Use the INVOICE table structure provided below:

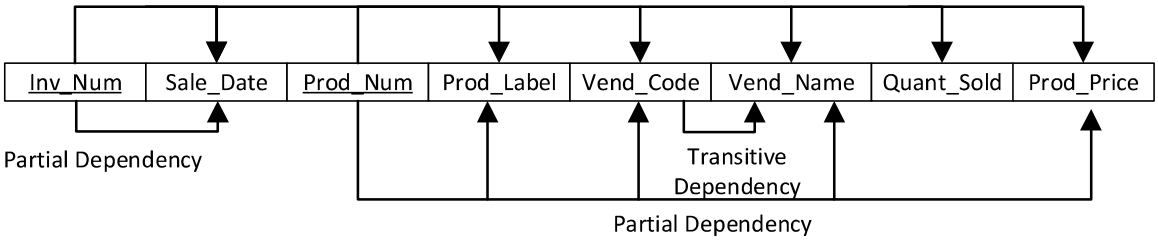
ATTRIBUTE NAME	SAMPLE VALUE	SAMPLE VALUE	SAMPLE VALUE	SAMPLE VALUE	SAMPLE VALUE
INV_NUM	211347	211347	211347	211348	211349
PROD_NUM	AA-E3422QW	QD-300932X	RU-995748G	AA-E3422QW	GH-778345P
SALE_DATE	15-Jan-2016	15-Jan-2016	15-Jan-2016	15-Jan-2016	16-Jan-2016
PROD_LABEL	Rotary sander	0.25-in. drill bit	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

1. 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 an invoice number references more than one product. (Hint: This table uses a composite primary key.) You can use the following schema as an example on how to present your response. You need to also note what type of dependency is it (i.e., partial or transitive). In your response, replace the example below with relational schema you would build in word.

   The relational schema is:

   Invoice(Inv_Num, Prod_Num, Sale_Date, Prod_Label, Vend_Code, Vend_Name, Quant_Sold, Prod_Price)

   Dependency Diagram:



   Dependencies:

   Partial-

   Inv_Num -> Sale_Date

   Prod_Num -> (Prod_Label, Vend_Code, Vend_Name, Prod_Price)

   Transitive-

Vend_Code -> Vend_Name

Functional-

Inv_Num, Prod_Num -> (Sale_Date, Prod_Label, Vend_Code, Vend_Name, Quant_Sold, Prod_Price)

2. Remove all partial dependencies, write the relational schema, and draw the new dependency diagrams. Identify the normal forms for each table structure you created. 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_LABEL, PROD_PRICE, VEND_CODE, VEND_NAME (Hint: Your actions should produce three dependency diagrams.) You can use the following relations as an example on how to provide your response. In your response, replace the example below with relational schema you would build in word.

   The relational schema is:

   (Inv_Num, Prod_Num, Quant_Sold,) - 3NF

   (Prod_Num, Prod_Label, Vend_Code, Vend_Name, Prod_Price) - 2NF

   (Inv_Num, Sale_Date) - 3NF

Dependency Diagram:

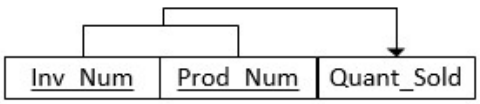


Table 1
Primary Key: Inv_Num + Prod_Num
Foreign Keys: Inv_Num (to Table 3),
Prod_Num (to Table 2)
Normal Form: 3NF

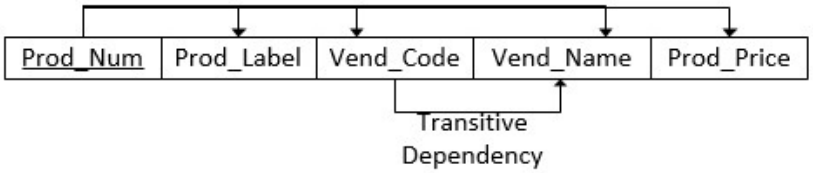


Table 2
Primary Key: Prod_Num
Foreign Keys: None
Normal Form: 2NF – Contains
Transitive Dependency

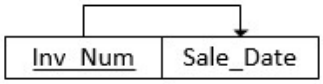


Table 3
Primary Key: Inv_Num
Foreign Keys: None
Normal Form: 3NF

Dependencies:

Transitive-

Vend_Code -> Vend_Name

3. Remove all transitive dependencies (if any), write the relational schema, and draw the new dependency diagrams. Also identify the normal forms for each table structure you created.

The relational schema is:

(Inv_Num, Prod_Num, Quant_Sold,) - 3NF

(Prod_Num, Prod_Label, Vend_Code, Prod_Price) - 3NF

(Inv_Num, Sale_Date) - 3NF

(Vend_Code, Vend_Name) - 3NF

Dependency Diagram:

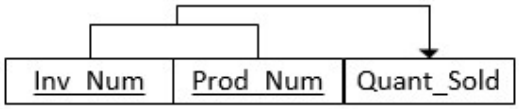


Table 1
Primary Key: Inv_Num + Prod_Num
Foreign Keys: Inv_Num (to Table 3), Prod_Num (to Table 2)
Normal Form: 3NF

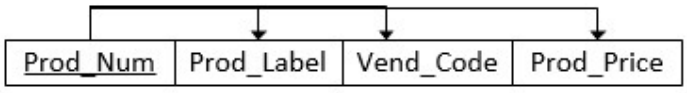


Table 2
Primary Key: Prod_Num
Foreign Keys: Vend_Code (to Table 4)
Normal Form: 3NF

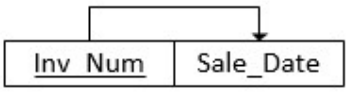


Table 3
Primary Key: Inv_Num
Foreign Keys: None
Normal Form: 3NF

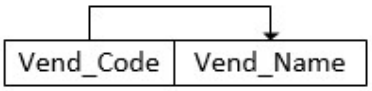


Table 4
Primary Key: Vend_Code
Foreign Keys: None
Normal Form: 3NF