Formative Activity

The aim of this activity is to allow you to gain some experience normalising a set of tables.

Given the following set of tables, for our property lettings example, you should develop a table structure that conforms to third normal form (3NF). This will be discussed in next week's seminar. Post your structure to the discussion below and compare your own approach with your peers. Use the guidelines provided for peer review on the department website.

Existing Table Structures

Properties Table

Street	Postcode	Type	Bedrooms	Owner name	Owner address	Owner telephone	Price	Client name	Client Date of Birth	Client telephone	Rental start date	Duration	Pets allowed	Deposit amount	Deposit paid

Maintenance Table

Street	Postcode	Owner name	Owner telephone	Tenant name	Tenant telephone	Issue	Contractor name	Contractor telephone	Estimated cost	Resolved

FIRST NORMAL FORM
1NF exists if these two criteria are met: (openclassrooms, 2020)
- A primary key has been defined to uniquely identify records.
- There are no repeating groups in the relation.

We create primary keys for both tables **property id** and **job id** and eliminate repeated columns

Property id	Street	Postcode	Type	Bedrooms	Owner name	Owner address	Owner telephone	Price	Client name	Client Date of Birth	Client telephone	Rental start date	Duration	Pets allowed	Deposit amount	Deposit paid

Job id	Property id	Tenant name	Tenant telephone	Issue	Contractor name	Contractor telephone	Estimated cost	Resolved

SECOND NORMAL FORM
2NF exists if these two criteria are met: (openclassrooms, 2020)
- The relation is in 1NF.
- Partial dependencies are removed

To eliminate partial dependencies in the properties table, we'll have to remove those columns that are partially dependent on the property id and create other tables with their own primary keys. We also do the same for maintenance table

Property Table

Property id	Street	Postcode	Type	Bedrooms	Price	Pets allowed	Deposit amount

Owner Table

Owner id	Property id	Owner name	Owner address	Owner telephone

Client Table

Client id	Property id	Client name	Client Date of Birth	Client telephone	Rental start date	Duration	Deposit Paid

Maintenance Table

Job Id	Property id	Contractor name	Contractor telephone	Issue	Estimated cost	Resolved

THIRD NORMAL FORM
3NF exists if these two criteria are met: (openclassrooms, 2020)
- The relation is in 2NF.
- transitive dependencies are removed

Maintenance table can be further divided as contractor telephone is dependent on the contractor name field, which is a non-key field in this table.

Maintenance Table

Job Id	Property id	Contractor name	Issue	Estimated cost	Resolved

Contractor Table – contractor name can also serve as primary key in this case but decided to stick to the pattern of creating ids as Primary keys

Contractor id	Contractor name	Contractor telephone

Property Table can also be further divided to remove transitive dependencies. Bedrooms and Price is dependent on the type field, which is a non-key field in this table.

Property Table – with a foreign key type id

Property id	Type id	Street	Postcode	Pets allowed	Deposit amount

Property Type Table – also created type id for this table as primary key

Type id	Type	Bedrooms	Price

Owner Table

Owner id	Owner name	Owner address	Owner telephone

Client Table

Client id	Property id	Client name	Client Date of Birth	Client telephone	Rental start date	Duration	Deposit Paid

References

Open classrooms (2020) Normalize to the First, Second, and Third Normal Forms.

Available from: https://openclassrooms.com/en/courses/5671741-design-the-logical-model-of-your-relational-database/6260611-normalize-to-the-first-second-and-third-normal-forms