Normalization Exercise 2

INVOICE

HILLTOP ANIMAL HOSPITAL DATE: JAN 13/2002
INVOICE # 987

MR. RICHARD COOK
123 THIS STREET
MY CITY, ONTARIO
Z5Z 6G6

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 was chose 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 was chose 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.