Data & Information Management

Assignment 4.1P

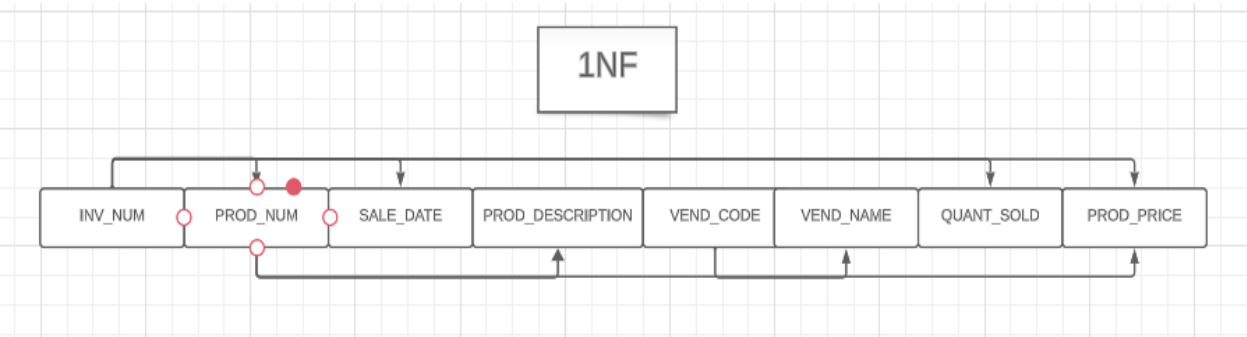
Table 1. Sample INVOICE Records

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-2004	15-Jan-2004	15-Jan-2004	15-Jan-2004	16-Jan-2004
PROD_DESCRIPTION	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

The main purpose of the normalization process in this give INVOICE table is to eliminate data redundancies, by removing multi-valued attributes, composite attributes, derived attributes, partial dependencies and transitive dependencies.

The initial step to take is to identify the dependencies,

Eliminating multi-valued or composite attributes, making INV_NUM as the primary key to uniquely identify.

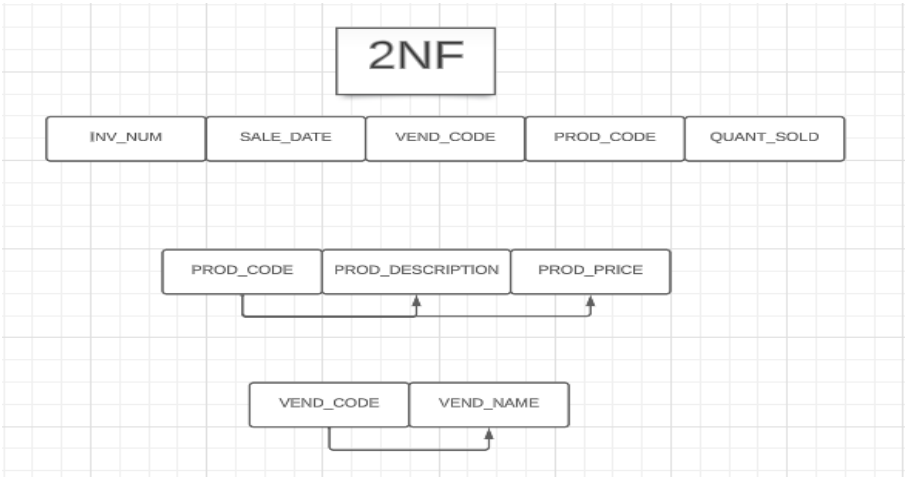


Examining the invoice table and eliminating the partial dependencies,

PROD_CODE = PROD_DESCRIPTION

VEND_CODE = VEND_NAME

We are eliminating partial dependencies by splitting the table into three as the INVOICE, PRODUCT and VENDOR to satisfy the 2nd normalization form.

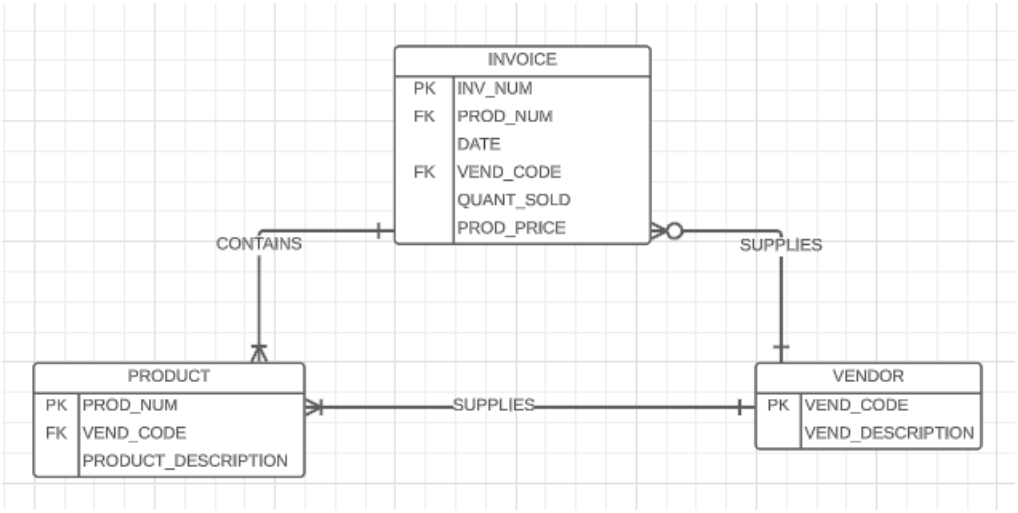


Since completed the 2NF having no more partial dependencies, we also have no transitive dependencies to eliminate so the 2NF tables already satisfy 3NF requirements.

The INVOICE, PRODUCT and VENDOR tables satisfy 1NF, 2NF and 3NF conditions,

- No multi-valued or composite attributes
- No partial dependencies
- No transitive dependencies

Having the final normalized table design by removing data redundancies and implementing it into an ERD



- INVOICE, PRODUCT and VENDOR created three entities.

Relationships and cardinalities

- **Vendor 1:M Invoice**
  - One vendor supplies zero or many invoice
  - One invoice is supplied by one vendor
- **Vendor 1:M Products**
  - One vendor supplies at least one or many products
  - One product is supplied by one vendor
- **Invoice 1:M Product**
  - One invoice contains one or many product
  - One product belongs only to one invoice