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MSDS 420

Module 3 Assignment 1

Use the database Crow's Foot ERD shown below to answer the following:

1. Identify all partial dependencies.

The partial dependencies are lines_units and line_price on the Line Table. These attributes are only dependent on the line_number primary key rather than the composite keys of the table; therefore these attributes should have their own table with Line_Number as the Primary key and Line_Units and Line_Price as the attributes.

2. Identify all transitive dependencies.

I am not seeing any non prime attributes that are dependent other non prime attributes and not the prime attributes or primary keys.

3. Create relations in 3NF that represent the given Crow's Foot ERD, but if the diagram seems already in 3NF then justify your reasoning.

I drew it below where I resolved the partial dependency described in number 2. As a 3NF table is a 2NF table with all transitive dependencies removed and I was unable to identify any transitive dependencies the table is now in the third normal form within the normalization process.

4. List the primary keys and the foreign keys associated with the different relations.

Tables:

- Customer Table
  - Primary Key(s) – CUS_CODE
  - There are no foreign keys
- Invoice Table
  - Primary Key(s) – INV_NUMBER
  - Foreign Key(s) – CUS_CODE, this connects the Invoice table to the Customer table through its unique primary key. As there is only one customer per invoice it is a unique key.
- Line Table
  - Primary Key(s) – INV_NUMBER, LINE_NUMBER. This combination is unique and therefore it is logical to place Composite keys due to the many to many relationship

between the line and invoice tables. As each line could be on multiple invoices and each invoice could have multiple lines.
    - Foreign Key(s) - P_Code, Identified which product is on that line for each unique invoice and Line_number.
- Line_Info Table
    - Primary Key(s) – Line_Number
    - No Foreign Keys
- Product Table
    - Primary Key(s) – P_Code
    - Foreign Key(s) – V_Code, shows the unique vendor assigned to each specific product
- Vendor Table
    - Primary Key(s) - V_Code
    - No Foreign Keys

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DIAGRAM BELOW

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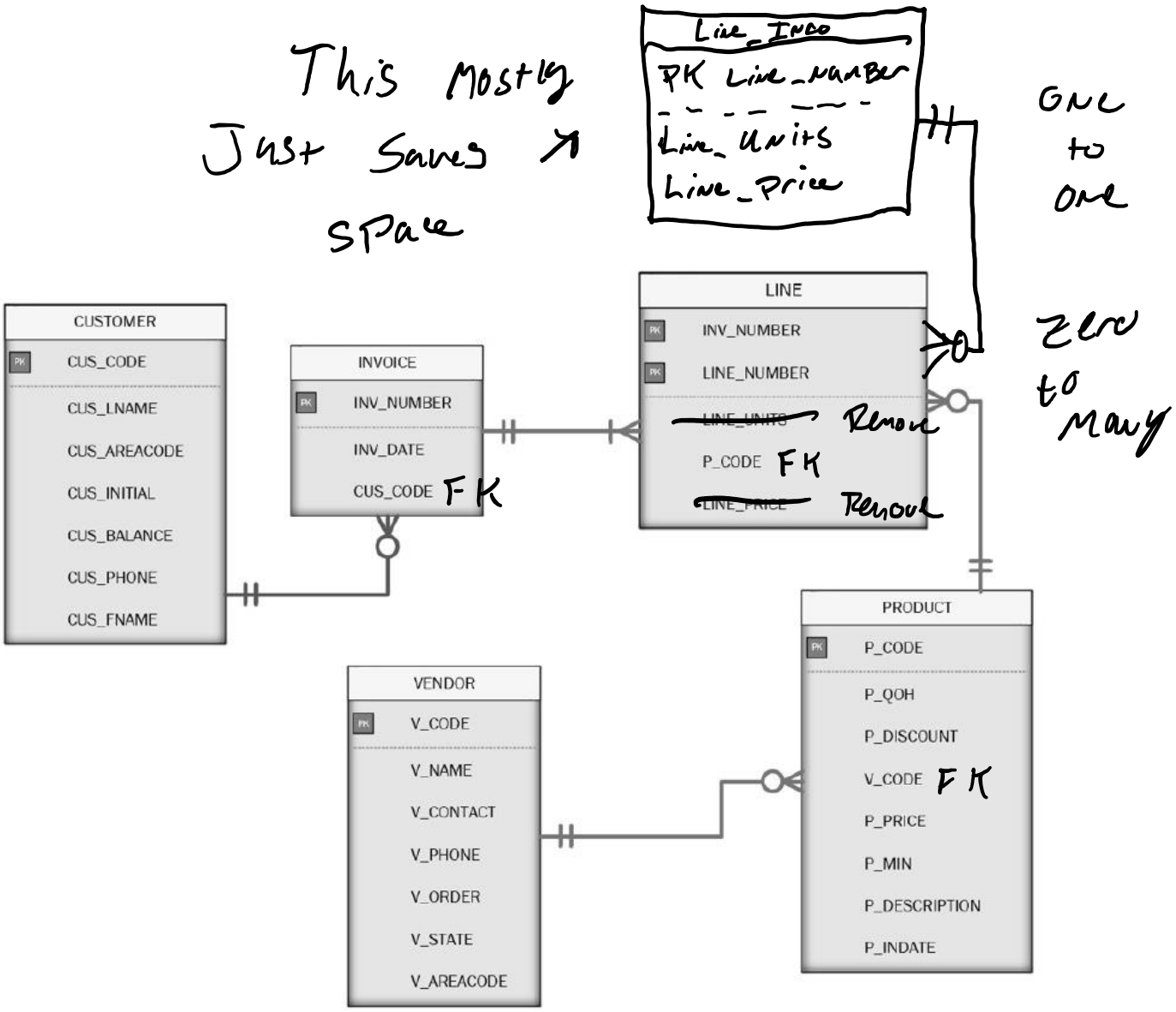
This Mostly Just Saves ↗ space
Line_Info
PK Line_number
Line_Units
Line_Price
One to One
Zero to Many
CUSTOMER
CUS_CODE
CUS_LNAME
CUS_AREACODE
CUS_INITIAL
CUS_BALANCE
CUS_PHONE
CUS_FNAME
INVOICE
INV_NUMBER
INV_DATE
CUS_CODE FK
LINE
INV_NUMBER
LINE_NUMBER
LINE_UNITS Remove
P_CODE FK
LINE_PRICE Remove
PRODUCT
P_CODE
P_QOH
P_DISCOUNT
V_CODE FK
P_PRICE
P_MIN
P_DESCRIPTION
P_INDATE
VENDOR
V_CODE
V_NAME
V_CONTACT
V_PHONE
V_ORDER
V_STATE
V_AREACODE