YOUSSEF NEHAD MOHAMED RIYAD SHASH
STUDENT ID: 29801362

Animal Doctors Pet Ownership Details

UNF

OWNER (owner_id, owner_givname, owner_famname, owner_addstreet, owner_addtown, owner_addpostcode, prfvet_id, prfvet_name, (pet_id, pet_gender, pet_name, pet_type, pet_birthdate, pet_decreased))

1NF

OWNER (owner_id, owner_givname, owner_famname, owner_addstreet, owner_addtown, owner_addpostcode, prfvet_id, prfvet_name)

Owner_id is candidate key and hence it is the primary key

OWNER_PET (owner_id, pet_id, pet_gender, pet_name, pet_type, pet_birthdate, pet_decreased)

pet_id is unique for each pet, so it is the only primary key but this new relation brings the owner_id (OWNER PK) as a part of repeating group removal and it is not part of the primary key

Partial dependencies:
No partial dependencies since no composite PK

2NF

OWNER (owner_id, owner_givname, owner_famname, owner_addstreet, owner_addtown, owner_addpostcode, prfvet_id, prfvet_name)

OWNER_PET (owner_id, pet_id, pet_gender, pet_name, pet_type, pet_birthdate, pet_decreased)

Transitive dependencies:
prfvet_id -> prfvet_name

3NF

OWNER (owner_id, owner_givname, owner_famname, owner_addstreet, owner_addtown, owner_addpostcode, prfvet_id)

OWNER_PET (owner_id, pet_id, pet_gender, pet_name, pet_type, pet_birthdate, pet_decreased)

OWNER_PRF_VET (prfvet_id, prfvet_name)

Full dependencies:
owner_id → owner_givname, owner_famname, owner_addstreet, owner_addtown, owner_addpostcode, prfvet_id

pet_id → owner_id, pet_gender, pet_name, pet_type, pet_birthdate, pet_decreased

prfvet_id → prfvet_name

Invoice for Professional Services

UNF

INVOICE (patient_id, patient_name, vet_id, vet_name, service_datetime, total_amount, pay_type (service_code, service_desc, service_cost), (drug_id, drug_name, qty_supplied, drug_cost))

1NF

INVOICE (<u>patient_id</u>, patient_name, vet_id, vet_name, <u>service_datetime</u>, total_amount, pay_type)
**patient_id and service_datetime are candidate keys
**vet_id and service_datetime are candidate keys
**patient_id and service_datetime are chosen to be primary keys

SERVICE (<u>patient_id</u>, <u>service_datetime</u>, <u>service_code</u>, service_desc, service_cost)
** <u>patient_id</u>, <u>service_datetime</u>, <u>service_code</u> are primary key

DRUG (<u>patient_id</u>, <u>service_datetime</u>, <u>drug_id</u>, drug_name, qty_supplied, drug_cost)
** <u>patient_id</u>, <u>service_datetime</u>, <u>service_code</u> are primary key

Partial dependencies:
patient_id -> patient_name
vet_id -> vet_name
service_code -> service_desc
drug_id -> drug_name

2NF

INVOICE (<u>patient_id</u>, vet_id, <u>service_datetime</u>, total_amount, pay_type)
PATIENT (<u>patient_id</u>, patient_name)
VET (<u>vet_id</u>, vet_name)
SERVICE (<u>patient_id</u>, <u>service_datetime</u>, <u>service_code</u>, service_cost)
DRUG (<u>patient_id</u>, <u>service_datetime</u>, <u>drug_id</u>, qty_supplied, drug_cost)
SERVICE_DETAILS (<u>service_code</u>, service_desc)
DRUG_DETAILS (<u>drug_id,</u> drug_name)

Transitive dependencies:
No transitive dependencies

3NF

INVOICE (patient_id, vet_id, service_datetime, total_amount, pay_type)
PATIENT (patient_id, patient_name)
VET (vet_id, vet_name)
SERVICE (patient_id, service_datetime, service_code, service_cost)
DRUG (patient_id, service_datetime, drug_id, qty_supplied, drug_cost)
SERVICE_DETAILS (service_code, service_desc)
DRUG_DETAILS (drug_id, drug_name)

Full dependencies:
patient_id, service_datetime -> vet_id, total_amount, pay_type
patient_id -> patient_name
vet_id -> vet_name
patient_id, service_datetime, service_code -> service_cost
patient_id, service_datetime, drug_id -> qty_supplied, drug_cost
service_code -> service_desc
drug_id -> drug_name