



# Databases with MySQL

## Exercises

### DATA NORMALIZATION

*By Cristina Rodrigues*



1. The following image is a Health History Report from a pet hospital. Normalize the data to the 3rd Normal Form (3FN).

HEALTH HISTORY REPORT						
<u>PET ID</u>	<u>PET NAME</u>	<u>PET TYPE</u>	<u>PET AGE</u>	<u>OWNER</u>	<u>VISIT DATE</u>	<u>PROCEDURE</u>
246	ROVER	DOG	12	SAM COOK	JAN 13/2002 MAR 27/2002 APR 02/2002	01 - RABIES VACCINATION 10 - EXAMINE and TREAT WOUND 05 - HEART WORM TEST
298	SPOT	DOG	2	TERRY KIM	JAN 21/2002 MAR 10/2002	08 - TETANUS VACCINATION 05 - HEART WORM TEST
341	MORRIS	CAT	4	SAM COOK	JAN 23/2001 JAN 13/2002	01 - RABIES VACCINATION 01 - RABIES VACCINATION
519	TWEEDY	BIRD	2	TERRY KIM	APR 30/2002 APR 30/2002	20 - ANNUAL CHECK UP 12 - EYE WASH

**UNF :**

**1NF :**

**2NF :**

**3NF :**



2. The following image is an Invoice from a pet hospital. Normalize the data to the 3rd Normal Form (3FN).

<u>INVOICE</u>		
HILLTOP ANIMAL HOSPITAL INVOICE # 987		DATE: JAN 13/2002
MR. RICHARD COOK 123 THIS STREET MY CITY, ONTARIO Z5Z 6G6		
<u>PET</u>	<u>PROCEDURE</u>	<u>AMOUNT</u>
ROVER	RABIES VACCINATION	30.00
MORRIS	RABIES VACCINATION	24.00
	TOTAL	54.00
	TAX (8%)	<u>4.32</u>
	AMOUNT OWING	<u>58.32</u>

**UNF :**

**1NF :**

**2NF :**

**3NF :**



3. The following images are users views of an art gallery. Normalize the data in the users view to the 3rd Normal Form (3FN).

The Gill Art Gallery wishes to maintain data on their customers, artists and paintings. They may have several paintings by each artist in the gallery at one time. Paintings may be bought and sold several times. In other words, the gallery may sell a painting, then buy it back at a later date and sell it to another customer.

Gallery Customer History Form			
<b>Customer</b>			
Jackson, Maria	Phone	(206) 284-6783	
123 – 4 <sup>th</sup> Avenue			
Lisbon, RB			
12345			
<b>Purchases Made</b>			
Artist	Title	Purchase Date	Sales Price
03 - Carol Channing	Laugh with Teeth	09/17/2000	7000.00
15 - Dennis Frings	South toward Emerald Sea	05/11/2000	1800.00
03 - Carol Channing	At the Movies	02/14/2002	5550.00
15 - Dennis Frings	South toward Emerald Sea	07/15/2003	2200.00

**UNF :**

**1NF :**

**2NF :**

**3NF :**



4. The following images are users views of a Manufacturing Company. Normalize the data in the users view to the 3rd Normal Form (3FN).

**SAMPLE REPORTS AND SCREENS**

XYZ MANUFACTURING ORDER FORM		DATE: AUG 30, 2022					
ORDER NUMBER: 9932		SHIPPING ADDRESS: 456 HUDSON STREET					
MR. X. Y. SMITH		NEW YORK, NEW YORK					
123 NARVON STREET		30000					
NEW YORK, NEW YORK							
30011							
PHONE: (416) 879-0045 (416) 786-3241		CUSTOMER DISCOUNT: 3%					
<u>ITEM #</u>	<u>PRODUCT CODE</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>BACKORDERED</u>	<u>FILLED</u>	<u>PRICE/UNIT</u>	<u>TOTAL</u>
		<u>AMOUNT</u>					
1	FR223	HALF SIZE REFRIGERATOR	2	0	2	750.99	1501.98
2	TB101	PATIO TABLE	5	2	3	150.00	450.00
3	CH089	PATIO CHAIRS	20	0	20	35.00	700.00
						TOTAL	2651.98
						DISCOUNT AMT	<u>79.56</u>
						AMOUNT OWING	<u>2572.42</u>

PRODUCTS INVENTORY AS AT: AUG 30, 2022				
<u>PRODUCT CODE</u>	<u>DESCRIPTION</u>	<u>QTY ON HAND</u>	<u>QTY BACKORDERED</u>	<u>PRICE</u>
CH089	PATIO CHAIRS	140	0	35.00
FR223	HF SIZE REFRIGERATOR	10	0	750.99
TB101	PATIO TABLE	0	2	35.00
	.			
	.			
	.			



XYZ MANUFACTURING				
PRODUCT MANUFACTURING REPORT				
<u>PRODUCT CODE</u>	<u>DESCRIPTION</u>	<u>PART NUMB.</u>	<u>PART DESCRIPTION</u>	<u>QTY REQUIRED</u>
CH089	PATIO CHAIRS	WOOD223	1 X 2 - 30" WOOD	8
		SCRW110	1.25" SCREWS	26
		.		
TB101	PATIO TABLE	WOOD995	2 X 4 - 48" WOOD	12
		SCRW110	1.25" SCREWS	34
		.		

View 1 - Product Order

**UNF:**

**1NF:**

**2NF:**

**3NF:**



## View 2 - Product Inventory List

UNF:

UNF:

1NF:

2NF:

3NF:

## View 3 - Product Manufacturing Report

UNF:

1NF:

2NF:



**3NF:**

Final version of database (all tables of all the users views)



5. The following images are users views of a Grocery Store. Normalize the data in the users view to the 3rd Normal Form (3FN).

**Good News Grocers**

**User View - Price Update List**

Department	Product Code	Aisle Number	Price	Unit of Measure
Produce	4081	1	0.35	lb
Produce	4027	1	0.90	ea
Produce	4108	1	1.99	lb
Butcher	331100	5	1.50	lb
Butcher	331105	5	2.40	lb
Butcher	332110	5	5.00	lb
Freezer	411100	6	1.00	ea
Freezer	521101	6	1.00	ea
Freezer	866503	6	5.00	ea
Freezer	866504	6	5.00	ea

This report is used by the department managers to update the prices that are displayed in the grocery store for these products.

**UNF :**

**1NF :**

**2NF :**

**3NF :**