential integrity
    a. For the scope of this project, it is assumed that a **Shop** must sell **Product(s)**.
    b. A **Product** that exists must be sold by a **Shop**.
    c. The same **Product** may be sold by several **Shop(s)**.
    d. A **Shop** may sell many different **Product(s)**.

Data Dictionary:

Abbreviations	**Meaning**
EC	Entity Class
K	Key
WEC	Weak Entity Class