

Data & Information Management

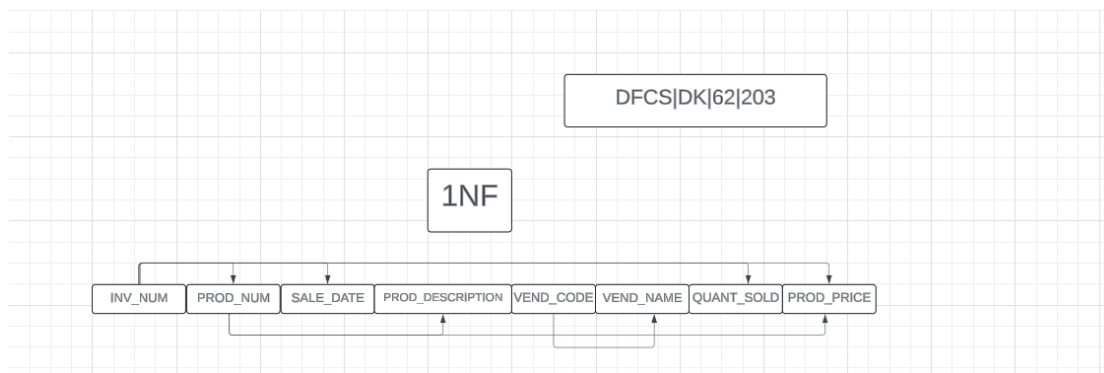
4.1P

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

By deleting multi-valued characteristics, composite attributes, derived attributes, partial dependencies, and transitive dependencies, the normalization procedure in this given INVOICE table aims to remove data redundancies.

- Finding the dependencies is the first step to take.
 - ✓ Removing composite or multi-valued properties, leaving INV_NUM as the main key for unique identification.

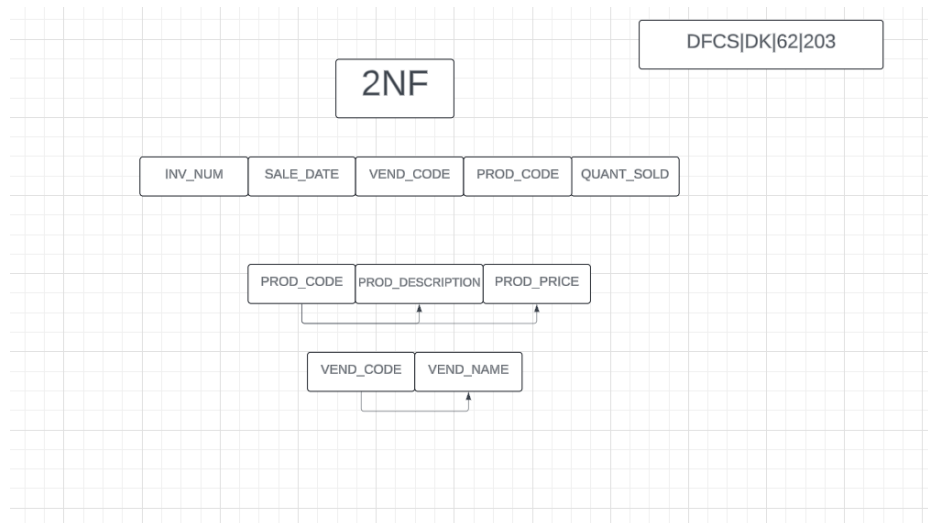


After looking over and removing the partial dependencies from the invoice table,

PROD_CODE = PROD_DESCRIPTION

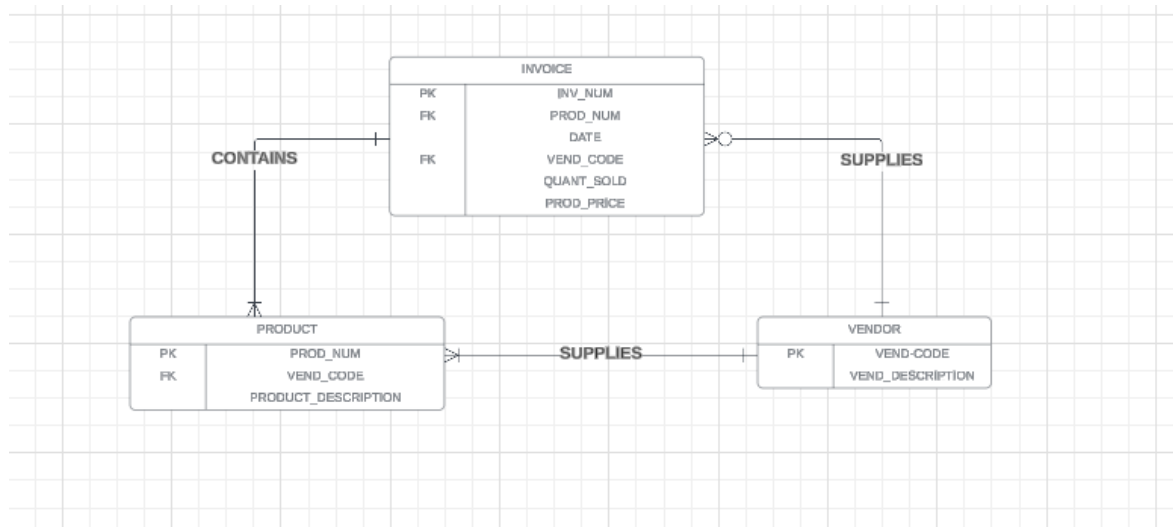
VEND_CODE = VEND_NAME

- To satisfy the second normalization from, we are removing partial dependencies by dividing the table into three sections INVOICE, PRODUCT, and VENDOR



- The 2NF tables already meet the 3NF requirements because we have finished the 2NF and have no more partial dependents. We also have no transitive dependencies to remove.
- The 1NF, 2NF, 3NF requirements are met by the INVOICE, PRODUCT, and VENDOR tables.
 - ✓ No composite or multivalued properties.
 - ✓ Absence of partial dependence.
 - ✓ Absence of transitive dependencies.

- Putting the final, normalized table design into an ERD after eliminating redundant data



- 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.