ITC 5104 Database Design and SQL

Lab Exercise 12 – Normalization using Dependency Diagrams

Using the Invoice structure create the dependency diagrams that would allow for the storage of data.

1. Using the INVOICE table structure shown below, do the following:

Sample INVOICE Records

Attribute Name	Sample Value	Sample Value	Sample Value	Sample Value	Sample Value
INV_NUM	211347	211347	211347	211348	211349
PROD_NUM	AA-E3422QW	QD-300932X	RU-995748G	AA-E3422QW	GH-778345P
SALE_DATE	15-Jan-2014	15-Jan-2014	15-Jan-2014	15-Jan-2014	16-Jan-2014
PROD_LABEL	Rotary sander	0.25-in. drill bit	Band saw	Rotary sander	Power drill
VEND_CODE	211	211	309	211	157
VEND_NAME	NeverFail, Inc.	NeverFail, Inc.	BeGood, Inc.	NeverFail, Inc.	ToughGo, Inc.
QUANT_SOLD	1	8	1	2	1
PROD_PRICE	$49.95	$3.45	$39.99	$49.95	$87.75

a. **Write the relational schema, draw its dependency diagram and identify all dependencies, including all partial and transitive dependencies. You can assume that the table does not contain repeating groups and that any invoice number may reference more than one product. (*Hint*: This table uses a composite primary key.)**

b. **Remove all partial dependencies, write the relational schema, and draw the new dependency diagrams. Identify the normal forms for each table structure you created.**

NOTE

You can assume that any given product is supplied by a single vendor but a vendor can supply many products. Therefore, it is proper to conclude that the following dependency exists:

PROD_NUM → PROD_DESCRIPTION, PROD_PRICE, VEND_CODE, VEND_NAME

(*Hint*: Your actions should produce three dependency diagrams.)

2. Create an ERD to show the design of your database tables. Use SQL Developer Modeller to draw the ERD for this schema you design. Take a screen capture of your model and include it in your submission.

Submit dependency diagram and ERD modelled in SQL Developer Modeller.