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MSDS 420
Exercise 1: Interpreting Entity Relationship Diagrams

1. Based on the Crow's Foot ERD below:

a) list the entities

- CUSTOMER
- INVOICE
- LINE
- PRODUCT
- VENDOR

b) for each entity, list the attributes

- CUSTOMER: CUS_CODE, CUS_LNAME, CUS_AREACODE, CUS_INITIAL, CUS_BALANCE, CUS_PHONE, CUS_FNAME
- INVOICE: INV_NUMBER, INV_DATE, CUS_CODE
- LINE: INV_NUMBER, INV_LINE, LINE_UNITS, P_CODE, LINE_PRICE
- PRODUCT: P_CODE, P_QOH, P_DISCOUNT, V_CODE, P_PRICE, P_MIN, P_DESCRIPTION, P_INDATE
- VENDOR: V_CODE, V_NAME, V_CONTACT, V_PHONE, V_ORDER, V_STATE, V_AREACODE

b) for each entity, list the relationship cardinalities

- There is a one to zero or many (1:M) relationship between the CUSTOMER and INVOICE entities.
- There is a one to one or many (1:M) relationship between the INVOICE and LINE entities.
- There is a zero or many to one (M:1) relationship between the LINE and PRODUCT entities.
- There is a zero or many to one (M:1) to many relationship between the PRODUCT and VENDOR entities.

b) for each entity, list the relationship between the primary and foreign keys

- There is a one to many (1:M) relationship between the CUSTOMER CUS_CODE (PK) and INVOICE CUS_CODE (FK).
- There is a one to many (1:M) relationship between the INVOICE INV_NUMBER (PK) and LINE INV_NUMBER (FK).
- There is a one to many (1:M) relationship between the PRODUCT P_CODE (PK) and LINE P_CODE (FK).
- There is a one to many (1:M) relationship between the VENDOR V_CODE (PK) and PRODUCT V_CODE (FK).

2.Write the business rules that are reflected in the following Crow's Foot ERD.

1. Every INVOICE has only one CUSTOMER

2. Every CUSTOMER has zero or many INVOICES
3. Every LINE has only one INVOICE
4. Every INVOICE has one or many LINES
5. Every PRODUCT has zero or many LINES
6. Every LINE has only one PRODUCT
7. Every VENDOR has zero or many PRODUCTS
8. Every PRODUCT has only one VENDOR