

Assignment #1 – Walkthrough & Deliverable

CRITERIA

RESULTS

Relations for Entities and Relationships

1. From the given ERD there are 5 entities (CUSTOMER, INVOICE, LINE, PRODUCT, VENDOR) that need to be represented by relations
2. There are four relationships that have different cardinalities
3. The CUSTOMER entity has a zero-to-many relationship with INVOICE
4. The INVOICE entity has a zero-to-many relationship with LINE
5. The PRODUCT entity has a zero-to-many relationship with LINE
6. The PRODUCT entity has a zero-to-many relationship with VENDOR

Primary and Foreign Keys

1. The CUSTOMER entity (CUS_CODE, CUS_LNAME, CUS_FNAME, CUS_INITIAL, CUS_AREACODE, CUS_PHONE, CUS_BALANCE) has the primary key CUS_CODE
2. The INVOICE entity (INV_NUMBER, INV_DATE, CUS_CODE) has the primary key INV_NUMBER
3. The LINE entity (INV_NUMBER, LINE_NUMBER, LINE_UNITS, P_CODE, LINE_PRICE) has the composite primary key INV_NUMBER and LINE_NUMBER
4. The PRODUCT entity (P_CODE, P_DISCOUNT, V_CODE, P_PRICE, P_MIN, P_DESCRIPTION, P_INDATE) has the primary key P_CODE
5. The VENDOR entity (V_CODE, V_NAME, V_CONTACT, V_PHONE, V_ORDER, V_STATE, V_AREACODE) has the primary key V_CODE
6. The V_CODE is a foreign key in the relation that represents the PRODUCT
7. The P_CODE is a foreign key in the relation that represents the LINE
8. The INV_NUMBER is a foreign key in the relation that represents LINE

Identify and list the partial and transitive dependencies

1. CUS_CODE functionally determines the attributes CUS_AREACODE and CUS_PHONE but those two attributes also can be a candidate key, hence might produce transitive dependency to other customer attributes but that will not cause insert/delete/update anomalies; if a customer changes phone number that will not impact other customer attributes
2. INV_NUMBER functionally determines the attribute CUS_CODE but CUS_CODE is also dependent on CUS_CODE. Therefore, this may produce a transitive dependency.
3. The composite key INV_NUMBER and LINE_NUMBER functionally determine the attributes LINE_UNITS and LINE_PRICE but they are only determined by LINE_NUMBER. This may produce a partial dependency.
4. V_CODE functionally determines V_AREACODE, V_PHONE and V_CONTACT but these can also be candidate keys. This may produce transitive dependencies with other VENDOR attributes.
5. INV_NUMBER is a primary key for INVOICE but also a foreign key acting as a composite primary key for the entity LINE. This may cause update anomalies since INVOICE-LINE is in a one-to-many relationship and foreign keys can allow duplicate values.