FIT3171 Databases

Week 3 Tutorial Suggested Solution

CONCEPTUAL MODELLING

FIT Database Teaching Team

FIT3171 2022 S1

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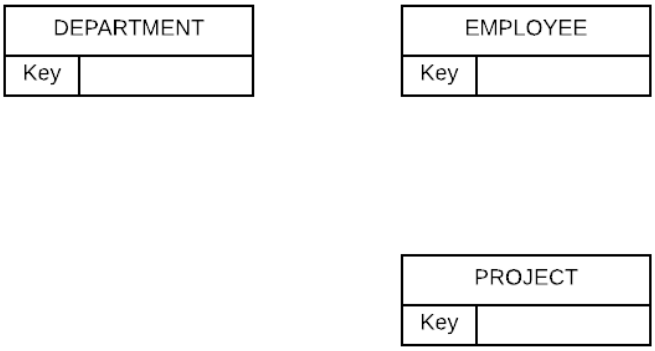
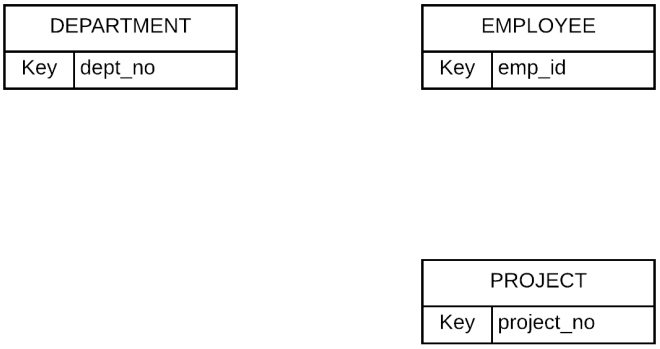
3.1. Conceptual Design - Class Discussion

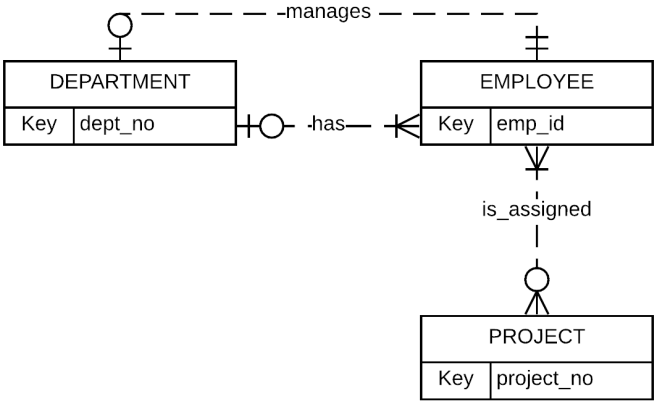
Step 1: identify entities



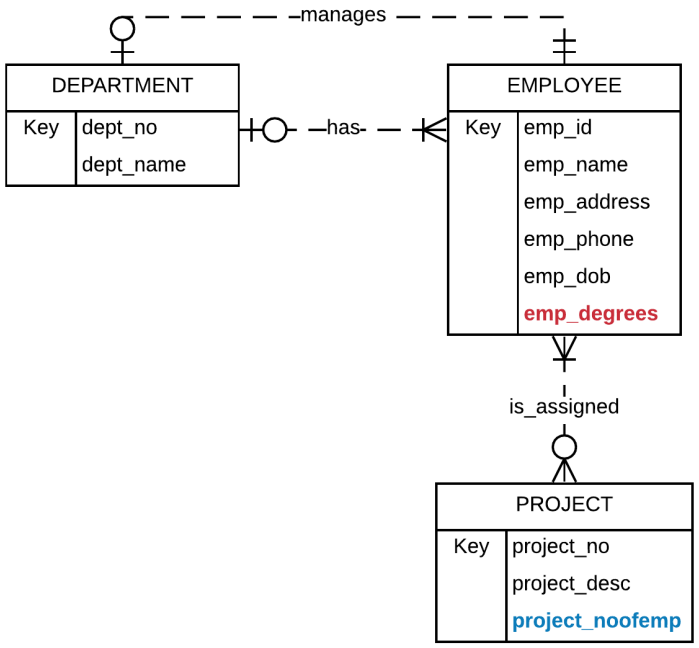
Step 2: identify key attribute for each entity



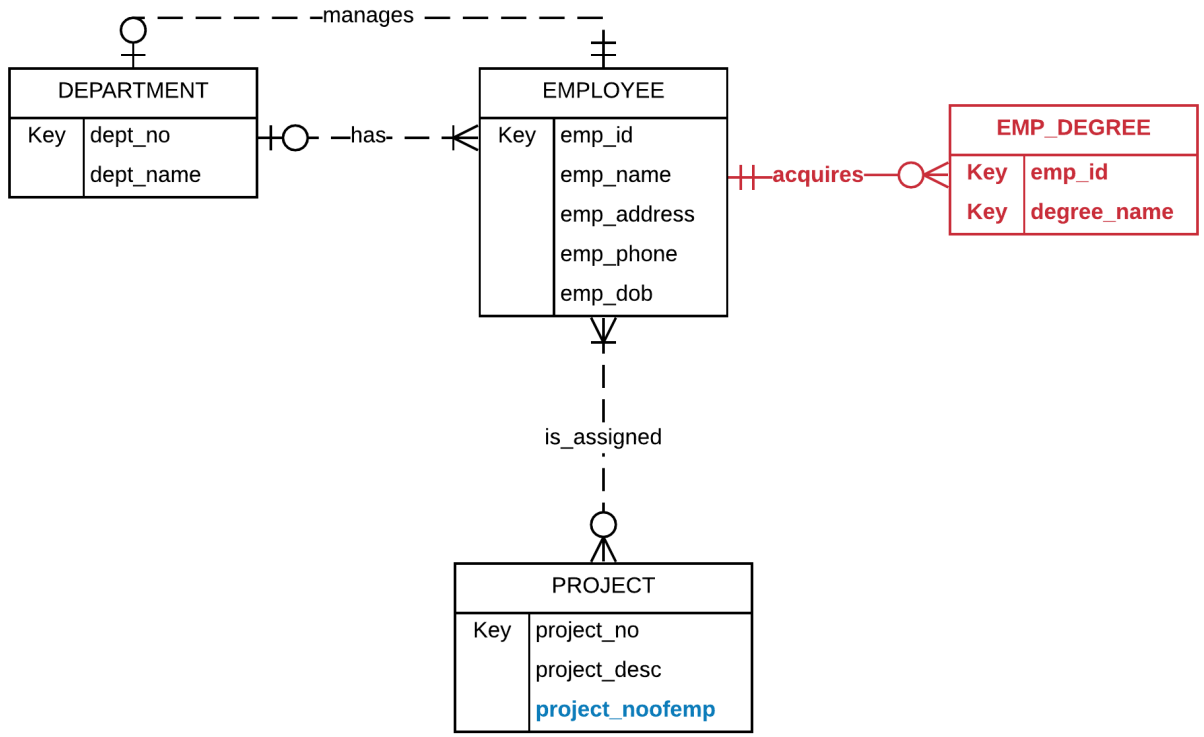
Step 3: draw the relationships



Step 4: add non-key attributes
project_noofemp → derived attribute
emp_degrees → multivalued attribute



Step 5: remove multivalued attribute and create a new entity

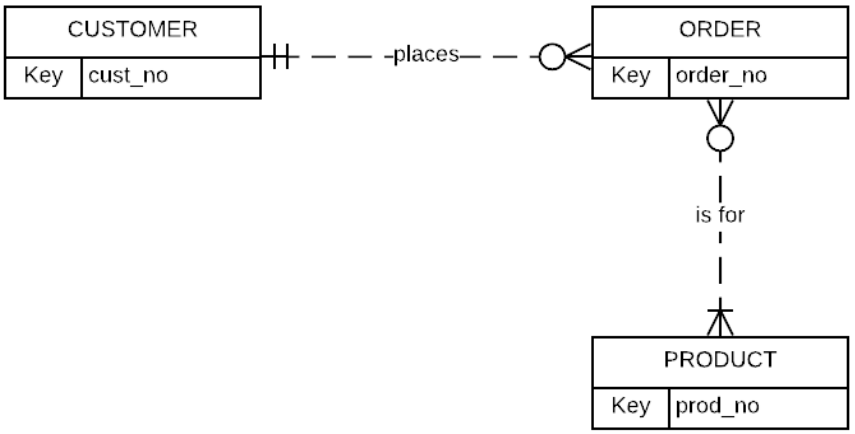


3.2. Using Tools to draw an Entity Relationship Diagram

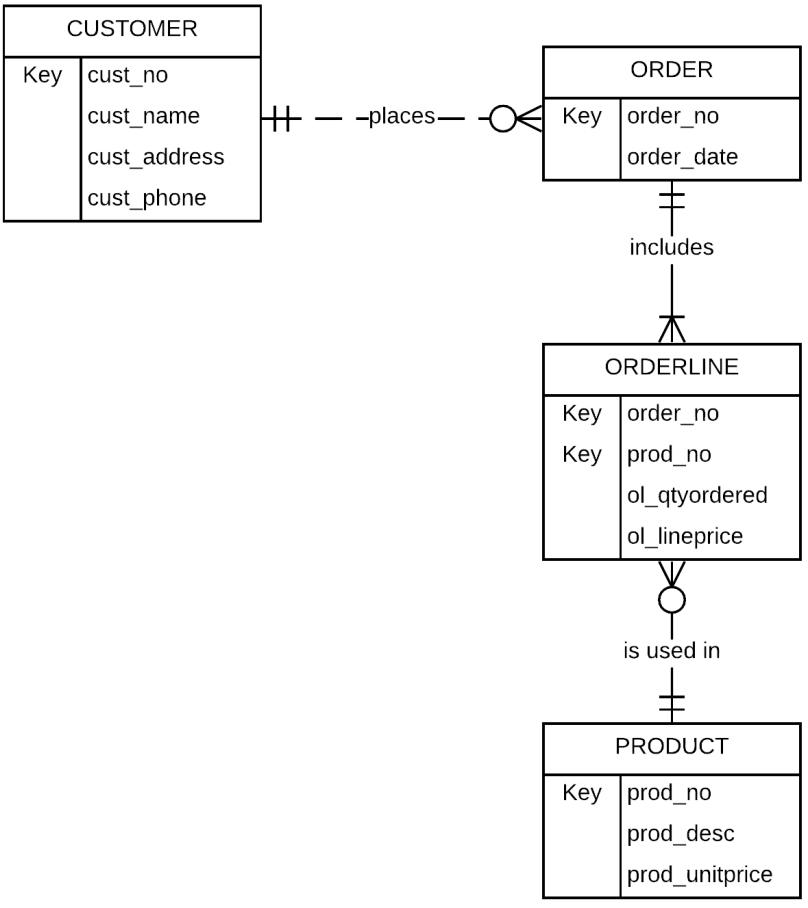
3.2.4 Drawing ER Diagram Using Lucidchart

(i) Basic ERD showing only key attributes

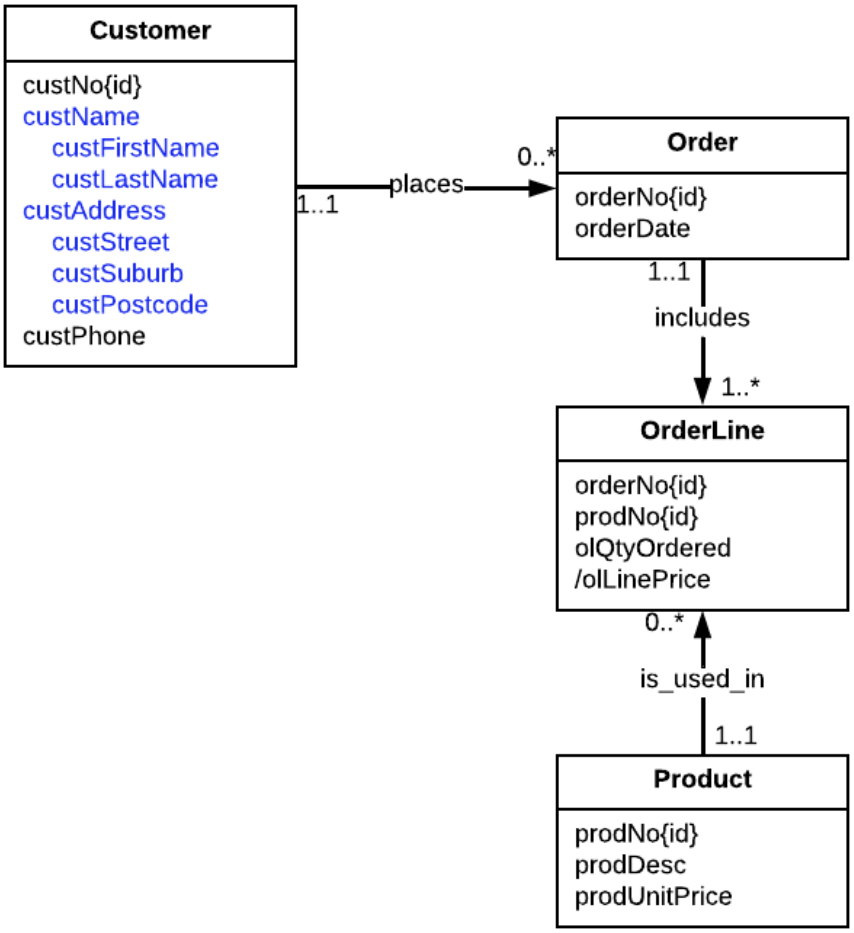
The cardinality of the places relationship at the ORDER end could also be (1,N) rather than (0,N) as illustrated – this is a business rule ("What constitutes a customer for the company")



(ii) Complete ERD showing all attributes

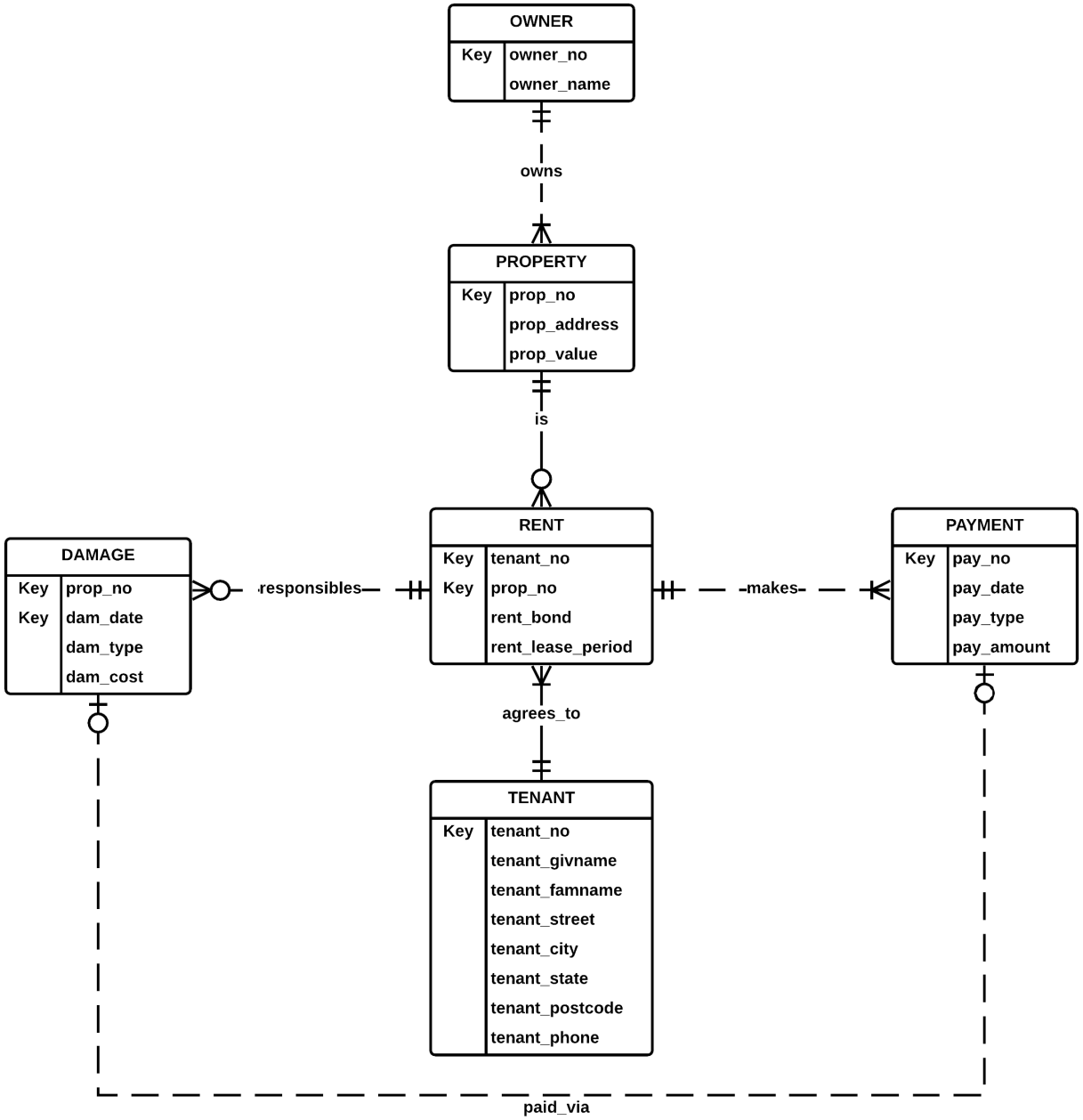


3.2.6 Drawing UML Diagram Using Lucidchart



* The attributes highlighted in blue show how to indicate composite attributes in a UML diagram. For any assessment in this unit where a conceptual model is being built, you must be bound by the attributes as described in the brief. You must decompose an attribute in conceptual models (both ERD and UML) only if the client indicates they wish to record the component attributes.

3.3. Conceptual Modelling Exercise

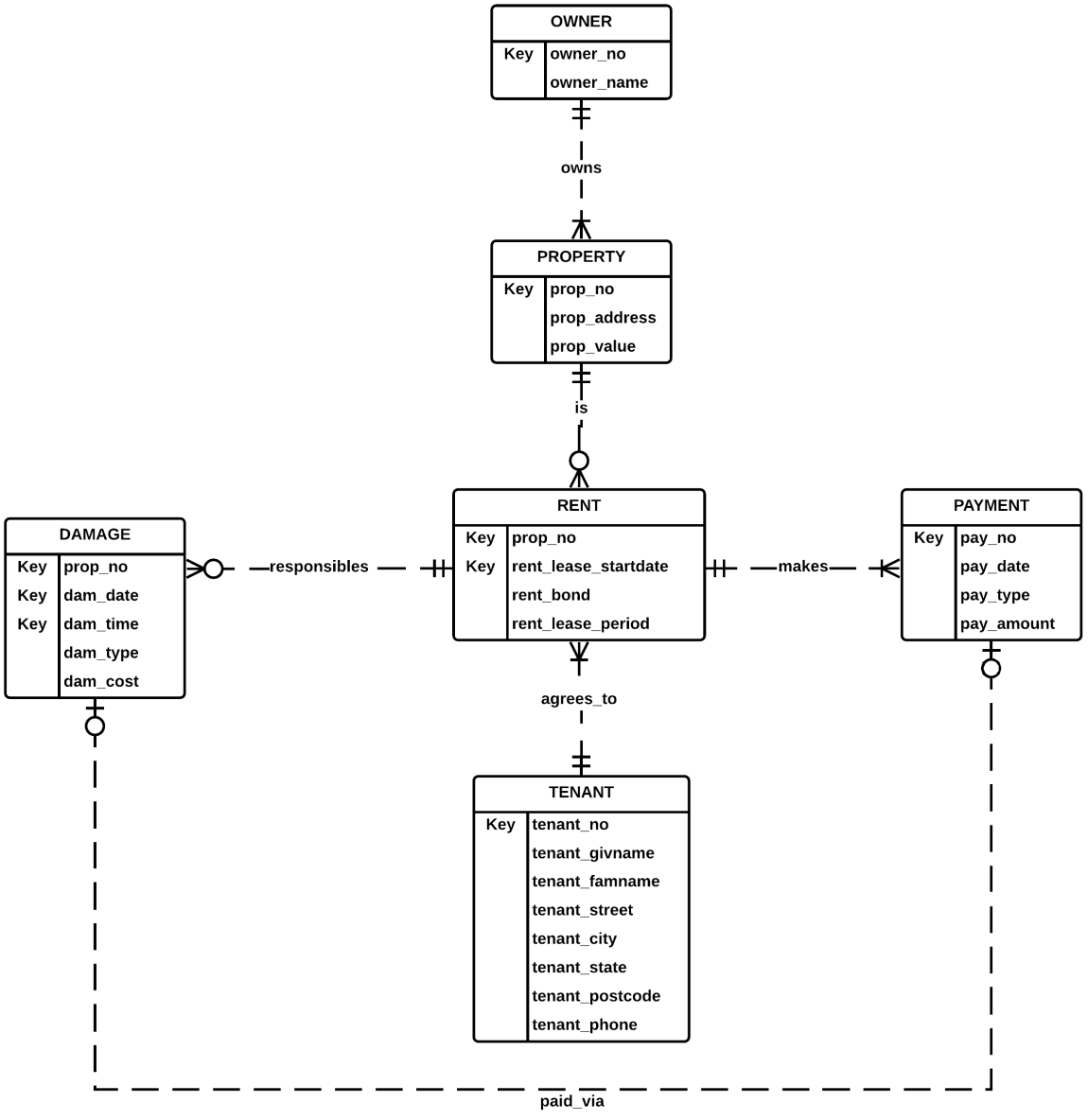


*Your solution to this task may be slightly different, this is a "**starting point**". In this model we have some issues which need further attention, for example what happens if the same type of damage needs to be recorded on a given property - for example a hole punched in a wall occured at 10am and then another hole punched in a wall at 3pm in the same property?*

The case study as provided is thus missing important data related to several issues, these are the types of items you need to seek clarification from your client.

- How do you regard a large shopping center from a property point of view
    - *client response: we treat each sub property as a property in its own right and assign each a property number*
- What if a tenant wishes to negotiate a new lease agreement on the same property when their lease expires
    - *client response: we also record a lease start date*
- Do you record damage which is not caused by tenants
    - *client response: no, the only damage which is recorded is that caused by tenants so that the damage can be appropriately charged to the tenant who is responsible for it (the tenant is required to make one payment to cover the damage)*
- How is the same damage which occurs twice in one day recorded
    - *client response: we also record the time of the damage as well as the date*

With this additional data we would arrive at a model of the form:



Conceptual Model using UML Notation