

Assignment 1B Normalisation

Training course attendance details:ⁱ

UNF:

TRAINING(training_id, training_title, training_duration, training_datetime, clinic_id, clinic_name, provider_vet_id, provider_vet_gname, provider_vet_fname, (vet_id, home_clinic_id, vet_gname, vet_fname, cert_completed, cert_training_expiry))

1NF:

TRAINING(training_id, training_title, training_duration, training_datetime, clinic_id, clinic_name, provider_vet_id, provider_vet_gname, provider_vet_fname)

CKs:

- training_id
- training_datetime, training_title
- training_datetime, provider_vet_id

CERTIFICATE(training_id, vet_id, home_clinic_id, vet_gname, vet_fname, cert_completed, cert_training_expiry)

CKs:

- training_id, vet_id

Partial dependencies:

vet_id -> home_clinic_id, vet_gname, vet_fname

2NF:

TRAINING(training_id, training_title, training_duration, training_datetime, clinic_id, clinic_name, provider_vet_id, provider_vet_gname, provider_vet_fname)

CERTIFICATE(training_id, vet_id, cert_completed, cert_training_expiry)

VET(vet_id, home_clinic_id, vet_gname, vet_fname)

Transitive dependencies:

clinic_id -> clinic_name

provider_vet_id -> provider_vet_gname, provider_vet_fname

3NF:

TRAINING(training_id, training_title, training_duration, training_datetime, clinic_id, provider_vet_id)

CLINIC(clinic_id, clinic_name)

CERTIFICATE(training_id, vet_id, cert_completed, cert_training_expiry)

PROVIDER_VET(provider_vet_id, provider_vet_gname, provider_vet_fname)

VET(vet_id, home_clinic_id, vet_gname, vet_fname)

Full dependencies:

training_id -> training_title, training_duration, training_datetime, clinic_id, provider_vet_id

clinic_id -> clinic_name

training_id, vet_id -> cert_completed, cert_training_expiry

provider_vet_id -> provider_vet_gname, provider_vet_fname

vet_id -> home_clinic_id, vet_gname, vet_fname

Clinic visit invoice:

UNF:

VISIT(animal_id, animal_name, vet_id, vet_gname, vet_fname, owner_id, owner_gname, owner_fname, visit_datetime, (service_code, service_desc, serviceline_cost), (drug_id, drug_name, prescription_qtysupplied, prescription_linecost), visit_amount, visit_paytype)

1NF:

VISIT(animal_id, animal_name, vet_id, vet_gname, vet_fname, owner_id, owner_gname, owner_fname, visit_datetime, visit_amount, visit_paytype)

CKs:

- animal_id, visit_datetime
- vet_id, visit_datetime
- owner_id, visit_datetime

SERVICELINE(animal_id, visit_datetime, service_code, service_desc, serviceline_cost)

CKs:

- animal_id, visit_datetime, service_code

DRUG(animal_id, visit_datetime, drug_id, drug_name, prescription_qtysupplied, prescription_linecost)

CKs:

- animal_id, visit_datetime, drug_id

Partial dependencies:

animal_id -> animal_name

service_code -> service_desc

drug_id -> drug_name

2NF:

VISIT(animal_id, vet_id, vet_gname, vet_fname, owner_id, owner_gname, owner_fname, visit_datetime, visit_amount, visit_paytype)

ANIMAL(animal_id, animal_name)

SERVICELINE(animal_id, visit_datetime, service_code, serviceline_cost)

SERVICE(service_code, service_desc)

PRESCRIPTION(animal_id, visit_datetime, drug_id, prescription_qtysupplied, prescription_linecost)

DRUG(drug_id, drug_name)

Transitive dependencies:

Vet_id -> vet_gname, vet_fname

Owner_id -> owner_gname, owner_fname

3NF:

VISIT(animal_id, vet_id, owner_id, visit_datetime, visit_amount, visit_paytype)

VET(vet_id, vet_gname, vet_fname)

OWNER(owner_id, owner_gname, owner_fname)

ANIMAL(animal_id, animal_name)

SERVICELINE(animal_id, visit_datetime, service_code, serviceline_cost)

SERVICE(service_code, service_desc)

PRESCRIPTION(animal_id, visit_datetime, drug_id, prescription_qtysupplied, prescription_linecost)

DRUG(drug_id, drug_name)

Full dependencies:

animal_id -> vet_id, owner_id, visit_datetime, visit_amount, visit_paytype)

vet_id -> vet_gname, vet_fname

owner_id -> owner_gname, owner_fname

animal_id -> animal_name

animal_id, visit_datetime, service_code -> serviceline_cost

service_code -> service_desc

animal_id, visit_datetime, drug_id -> prescription_qtysupplied, prescription_linecost

drug_id -> drug_name

Attribute synthesis:

Collected 3NF relations:

1. TRAINING(training_id, training_title, training_duration, training_datetime, clinic_id, provider_vet_id)
2. CLINIC(clinic_id, clinic_name)
3. CERTIFICATE(training_id, vet_id, cert_completed, cert_training_expiry)
4. PROVIDER_VET(provider_vet_id, provider_vet_gname, provider_vet_fname)
5. VET(vet_id, home_clinic_id, vet_gname, vet_fname)
6. VISIT(animal_id, vet_id, owner_id, visit_datetime, visit_amount, visit_paytype)

7. VET(vet_id, vet_gname, vet_fname)
8. OWNER(owner_id, owner_gname, owner_fname)
9. ANIMAL(animal_id, animal_name)
10. SERVICELINE(animal_id, visit_datetime, service_code, serviceline_cost)
11. SERVICE(service_code, service_desc)
12. PRESCRIPTION(animal_id, visit_datetime, drug_id, prescription_qtysupplied, prescription_linecost)
13. DRUG(drug_id, drug_name)

Attribute synthesis:

Combine PROVIDER_VET (4), VET (5) and VET(7) into VET, as they represent the same entity.

Final 3NF relations:

TRAINING(training_id, training_title, training_duration, training_datetime, clinic_id, provider_vet_id)

CLINIC(clinic_id, clinic_name)

CERTIFICATE(training_id, vet_id, cert_completed, cert_training_expiry)

VET(vet_id, home_clinic_id, vet_gname, vet_fname)

VISIT(animal_id, vet_id, owner_id, visit_datetime, visit_amount, visit_paytype)

OWNER(owner_id, owner_gname, owner_fname)

ANIMAL(animal_id, animal_name)

SERVICELINE(animal_id, visit_datetime, service_code, serviceline_cost)

SERVICE(service_code, service_desc)

PRESCRIPTION(animal_id, visit_datetime, drug_id, prescription_qtysupplied, prescription_linecost)

DRUG(drug_id, drug_name)