**CSY1026 Topic 9 Activity| Normalisation**

# Activity Objectives

The Aim of this topic activity is to:

1. Apply the steps for normatilsation to identify an ERM

# Topic Activity

Read through the information below and complete the topic requirements.

# Pets Scenario 1

An owner can own many pets e.g. dog, cat, rat, mouse and horse

Each pet has a name and an age

Each animal can only have one owner

The owner has an id, name, address and telephone number

# Pets Scenario 2

An owner can own many pets e.g. dog, cat, rat, mouse and horse

Each pet has an identity chip, name and an age

Some animal such as horses belong to two or more owners

The owners have an id, name, address and telephone number

# Topic Requirements

* Normalise the pet scenario 1 data
* Draw an ER diagram
* Include Cardinality and Optimality
* Normalise the pet scenario 2 data
* Draw an ER diagram
* Include Cardinality and Optimality

**Steps for Normalisation**

**Unnormalised Form – remember the oath**

* List data items
* Put non-repeating data at the top
* Put repeating data at the bottom
* Use ⚫ to determine repeats
* Use ⚫⚫ to determine repeats in repeats
* Identify primary key for the whole form

**First Normal Form -** No Repeating Data

* List non repeating data
* Separate repeating and non repeating data items
* Bring down primary key from non-repeating data
* Make compound key
* Identify foreign key

**Second Normal Form -** Attributes must depend on the key, The whole key

* Look at relations with more than one item in the primary key
* Copy compound key across first
* Check that all non-key items depend on all of the key

*ie Customer name may only be dependent on Customer ID*

* If attributes dependent on part of the key:
* Copy down the part of the key that has sole dependants

*eg customer id*

* Leave a copy in the original relation and mark as a foreign key
* Pull out attributes that only depend on that part of the key

*eg customer name*

* Repeat as necessary

**Third Normal Form -** And nothing but the key

* Look at all relations with more than one non key item
* Ensure there are no mutually dependent non-key items
* ie do attributes not part of the key dependent on other attributes
* If attributes dependent on a non key attribute:
* Copy down the attribute that others depend on
* Leave a copy in the original relation and mark as a foreign key
* Pull out attributes that are dependent on that attribute
* Repeat as necessary

So help me Codd