1) HEALTH HISTORY REPORT

PETID	PET NAME	PET TYPE	PET AGE	OWNER	VISIT DATE	PROCEDURE
345	ROVER	DOG	12	Sam Cook	Jan 13/2016, March 27/2016, April 12/2017	**01** - RABIES VACCINATION, **10** - EXAMINE and TREAT WOUND, **05** - HEART WORM TES
764	SPOT	DOG	2	TERRY KIMJAN	April 21/2016, MAR 10/2017	**08** - TETANUS VACCINATION **05** - HEART WORM TEST
521	MORRIS	CAT	4	SAM COOK	Jan 23/2016, Jan 13/2017	**01** - RABIES VACCINATION, **01** - RABIES VACCINATION
814	TWEEDY	BIRD	2	TERRY KIM	April 30/2016, April 30/2016	**20** - ANNUAL CHECK UP **12** - EYE WASH

UNF:
Pet [pet_id, pet_name, pet_type, pet_age, owner, (visitdate, procedure_no, procedure_name)]

1NF:
  Pet [pet_id, pet_name, pet_type, pet_age, owner]
  Pet_Visit [pet_id, visitdate, procedure_no, procedure_name]

note: a procedure may occur on multiple dates, therefore visitdate is included as part of the key

2NF:
  Pet [pet_id, pet_name, pet_type, pet_age, owner]
  Pet_Visit [pet_id, visitdate, procedure_no]
  Procedure [procedure_no, procedure_name]

3NF:
  same as 2NF

2) INVOICE

HILLTOP ANIMAL HOSPITAL   DATE: JAN 13/2017
INVOICE # 123

MR. RICHARD COOK
321 THIS STREET
MY CITY, TX
76019

PET	PROCEDURE	AMOUNT
ROVER	RABIES VACCINATION	30.00
MORRIS	RABIES VACCINATION	24.00
	TOTAL	54.00
	TAX (8%)	4.32
	AMOUNT OWING	58.32

UNF:

  invoice [invoice_no, invoice_date, cust_name, cust_addr, (pet_name, procedure, amount)]

1NF:

  invoice [invoice_no, invoice_date, cust_name, cust_addr]
  invoice_pet [invoice_no, pet_id, pet_name,   procedure, amount]

  note: pet_id is selected as a key because pet_name is a character string and not a good key candidate.

2NF:
  invoice [invoice_no, invoice_date, cust_name, cust_addr]
  invoice_pet [invoice_no, pet_id, procedure, amount]
  pet [pet_id, pet_name]

3NF:
  invoice [invoice_no, invoice_date, cust_no (FK)]
  invoice_pet [invoice_no (FK), pet_id (FK), procedure, amount]
  pet [pet_id, pet_name]
  customer [cust_no, cust_name, cust_street, cust_city, cust_pstlcd]

  note: cust_no is selected as a key because cust_name is a character string and not a good key candidate. The customer address was broken apart in 3NF. All foreign keys are identified.

3) Gallery Customer History Form

Customer Name

Jackson, Elizabeth   Phone (682) 284-xxx
123 – 4th Avenue
Arlington, TX
76019

Purchases Made

Artist	Title	Purchase Date	Sales Price
03 - Carol Channing	Laugh with Teeth	02/17/2015	7000.00
15 - Dennis Frings	South toward Emerald Sea	05/11/2016	1800.00
03 - Carol Channing	At the Movies	02/14/2016	5550.00
15 - Dennis Frings	South toward Emerald Sea	07/15/2017	2200.00

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.

UNF:
 customer [custno, cust_name, cust_addr, cust_phone, (artist_id, artist_name, art_title, pur_date, price)]

1NF:
customer [custno, cust_name, cust_addr, cust_phone]
cust_art [custno, art_code, pur_date, artist_id, artist_name, art_title, price]

note: the key chosen for the repeating group is the piece of art itself (a code was assigned), however because a piece of art may be bought by a customer more than once, the purchase date was added as part of the key to make the rows unique.

2NF:
customer [custno, cust_name, cust_addr, cust_phone]
cust_art [custno, art_code, pur_date, price]
art [art_code, art_title, artist_id, artist_name]

3NF:

customer [custno, cust_name, cust_street, cust_city, cust_prov, cust_pstlcd, cust_phone]
cust_art [custno, art_code, pur_date, price]
art [art_code, art_title, artist_id(FK)]
artist [artist_id, artist_fname, artist_lname]