

Databases Assignment 1B

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Normalisation

1.1 Pet Ownership Details

UNF

OWNERSHIP(owner_id, owner_gname, owner_fname, owner_street, owner_town, owner_postcode, vet_id, vet_name, (pet_id, pet_gender, pet_name, pet_type, pet_dob, pet_deceased))

1NF

OWNERSHIP(owner_id, owner_gname, owner_fname, owner_street, owner_town, owner_postcode, vet_id, vet_name)

PET(pet_id, owner_id, pet_gender, pet_name, pet_type, pet_dob, pet_deceased)

No partial dependencies present

2NF

OWNERSHIP(owner_id, owner_gname, owner_fname, owner_street, owner_town, owner_postcode, vet_id, vet_name)

PET(pet_id, owner_id, pet_gender, pet_name, pet_type, pet_dob, pet_deceased)

Transitive Dependencies

vet_id → vet_name

3NF

OWNERSHIP(owner_id, owner_gname, owner_fname, owner_street, owner_town, owner_postcode, vet_id)

PET(pet_id, owner_id, pet_gender, pet_name, pet_type, pet_dob, pet_deceased)

VET(vet_id, vet_name)

Full Dependencies

owner_id → owner_gname, owner_fname, owner_street, owner_town, owner_postcode, vet_id

pet_id → owner_id, pet_gender, pet_name, pet_type, pet_dob, pet_deceased

vet_id → vet_name

1.2 Visit Invoice

UNF

APPOINTMENT(app_datetime, vet_id, pet_id, pet_name, app_paymethod, app_totalamount, vet_name, (service_code, service_description, service_cost), (drug_id, drug_name, drug_qty, drug_cost))

1NF

APPOINTMENT(app_datetime, vet_id, pet_id, pet_name, app_paymethod, app_totalamount, vet_name)

PROCEDURE(app_datetime, vet_id, service_code, service_description, service_cost)

PRESCRIPTION (app_datetime, vet_id, drug_id, drug_name, drug_qty, drug_cost)

Partial Dependencies

vet_id → vet_name

service_code → service_description, service_cost

drug_id → drug_name, drug_cost

2NF

APPOINTMENT(app_datetime, vet_id, pet_id, pet_name, app_paymethod, app_totalamount)

PROCEDURE(app_datetime, vet_id, service_code)

SERVICE(service_code, service_description, service_cost)

PRESCRIPTION(drug_id, app_datetime, vet_id, drug_qty)

DRUG(drug_id, drug_name, drug_cost)

VET(vet_id, vet_name)

Transitive Dependencies

pet_id → pet_name

3NF

APPOINTMENT(app_datetime, vet_id, pet_id, app_paymethod, app_totalamount)

PROCEDURE(app_datetime, vet_id, service_code)

SERVICE(service_code, service_description, service_cost)

PRESCRIPTION(drug_id, app_datetime, vet_id, drug_qty)

DRUG(drug_id, drug_name, drug_cost)

VET(vet_id, vet_name)

PET(pet_id, pet_name)

Full Dependencies

app_datetime, vet_id → pet_id, app_paymentmethod, app_totalamount

service_code → service_description, service_cost

drug_id, app_datetime, vet_id → drug_qty

vet_id → vet_name

pet_id → pet_name

Collected 3NF Relations

1. APPOINTMENT(app_datetime, vet_id, pet_id, app_paymethod, app_totalamount)
2. PROCEDURE(app_datetime, vet_id, service_code)
3. SERVICE(service_code, service_description, service_cost)
4. PRESCRIPTION(drug_id, app_datetime, vet_id, drug_qty)
5. DRUG(drug_id, drug_name, drug_cost)
6. VET(vet_id, vet_name)
7. PET(pet_id, pet_name)
8. OWNERSHIP(owner_id, owner_gname, owner_fname, owner_street, owner_town, owner_postcode, vet_id)
9. PET(pet_id, owner_id, pet_gender, pet_name, pet_type, pet_dob, pet_deceased)
10. VET(vet_id, vet_name)

Attribute Synthesis

1.
APPOINTMENT(app_datetime, vet_id, pet_id, app_paymethod, app_totalamount)
2.
PROCEDURE(app_datetime, vet_id, service_code)
3.
SERVICE(service_code, service_description, service_cost)
4.
PRESCRIPTION(drug_id, app_datetime, vet_id, drug_qty)
5.
DRUG(drug_id, drug_name, drug_cost)
- 6 & 10.
VET(vet_id, vet_name)
- 7 & 9.
PET(pet_id, owner_id, pet_gender, pet_name, pet_type, pet_dob, pet_deceased)
8.
OWNERSHIP(owner_id, owner_gname, owner_fname, owner_street, owner_town, owner_postcode, vet_id)